UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of:

IE TMI INVESTIGATION INTERVIEW

of Mr. Thomas E. Davis, Jr.
Radiation Chemistry Technician, Jr.

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

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NRC PERSONNEL:
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RESNER: The following is an interview from Mr. Thomas E. Davis, Jr. Mr. Davis is employed with the Metropolitan Edison Company at the Three Mile Island Nuclear Facility. He is a Radiation Chemistry Technician, Jr. Present time is 0736 a.m., Eastern Daylight Time, and today's date is May 16, 1979. This interview is being conducted in trailer 203. Trailer 203 is located just outside the south gate which is at Three Mile Island Facility. Present for this interview are Mr. Gregory P. Yuhas, and myself, the monitor of this interview, Mark E. Resner. I'm an investigator with the Office of Inspector and Auditer of the U. S. Nuclear Regulatory Commission. Mr. Yuhas is a Radiation Specialist with Region I of the U. S. Nuclear Regulatory Commission. Prior to taping this interview, Mr. Davis was given a two page document, which advised some of the purpose, scope and authority with which the Nuclear Regulatory has to conduct this investigation. In addition, this document explained to Mr. Davis that he was entitled to a representative of his choice, should he desire one, and at no way was he compelled to talk to us if he did not want to, on the second page of this document Mr. Davis has answered three questions in the affirmative, which I will repeat at this time. Do you understand the above? Mr. Davis has checked yes, is that correct Mr. Davis?

DAVIS: Yes, it is.

RESNER: Question 2 - do we have your permission to tape the interview? Mr. Davis has also checked yes. Is that correct Mr. Davis?

DAVIS: Yes.

RESNER: Question 3 - do you want a copy of the tape, and Mr. Davis had indicated that he does what a copy. Is that correct Mr. Davis?

DAVIS: Yes.

RESNER: We will see that you are provided with a copy of the tape at the conclusion of the interview. At this time I would ask Mr. Davis, if you would give us a brief synopsis of his educational and job experience in the nuclear industry?

DAVIS: Ok, my first experience with this industry was when I was in the Navy. My educational background for that was Basic Nuclear Power School in Bainbridge, Maryland, and I went part way through prototype school up in West Milton, New York. After that I got out of the service and I worked a couple of years around the area and then I came here to work in '71 with Met Ed as a Operator A Nuclear Trainee. I went through the course with Met Ed, with their Nuclear course, up to a point when I missed some time with an operation, and I flunked out it after that. From there, I went up to Crawford Station, which is a fossile fuel plant. I was up there approximately 6 years, and when they closed the plant I came back down here, into the Health Physics Department. The background - according to what they wanted, the standards were generally

high school math and chemistry which I had plenty of both. Now, on the job training - when I first came down here we had a training course set up. I don't remember the time schedule, I believe it was around 6 weeks that we were trained in class room, and from then on it was just on-the-job training.

RESNER: Ok, thank you very much, Mr. Davis. At this time I'll going to turn the interview over to Mr. Yuhas.

YUHAS: That appears to indicate that you came to Metropolitan Edison in about 1977?

DAVIS: 1971.

YUHAS: Excuse me, when you came to Met Ed - Three Mile Island.

DAVIS: Two years ago - 1977.

YUHAS: 1977, you came to TMI.

DAVIS: This time ... I was down here first in 71.

YUHAS: How long where you here, '71 till when?

DAVIS: I was here approximately 3 or 4 months, the first time.

YUHAS: Fine, I'd like you now, Mr. Davis, to begin with give us a brief scenario of how you heard of the incident on March 28, and your involvement for the first 3 days.

DAVIS: Ok, to start off with I was assigned to chemistry in the Chemistry Department at the time of the accident itself. I was with another fellow, a Senior Tech, at the time and we were running analyses on the primary chemistry, letdown chemistry for Unit 2. I would say, I believe it was approximately 4:00, 4:30 in the morning, a.m., that we heard over the PA system that they had tripped Unit 1 -- or rather Unit 2 turbine, and then just about right after that they came out and announced Unit 2 turbine -- or rather the reactor had tripped. Ok, at this time, are actions, what we did was to put the Unit 2 RC letdown, which is reactor coolant, we put this on a recirc mainly because we had to draw a sample for an isotopic iodine after two hours from the time they tripped. Then we put this on a little early but it takes a 45 minute recirc time because of the length of the lines from Unit 2 over to the Unit 1 sample lab.

RESNER: Mr. Davis, when you say, "recirc" you're saying "recirculation"?

DAVIS: Yes, it's recircing through the lines from, through the system. This way, when we draw a sample after it's been recirced for 45 minutes,

we're almost sure of getting a good sample. Instead of just opening up the sample line and drawing a sample, I mean, it could of been just laying in the line. This way, we recirc it for at least 45 minutes for Unit 2. Ok, about, I would estimate 6:00, in that area, maybe a little earlier, we were called; they wanted a boron run on the letdown chemistry, Unit 2. This was run. Dave Zieter was running borons this evening. He ran the boron; he came up with approximately 700, a little over 700 ppm boron. Now this had dropped from, I believe it was 1036 ppm boron at the first time we sampled it. This I believe was at 3:30 in the morning. This struck us funny so we drew another sample. Dave again ran the sample, another boron on the sample, and he came up with a lower number. It was around 400. As soon as he'd seen that, I went back and drew one and ran it myself, and I came up with basically the same number he did.

RESNER: That's 400 ppm?

DAVIS: 400 ppm boron, yes. Ok, now we knew something was wrong because they were supposed to be feeding into the system. At that time I called Unit 2 control room and I inquired as to what they were doing, as far as feeding and bleeding, to find out what they were putting into the system. I was told that they were adding, making up with the BWST, the water from the boric BWST.

YUHAS: That would be the Borated Water Storage Tank.

DAVIS: Yes, now from the BWST, the samples from that tank generally run around 2300 ppm boron, so from this indication, if they were adding from that tank, the boron shouldn't of been going down the way it was. So I informed the control room at that time of what was happening over at the sample lab where we were. Soon after that our alarm went off. I'm not sure of what the number is on it, -- it is one of the G monitors in the Unit 1 Hot Machine Shop, and it's right above the sample lines close to them.

RESNER: When you say one of the "G" monitors, what do you mean?

YUHAS: That would be radiation monitor G-4 from the Unit 1 Control Room.

DAVIS: That's number 4. Ok, number 4-G monitor alarmed. At this point Mike Janouski came in with a meter and we started checking around the lines back in the nuc sample room, where we draw our primary samples. And the sample lines were getting hotter at that time. I don't remember what the levels were but they were going up. They were alot more then what they should have been. We grabbed the sample -- at one of these times that we grabbed the samples for the borons, we also ran a gross beta gamma on this. This figure -- the beta gamma came out approximately 4, in activity mc/cc the previous beta gamma that we had run on this

sample, before the incident occurred, I believe it was around .2, .3, in that area. So this had increased significantly over this period of time. Now at this time, Mr. Dubiel came in. He's the supervisor for the department, and he had asked both Dave and myself to stay over and work over. He wanted us to put Scott Air Packs on, plus regular protective clothing, and enter Unit 2 containment, specifically for what purpose, I'm not really sure. I think mainly to check levels to see, you know, see if we could find what was, you know, the problem. At this time Mike Janouski went over to Unit 2 to grab a sample off of HPR-227, which is the Unit 2 reactor sample point for gases, tritium and so on.

YUHAS: Let me make that clear, HPR-227 samples the containment atmosphere.

DAVIS: Yes, for Unit 2. Ok, he went to pull the particulate and from what I understand he got a handful of liquid, so we decided, "I'm not going in the building, in the containment". After that, levels started going up all over the place, and reall,y I don't think anyone in there, Unit 2 Control Room, or you know, anywhere in the whole site, really knew what exactly was going on.

RESNER: When you say the levels were going up, are you talking about radiation levels?

DAVIS: Radiation levels, yes. Because we had, number 1 - we had the Unit 2 reactor coolant letdown on the recirc. Once we'd seen the levels

going up we shut this down, but with what was coming over during the time it was recircing, it had built up the radiation levels in this area, in the nuc sample room, in the aux building, Unit 1 and also the thru Unit 2 where they come through there. Now, the oncoming shift came on at 7:00. From then, everything was a little hectic. We were grabbing air samples in different spots throughout the plant, both Units. I, myself, went with Dave Zeiter. We went over to Unit 2 with a meter and we started checking down in the turbine building basement, at 280 elevation, around the condenser vacuum pumps, to see if we had any radiation levels in that area, checking mainly for primary or secondary leaks. And we did note that there were levels down there, but levels were anywhere around .4, in that area, mR per hour, that is. So, I mean, they weren't really significant but they were higher than they normally would be. And from then, they started -- they got some results from air samples back -- I'm not sure of the times on, you know, from here on out really -- but they got some results back and they started putting respirators on.

RESNER: Excuse me, when you refer to "they", who are you speaking of?

DAVIS: Plant personnel. We evacuated part of the building; Unit 1 we didn't evacuate; we evacuated Unit 2; then they evacuated Unit 1 in time after this. I'm not sure if they set us ECS or not. I don't really know, I wasn't involved in that. I know that they had their onsite and offsite teams out. I'm not sure where they set it up from or who did it even. What we did after that was, we sent up a control point at Unit 2

in the HP lab itself, until levels, the radiation levels started to increase to a point where we could not stay there. We evacuated from that point to the service building in Unit 2 -- that's right outside the HP lab. We sent up control point at that point, and maintained that control point for quite awhile. Now, we were taking air samples, at that point. The air up there, from the results that I had gotten back at the time, were reasonable good so we where not wearing respirators. Now, they evacuated most of the equipment from the HP lab up to the control room in Unit 2 at this time. Also, when we sent up the control point, after a period of time they even evacuated Unit 2 control room itself. I believe at that time that they evacuated, the only onces left were a couple of the control room operators, and maybe the supervisors, but we still maintained our control point where we were in the service building. Now, once the levels, as far as the activity levels -- air, I'm talking about, now -- they started going out, we evacuated this control point, went to Unit 1 control room, and set up the control point up there for counting air samples and taking air samples. And this is basically what we did until we left, around 2:00 in the afternoon.

RESNER: How high did your levels get before you evacuated your...

DAVIS: Which levels?

RESNER: The radiation levels, before you evacuated your last control point and moved to your final one.

DAVIS: Ok the radiation levels themselves, if I remember correctly, weren't really that awful high where we were. At the door going into the Control building, which is where the HP lab itself was, I believe the levels at that point were at 100 mR an hour. Where we were, we had a good bit of shielding. The levels were low. The highest, I believe, was around between 1 and 2 mR an hour, at that point where we were. Now, after we left at 2:00 p.m. to go home, from then on, when we came back to work we met at the Observation Center. I came back that night at 9:00, and we worked over there setting up, more or less, the control for the people coming back from Three Mile, deconning them if they needed it. More or less took over their men's room over there because we had a couple people that were contaminated. We had to scrub their hair and so on, and get them cleaned up. And also they were coming back over in coveralls, you know the paper coveralls, and they were taking them off over there, at the Observation Ccenter. Part of these were contaminated, and part of them were not. At the time there was really no control over this. They were just taking them off and putting them into a pile in the room there. You had people eating in there, drinking, the whole works.

RESNER: Were you successful in decontaminating all the individuals who came over with contamination on their body.

DAVIS: All but one.

RESNER: Who was that?

DAVIS: If I remember correctly it was, Terry Crouse, the Unit 1 Shift Foreman. From what I understand, he had been in the RC evaporator room in Unit 1, and they had a spill, or he got splashed somehow. He had it on his hair and we couldn't completly get it out. I mean, with what we had available at the Observation Center, we got it out the best we could. Now, from then, that day ... the second day would of been Thursday, Friday whatever...

YUHAS: Wednesday.

DAVIS: Wednesday, was the first day?

YUHAS: Wednesday was the first day. You came in at 9:00 Wednesday night.

DAVIS: Right.

YUHAS: So you're working from 9:00 to midnight, and then I guess, till 8:00 in the morning.

DAVIS: 7:00 in the morning, whatever. Ok, I came back in Thursday afternoon. That was my activities, mainly, all through the night at the Observation Center. Thursday afternoon when I came back in the evening, we came and reported to the Observation Center and then we were brought over to the Unit 2 control room. From there, we were assigned the jobs that they wanted us to do. Mainly, it was counting air samples or taking the air samples themselves, and also going into the aux building -- Unit 2's aux building -- with the operators, escorting the operators in, checking levels -- radiation levels -- as we were going so they could do some switching and tagging and so on, to try and get some of their systems back in service. I made one entry into the aux building. We were in approximately 15 minutes and we had -- in there the regular anti-c clothing, plus wet suits and Scott Air packs on. In that 15 minute period that I was in the building, at that time, I believe I picked up approximately between 400 and 500 mr on my TLD. Now, from then, I think we went over to Unit 1 and we started setting up a little bit of a control in Unit 1 for surveys and somewhat. They wanted to draw samples -- try to anyway. We had to survey the sample room -- nuc sample room, radio chem lab and so on, try to assess what, you know, what the levels were, radiation and contamination were in Unit 1. Right after that, the next morning, that was it for the first three days for me.

YUHAS: So you left, that would have been about 0700 the morning of Friday, 3/30/79?

DAVIS: In that area. I'm not sure of the time.

YUHAS: Ok.

DAVIS: I put quite a few hours in, in that period.

YUHAS: You did not return on Friday after you left Friday morning?

DAVIS: No I didn't. I returned on Sunday.

YUHAS: OK, fine. We're going to go back now and talk about some specifics. At first you were on the routine assigned shift, is that correct, the night of 28th?

DAVIS: Yes.

YUHAS: What time did you come to work that night?

DAVIS: 11:00 p.m.

YUHAS: Who else was on shift with you?

DAVIS: Ok, David Zeiter, a Senior Tech, and Mike Janouski, also a Senior Tech. Mike Janouski was assigned to the HP department, and Dave Zeiter and myself were assigned to chemistry.

YUHAS: Was Pat Donnachie also on, as a HP Tech?

DAVIS: No, he was not. It was just three of us that night, I believe.

RESNER: At this time we are going to break to change the tape. It is now 8:04 a.m. This is a continuation of the interview of Mr. Thomas E. Davis Jr., and the time now is 0806 Eastern Daylight time.

YUHAS: I'm going to spell a few names for the record: David Zeiter is spelled Z E I T E R; Pat Donnachie, Donnachie being spell D A N N O C H I E (Donnachie); and Michael Janouski being spelled J A N O U S K I. Getting back to your job assignment that night, you indicated that you had completed the Unit 2 reactor coolant letdown chemistry at about 0330 that morning.

DAVIS: We drew the sample at 3:30 that morning, yes.

YUHAS: And at that time you said that the boron concertration was about 1036 parts per million.

DAVIS: Yes.

YUHAS: Ok, and the reactor coolant gross beta/gamma being .2/3 micro-curies per cc.

DAVIS: In that area yes, I don't remember the exact number on that one, but it was in the, it was below one.

YUHAS: Can you describe what a gross beta/gamma activity is?

DAVIS: How we run it?

YUHAS: Right.

DAVIS: Ok, on the letdown samples we take a planchett, which is a round metal disk.

RESNER: How are you spelling that?

DAVIS: Planchett?

RESNER: Please.

DAVIS: P L A N C H E T T.

RESNER: Thanks.

DAVIS: That's close. These are clean to begin with, ok, and we use a new one each time we run one of these analyses. We never use them a second time. Ok, we take one of these and we put it on a hotplate or

under a heat lamp, whichever you wish to do. We take a .1 ml Eppendorf pipetter, which is an automatic pipetter. After the sample has been purged for a short period of time, we draw the sample into the pipette tip. Now this is an automatic pipetter and it will only draw .1 ml sample into that tip. At that time we mark the time, we then place this sample onto the planchett, we turn on the heat lights or the heat hot-plate, whichever the case may be, and you cook it down till it evaporates. Ok, we wait 15 minutes from the time we drew the sample until the time we count the sample. This is what we call a 15 minute gross beta/gamma. Ok, we count this on our GM-2s in the lab, in the HP lab. We count these for one minute and then we figure out the activity from our backgrounds and efficiencies on this instrument.

YUHAS: This would be a degasified sample, in other words by cooking it off, you would of given off most of the gases in solution.

DAVIS: Yes.

YUHAS: And also, do you power correct this sample to previous power history?

DAVIS: No.

YUHAS: Ok, so this sample is then just a general indicator of the total activity.

DAVIS: Yes.

YUHAS: Total particulate reading. Ok, fine. When you put the Unit 2 reactor coolant circ system on recirc sample, that would have been, what, about 5:00 in the morning? About what time did you put in on recirc?

DAVIS: We put it on recirc shortly after they reported that the Unit 2 reactor had tripped.

YUHAS: So this may be as early as 4:15?

DAVIS: Anywhere in that area, yes.

YUHAS: Ok, fine. Is there also a sample of the condensor off gas that needs to be taken after a reactor change of more than 15%, or down power like that?

DAVIS: Yes, this is taken off of VAR 748, which is in the Unit 2 turbine building basement.

YUHAS: Did either you or Mr. Zeiter collect that sample?

DAVIS: No, this is handled by the HP department.

YUHAS: I see, so then it would of been Janouski who would have collected that Maranelli, and would they count it or would they bring it over and have you count it?

DAVIS: It would have been -- well, at the time, any of our Senior Techs can use the GeLi, so it could of been either one that would of counted it. Whichever one was not busy at the time they brought it back, they would of counted it, yes.

YUHAS: For the record GeLi is an abbreviation for Germanium Lithium Crystal and it's GeLi. Could you describe how you run boron analysis, are you familiar enough with it to describe how to do it?

DAVIS: Yes. Do you want the whole thing, from running caps on down?

YUHAS: Just mention the intentions of running caps to get your operating number.

DAVIS: Ok, now we use a cap solution. We pipette five mls of cap solution into a clean beaker. We then put 95 mls of demin water into this beaker with a cap solution. We titrate the cap solution and we use three of these. We titrate the cap solution with sodium hydroxide, using a PH meter. The probes are in the solution at the time. We use a

stir bar in the beaker and a magnetic stirer underneath the beaker. And we titrate to a 8.5 pH. Now, to get an operating number so we can figure the boron with, our caps -- we have to have two caps that come within .02 PPM -- or PPP, I'm sorry. Ok, now after we have an operating number, which we take the number of mls of sodium hydroxide we used for the cap and we titrate it, we take this and divide that number into 1082, and this will give us an operating number. Ok, now our boron analysis that we run for the RC chemistry -- or any and other, any analyses actually -- what we do is we take a five ml solution of this, a sample, put this in the beaker, add 95 mls of demin water, and we titrate this with sodium hydroxide also, to an 8.5 pH, record the number of mls. You take the number of mls that you use to titrate that, times the operating number that you obtained by using your cap, and you come up with your PPM boron for that sample.

YUHAS: On the night that you and Zeiter were both getting very low concentrations of boron, is it possible that both of you forgot to add manitol?

DAVIS: No, the manitol was added. I didn't add that with what I was saying but we do add manitol to all the analysis that we do, except for the cap. The cap already has manitol in it when we mix it up for the standard solution.

YUHAS: So you're very confident then that at least the quality control check that you ran on Mr. Zeiter was performed correctly and that the 400 was a real number, by virtue of the normal boron analyses.

DAVIS: Yes, that's the reason I ran one myself. Dave asked me to grab a sample and run it and see what I came up with, mainly because he wasn't sure of his number. And then when we both compared our numbers, our PPM boron for that sample. Now my sample was within 15 minutes after he grabbed his first, you know, his sample that he had the 400 on.

YUHAS: Did you, for instance, or are you able to recall the pH of the sample, either before you put the manitol in or after you put the manitol in and put it underneath the PH probes.

DAVIS: Which sample, the one that we got the 400 ppm?

YUHAS: That's correct.

DAVIS: No, I'm not.

YUHAS: Did you know the pH of the other ones?

DAVIS: The only pH that we recorded was the pH of the original sample drawn at approximately 3:30.

YUHAS: That was prior to shutdown.

DAVIS: That was prior to the accident itself, yes.

YUHAS: At that point the pH was what, about 6.8?

DAVIS: Roughly in that area. I don't remember the exact number but that's approximately where it usually runs, yes.

YUHAS: What is the normal pH of the borated water storage tank?

DAVIS: That, I'm not sure of, without actual going back and looking in the log books.

YUHAS: Had you been told by the operations department that sodium hydroxide may have been injected into the reactor coolant system at that time.

DAVIS: No, we weren't.

YUHAS: Did you personally talk to the Shift Operating Foreman, Fred Scheimann, about this low boron, or was that Mr. Zeiter that talked to him?

DAVIS: I talked to him myself.

YUHAS: Can you relate to tell us the content of that discussion?

DAVIS: Well, ok. I called over and I told him what the boron numbers were that we getting, and I asked him at that time what they were doing, as far as bleeding and feeding to the system. And he told me that they were adding makeup from the borated water storage tank. So I, at that time, asked him if he was positive that that's what they were doing, because of the numbers we were getting. As I said, the boron level in the borated water storage tank generally runs around 2300 ppm or higher, and if they had been feeding with this amount of boron, we were either getting a bad sample or they weren't getting it where it was supposed to go. So I questioned him about it and he assured me that that's what they were doing. And that's about as far as it went. He didn't tell us, they could have, you know, let the sodium hydroxide in, or anything else.

YUHAS: Was it this last sample that you withdrawn and you got 400 parts per million boron, that you ran the gross beta/gamma on?

DAVIS: Yes.

YUHAS: About what time frame was that gross beta/gamma activity run?

DAVIS: I'm not really sure, I know it was before 6:00 p.m. -- or 6:00 a.m., rather.

YUHAS: After you got the high 4 microcuries per milliliter gross activity, was that sample put on the multi channel analyzer to get an idea of the gamma isotopes present?

DAVIS: I'm not really sure.

YUHAS: You do not do it?

DAVIS: I don't do it myself, no. But I mean I prepare samples for the multi channel analyzer but I don't count them myself. I'm not sure if they did or not. But we, seeing -- we looked at the results that I ran on the beta/gamma and I talked this over with Mike Janouski at that time. And I believe Dick Dubiel was in it this time also, and I reported this to Dick. And from then on, that's when all the radiation levels started going up and everything went haywire.

YUHAS: Let me review with you the readings that were taken intially on the first area radiation monitor alarm, that would of been RMG-4 in the Unit 1 hot machine shop. When that alarmed, did you hear it or did the control room call down to you and tell you that this is an alarm?

DAVIS: We heard the alarm. It's an audible alarm.

YUHAS: But that room is normally locked, is that correct?

DAVIS: It is locked yes.

YUHAS: So Mike Janouski and yourself, prior going into the hot machine shop, you made a survey?

DAVIS: We didn't go into the hot machine shop itself. Mike may have, I didn't. We went into the nuclear sampling room, where our Unit 2 sample lines are, and he checked the levels in there. I'm not really sure what the levels were. I came in behind him, that's all.

YUHAS: Do you know what instrument Mr. Janouski was using?

DAVIS: I believe he had an RO2.

YUHAS: In the nuclear sample room, is there not a continuous air monitor called RMA-12?

DAVIS: Yes there is.

YUHAS: Was that monitor in operation on the morning of the 29th?

DAVIS: I don't believe it was. Normally that one isn't in operation.

YUHAS: Is there some reason that monitor is not normally in operation?

DAVIS: I don't really know.

YUHAS: Would you remember, if it had been in operation, would it have alarmed?

DAVIS: If it had been in operation, it should of alarmed, yes, and if it would have, we would have heard it.

YUHAS: Can you describe to us where the detector head for remote monitor RMG-3 is located in the nuclear sample room?

DAVIS: 3, that's in the sample room itself? That one I'm not sure of.

YUHAS: Do you know the approximate time that Dick Dubiel arrived?

DAVIS: No I'm not. I don't know if it was around 5:00 a.m. or 6:00 a.m., I'm not positive.

YUHAS: Was it on Mr. Dubiel's own initiative that he requested you make the containment entry, or do you know if he had been requested by someone else to have you make that entry?

DAVIS: I don't really know. All I know is, he had asked Dave Zeiter and myself to stay over passed our normal work shift and go into containment.

YUHAS: At that point, was there any discussion about the fact that your shift was going to end shortly, and that's the reason you didn't want to make the containment entry?

DAVIS: Yes, Dave Zeiter reminded Dick of the fact that we had been working all evening and it fell through the night, and that the new shift was coming in at 7:00 and that it would be better at that time to have those people go in because they would be fresh.

YUHAS: That was Mr. Zeiter's comment. Previously you indicated that your reason for not going in was that, was based on the report that Mr. Janouski made when he went to change the sample on HPR-227, he got a spray of water out.

DAVIS: Yes, but this was after he had asked us to go in. I couldn't have gone in at the time, mainly because I was not respiratory qualified. But in the situation, the emergency situation that I assumed we were in, I would have gone in if that's what he'd wanted, yes.

YUHAS: With the exception of the fact that Janouski's report.

DAVIS: Yes.

YUHAS: So after Janouski's report, you were not going to go in under any circumstances as a volunteer.

DAVIS: Well, I would of volunteered to go in but the thing is, they called it off. Dick Dubiel called it off the entrance itself. And this is the way I had understood it.

YUHAS: And Mr. Dubiel's motivation for not insisting on the entry was the fact that water came out on HPR-227, is that right?

DAVIS: I'm not sure of what prompted his action in not having people go into the containment, as far as whether it was just the water coming out or if he had had some levels, radiation levels, from the containment hatch, or what. I'm not sure.

YUHAS: When RMG-4 alarmed and you and Mr. Janouski made a survey in the nuclear sample room, did you report those findings to the control room, to the Unit 1 control room?

DAVIS: I didn't report them, no.

YUHAS: Did you hear the Unit 1 control room pass the word that there was a local radiation emergency in Unit 1?

DAVIS: Yes, I'm almost positive that's what they announced, but I don't know what time it was that they did it.

YUHAS: Was that announcement followed within an hour by an announcement that there was a site radiation emergency?

DAVIS: That, of I'm not sure of. I had heard that there was but I couldn't prove it.

YUHAS: You made the comment that radiation levels were increasing. Is that based on survey data taken by yourself or Janouski or Zeiters, or was that my additional alarms?

DAVIS: Well, I assumed that the radiation levels were increasing because of the alarms, number 1, ... and also.

YUHAS: The alarms that you had gotten were RMG-4 and RMG-3.

DAVIS: 3 hadn't gone up.

YUHAS: 3 had not alarmed, okay.

DAVIS: RMG-4 had alarmed. That indicates high levels of radiation. Okay, now, the readings that Mike Janouski had taken, from his readings, yes, the levels had gone up.

YUHAS: Did you personally secure the Unit 2 reactor coolant recirculation flow?

DAVIS: I don't really remember which one of the two of us did.

YUHAS: Okay, to secure that flow, how many valves do you have to operate?

DAVIS: One.

YUHAS: Would that be a motor operated valve on the control panel just by itself?

DAVIS: Yes it is.

YUHAS: When you were running these various samples, the reactor coolant sample that was taken that you took to run boron and Dave Zeiter's other two, was there an air sample collecting or a continuous air monitor of

any kind, in your breathing zone, either while you took the sample in the nuclear sample room or when you ran the sample in the primary chemistry laboratory?

DAVIS: No

YUHAS: Is it standard procedure to sample in the nuclear sample room or in the primary chemistry laboratory when you're working with open reactor coolant samples?

DAVIS: It's normal procedure to work with these, yes.

YUHAS: Is it normal procedure to draw samples of your breathing air when your working with the samples?

DAVIS: We'll put it this way, it may be in procedure to do this but we don't, we haven't.

YUHAS: When you're doing boron analyses and pH measurements or evaporating reactor coolant samples, is this done in a hood in the nuclear sample -- not nuclear sample room out in the primary chemistry laboratory -- is all this work done inside a hood?

DAVIS: The work that's done inside of the hood is when you're evaporating samples or cooking them down for evaporation or beta/gammas or whatever.

The boron analyses pH conductivity anaylses of this type is not done under a hood, no.

YUHAS: Is there an air sample, or more than one air sample, in the primary sample laboratory -- primary chemistry laboratory -- that runs continuously collecting and then is changed once a week and analyzed?

DAVIS: The only air sample, continuous air samples, that are taken that way are off of our monitors, I believe it is either RMA-4 or RMA-6.

YUHAS: Now would you describe the location of RMA-4 or RMA-6?

DAVIS: Okay, they're side by side, number 1, and they are in the Unit 1 auxiliary building, close to the radwaste panel on the 305 elevation.

YUHAS: Then RMA-4 and RMA-6, they sample the effluent release point for the auxiliary building, is that true?

DAVIS: RMA-6 samples the, what is in the vents. Okay, I believe that it also has the sample rooms in that I'm not positive of that.

YUHAS: Okay, my point being is, they do not discretely nor does ary other monitor discretely sample the breathing air in the primary chemistry laboratory.

DAVIS: No.

YUHAS: During that morning after you had made the survey and recirculation sample, and the reactor coolant had been secured, did you hear the site emergency had been declared shortly thereafter?

DAVIS: The site emergency? I heard that an emergency had been declared. I'm almost positive that it was a local.

YUHAS: Who told you to go to Unit 2 to set up a control point over there?

DAVIS: Okay, after the daylight shift came on, we had more people at that time for, you know, to use. Okay. It was decided that air samples and radiation levels should be checked in Unit 2, and Dick Dubiel, plus the other Foreman that had come in -- and right now I'm not really sure which ones had come in, we had alot of people there at that time -- and it was decided to go over to Unit 2 to start checking around to see if we had any increase in the radiation levels, air samples, you know, the whole works. It's mainly, you know, just to find out what was, you know, see what we could, what was going on.

YUHAS: Do you remember when you got to the Unit 2 auxiliary building control point, who else was over there at that time?

DAVIS: No, I don't, I know there were some Techs over there, HP Techs like myself but I'm not really sure which other ones were over there.

This is a continuation of the interview of Mr. Thomas E. Davis, Jr.. The time now is 0836 Eastern Daylight Time.

YUHAS: While you were at the Unit 2 control point did any individuals come out with contamination on their bodies?

DAVIS: The only individual that I remember that came out contaminated in that area was Joe Deman, the HP foreman. He had been...he was walking through the Unit 2 Aux Building, I'm not sure which direction he was going at the time but he came out through the control point and he had contamination on him. It wasn't that great, he cleaned himself up, himself, and he was okay, there was no problem as far as I remember. Other than that I don't remember too much contamination.

YUHAS: At about what time did you leave or abandon the Unit 2 control point?

DAVIS: I would say it was close to 10:00, 10:30 in that area.

YUHAS: When you left and went to the Unit 1 control room, was anyone left in attendance there, either a guard or an operator or an HP tech?

DAVIS: Not at that point, no. We took the guard with us and everybody that we could from that control room in Unit 2 and all of our techs, we gathered all the equipment that we had there that we possibly could carry and we left. The word was passed to evacuate that area so we left.

YUHAS: When you left did this then prevent or this leave access to the Unit 2 Auxiliary Building open essentially?

DAVIS: Yes it did.

YUHAS: So the double doors were not locked.

DAVIS: No.

YUHAS: Either set? So essentially any uninformed individual that, for instance, coming out of the Unit 2 control room, an operator type, could have gone down, walked across the step-off pad and entered areas of potentially very high radiation.

DAVIS: Yes, they could have, but the doors leading to the control building, a set of double doors, we had taped those around the openings, mainly because we were getting ... I shouldn't say contamination ..., we were getting air from there and we taped this up to cut down the background because we were using a frisker at that point and with this taped up, it cut down the background for us a little.

YUHAS: Now this is not the double doors by the nurses area, the first aid area, but the double doors at the end of the hallway.

DAVIS: Yes.

YUHAS: Okay.

DAVIS: Not where the guard sits, at the opposite end of the hallway from where the guard sits.

YUHAS: Okay. In other words an operator still could have got access by going through the first set of double doors through the chem labs and then in.

DAVIS: Yes.

YUHAS: Okay. When you went to the Unit 1 control room can you describe what was going on there, do you remember who was in charge, that sort of thing.

DAVIS: Not really who was in charge, no. It seemed like everybody was in charge, truthfully. I believe at that point I think there was an NRC man up there at that time, I don't really remember who, I'm pretty sure there was. I think maybe two of them at that time. Tom Mulleavy was up

there and I am pretty sure Dick Dubiel was. Fred Huwe, an HP foreman, he was up there at that time plus I am not sure which supervisors and foremen from the operations group were up there.

YUHAS: Okay. When you left that day where did you survey yourself for contamination.

DAVIS: Okay. No. 1, I frisked myself for contamination with the frisker I had with me going into the control room first. After we put coveralls on, paper coveralls on, entered our vehicles and we went down to the Observation Center where they directed us down to the 500KV sub(station) right next to it and we were monitored by a monitor at that point plus we also had our cars checked at that point also and I am not sure but I believe they had friskers, RM-14 friskers, set up in the processing center at that point also.

YUHAS: Okay, when you returned to work at 9:00 on the 28th, you went to the Observation Center, you stated you that you set up a controlled area for decon inside the men's room there. Do you know what that men's room, does that have a catch tank or someway to monitor the amount of contamination that you put down.

DAVIS: I don't really know.

YUHAS: Okay.

DAVIS: It was the only place that I had available at the time to try and get these people cleaned up and I was the only one there, HP wise so I did what I could.

YUHAS: Are you sure you were at the Observation Center and not at the sink 500KV sub?

DAVIS: Yes, the Observation Center.

YUHAS: Okay. You said you were the only one there.

DAVIS: HP wise.

YUHAS: There was not an HP foreman there.

DAVIS: No. Not at the time I was there, no.

YUHAS: Okay. About how many people were contaminated that evening?

DAVIS: That evening a number of people I seen that were contaminated three or four at the most.

YUHAS: Okay. Did you fill out log sheets to, you know, to describe your contamination and the effectiveness of the removal.

DAVIS: No I didn't.

YUHAS: Okay. Did you...do you feel that you put down significant quantity of radioactive materials into that sink.

DAVIS: No, I don't really. I don't think it was that much. But it this way, I don't really remember the levels, the counts that I got off these people from the RM-14 that I used but none of them were really that awful great. I remember Terry Crouse had the highest, I can't really say right now to be honest, how much he did have. It was not logged at the time, it was a complete shambles over there, everybody running in and out and you know the whole works and it was kind of hard to try and keep any order at all. And I wasn't about to let them go home, you know, with contamination on them and just walking around there possibly contaminate somebody else, the whole works. I did the best, you know, what I thought I could do with them.

YUHAS: What was the acceptable release from, at what point you stopped trying to decontaminate a person.

DAVIS: If I could get a person down to less than 100 counts over my background that to me, that's acceptable and in accordance with our procedure that is acceptable.

YUHAS: Where were they piling up the contaminated coveralls, etc.

DAVIS: At one point outside the building itself.

YUHAS: Do you remember specifically where that might have been.

DAVIS: Okay, in the back of the building where you enter into the, ... I guess a double set of double doors on the ground or the sidewalk out in front of the steps. This is one point that I found them. I also found coveralls and respirators piled up in different spots inside the Observation Center itself. Now they were trying to keep them in bags plastic bags and so on, but they were really not too successful at it.

YUHAS: Then you essentially tried to keep your area policed up to about 7:00 the following morning when you went home and that was your duty for the entire evening.

DAVIS: Well that's what I did, nobody...I didn't really see anybody to tell me what they wanted me to do.

YUHAS: Okay.

DAVIS: So I just more or less tried to help them maintain order there.

YUHAS: Let's talk a little bit about the entry you made the following night which would have been the night of the 29th to the morning of the 30th. Do you remember why you went into the Auxiliary Room and who you went with.

DAVIS: I went with one of the operators and I don't know his name. I don't know half the people over in Unit 2. By sight I know but not by name. Dick Dubiel asked me to go into the Reactor Building as an escort cause we were trying to use an HP as an escort so we could pick up, try and pick up radiation levels as we went and we had to check a couple of valves and breakers and so on the radwaste panel in use in Aux Building and reset I think two or three breakers on the 328 level which is directly above the radwaste panel.

YUHAS: Okay. Did you have any previous survey data to review prior to going in?

DAVIS: Not really. I had heard a couple of people talking about levels, radiation levels in the area, yes. I knew it was high as far as radiation levels but what they were I wasn't really sure.

YUHAS: Can you quantify the word "high". Did you have any of the numbers for what it read up to the, say the 328.

DAVIS: No, not really. Not until after I came out and I wrote down the numbers that I had taken and then the numbers were reviewed with what the HP techs had gotten in there and my numbers were a lot higher than what they had received.

YUHAS: Okay. Did Mr. Dubiel tell you how much exposure you and the operator were permitted for this entry.

DAVIS: Not really. They told us that we should try to keep it under 1000.

YUHAS: Were either yourself or the operator asked if you were volunteering to make the entry.

DAVIS: Not really. That's my job. I'll go in and out, it doesn't matter to me.

YUHAS: Okay, fine. Can you describe the dosimetry that you and the operator wore on this entry.

DAVIS: The dosimetry we both had on? We had low range dosimetry on which is the 0-200mR dosimeter and we also had high range dosimeters on.

YUHAS: You also wore a TLD.

DAVIS: Yes.

YUHAS: Thermoluminescent dosimeter?

DAVIS: Right.

YUHAS: Can you describe your trip in in terms of ... you wen in like at 305 (level), walked down to the radwaste panel, up the stairway to 328, that sort of thing.

DAVIS: Okay. We entered the Auxiliary Building on the 305 level through the double doors connecting from the HP lab area. We went around close to and behind HPR 227, the operator checked something in that area, I don't know what it was. We came out, went straight down the hallway on the 305 to the radwaste panel. I believe that we he did was he tried to startup a pump or something of this nature, fan, something. He couldn't do it. We had to go...we took the stairs from that level which is close to the radwaste panel to the next level which is the 328 and we found the breakers that he had to reset. He reset those breakers, we came down the hallway on the 328 back to the other end of the hallway. That was coming back toward the HP control. We took those steps down to the 305 level, exited through the double doors at that, on the 305 level and we walked out through until we got the double doors going into the service building itself.

YUHAS: Can you describe what instrument you had with you and what the readings were as you made this course.

DAVIS: Okay. I had a teletector with me at this point and all the readings that I had gotten ... the highest I had picked up on the teletector were in the 20R range. This was over close to the radwaste panel in the area of, I believe, the hole they have there, the hatch, whatever it is. And I was picking up I believe anywhere in the area, general area, anywhere from 1 to 3R, the whole general area. This is on the 305 level.

YUHAS: Now the highest area that you had, this would be the hole that looks down into the decay heat rooms on the 281 elevation.

DAVIS: No, this is on the other end by the radwaste panel. There's a hatch there, just a big hole in the floor really, all it is was a railing on, by the radwaste panel. I got my highest readings in that area.

YUHAS: This would be the crane for lowering equipment down.

DAVIS: Yes.

YUHAS: Down to 281.

DAVIS: Correct.

YUHAS: Okay.

DAVIS: Okay, now from there we went up to the 281 level, no 328 level, I'm sorry. The levels up there were anywhere from 5 to 10R.

YUHAS: Okay, fine. Do you remember if either you or the operator read what your high range pocket dosemeter indicated?

DAVIS: Both of our high range dosimeters indicated close to 1R.

YUHAS: Were they zeroed before you went in.

DAVIS: Yes they were.

YUHAS: So your pocket dosimeters indicated 1R and your TLDs indicated 500 millirems.

DAVIS: Well he picked up a little bit more, I think he had around 560 in that area and mine was I believe it was 430, 460, somewhere in that area. The only time I was not with him was when he read HPR-227. He went in behind the monitor, the piping in there and was out of sight roughly for maybe one minute. The only reason I didn't go in with him is I coulnd't get through.

YUHAS: Who read your thermoluminescent dosimeters?

DAVIS: I'm not sure who the person was.

YUHAS: Were they read out at the Observation Center.

DAVIS: I believe that's where we took...that both of us requested that they be read and they were read at that time mainly because we have... we thought we were close to 1R, you know, dose and we requested they be read and we had them read.

YUHAS: At this point I don't have any more specific questions related to your involvement in the first three days of the incident. What I would like to do now is solicit from you any comments either complimentary or critical of the Metropolitan Edison's Health Physics program and radiation protection program here at TMI.

DAVIS: Well I am a little critical of it to an extent. Like I say I've only been in here two years, in this department, and this is just speaking basically of the health physics department itself not the chemistry. I don't think there is enough training. We have new instruments coming in, also, ... well for instance, the SAM-2s that we use for air samples telling the iodine charcoals. These instruments are placed in the emergency kits which the onsite and offsite teams use. There was no formal training that I know of, I know I didn't receive any. A few of

the people did receive it on how to operate this thing. I knew how to operate it or I could operate it. I learned how to do it myself mainly by calibrating one of them for running an efficiency background on it. This was the only way I knew how to use the darn thing.

YUHAS: Specifically have you participated in the emergency drills.

DAVIS: Yes.

YUHAS: Last year?

DAVIS: Yes I was.

YUHAS: During the course of that drill did someone give you a demonstration on how to operate the SAM-2.

DAVIS: No, they did not.

YUHAS: Prior to this incident had you ever collected an air sample and then counted it using the SAM-2.

DAVIS: Prior to this incident, yes. On emergency drills.

YUHAS: And that would be the time that you figured out how to operate it yourself using the procedure.

DAVIS: Yes. Now I know some of the techs had been shown how to use these instruments.

YUHAS: Okay. Lets try to be a little more specific in terms of not enough training. You indicated that when you came here you received six weeks of instruction both by film and by oral presentation.

DAVIS: Yes

YUHAS: By a contractor, would that have been Ralph Jacobs.

DAVIS: Yes.

YUHAS: Okay. Did that six weeks of training culminate in a written examination or proficiency exam.

DAVIS: Yes.

YUHAS: Okay. Did you pass that examination.

DAVIS: Yes I did.

YUHAS: In the following two years were you on a shift rotation with one shift being scheduled as a training shift.

DAVIS: Yes.

YUHAS: Did you receive training on that one training shift as described.

DAVIS: Very seldom.

YUHAS: Can you refresh us with a description of any formal classroom training that you had during the last two years other than this first initial.

DAVIS: Other than the initial. The only classroom training that we had was dealt with first aid. We had classroom, I believe...I can't think what it was. We had it on emergency procedures as far as first aid for I think it was RMC for these drills and we had regular first aid classes, other than that I don't believe we had any classroom training itself.

YUHAS: Did you receive 24 hours of training in radiation protection prior to startup of Unit 2 in December of 1978.

DAVIS: 24 hours of radiation training in what way.

YUHAS: In radiation protection training and health physics.

DAVIS: Informal training classroom.

YUHAS: The training schedules that we have looked at indicated that most individuals received 24 hours of startup health physics training and that's the extent that we know about it, this is what the records indicate.

DAVIS: As far as formal training, no.

YUHAS: Can you describe anything that you think may have generated that sort of comment in training folders.

DAVIS: Not really. I can't be specific on that. I know things I've heard, I don't want to comment on because I can't prove...I can't be specific with them, with names and dates and so on.

RESNER: What was the general impression which you heard concerning the training

DAVIS: Okay I've heard, for instance with these SAM-2s, I don't know if its in my record that I have received training or not but on a lot of things they put in our records that we have received training on them, mainly because we, you know, we perform the duties so, you know, they enter we've received training on this, where actually you haven't received formal training.

YUHAS: What is formal training to you.

DAVIS: Classroom training. Not on the job.

YUHAS: Some of the records we looked at we noted that they are indicated as on the job training. There is some segregation in the training records.

DAVIS: Well on the job training, if they take you aside while you are on the job and show you how to do a specific job I would consider that as training.

YUHAS: Do you read TLDs?

DAVIS: No I don't. I started on them once and we got pulled off of it to do another job.

YUHAS: Have you received any training of how to read TLDs.

DAVIS: I have a little bit, yes.

YUHAS: Was that classroom training or was that on the job training.

DAVIS: That was mainly on the job. I would say a half hour to an hour I had to read five or six TLD sand that was with Joe Deman. I went over

with him and I told him right out I don't know how to use the thing so he went over briefly with me how to use it, how to put them in, count the TLDs. The results? I am still not sure how to read them.

YUHAS: Right now they assigned you to...would they assign you to go over and read TLDs as a routine job right now.

DAVIS: I don't believe they would, no.

RESNER: At this time, let's break to change the tape. It is now 9:03 Eastern Daylight Time. 9:03 a.m.

RESNER: This is a continuation of the interview of Mr. Thomas E. Davis, Jr. The time now is 0905 a.m. Eastern Daylight Time.

YUHAS: Mr. Davis could you just briefly describe how the training week is utilized.

DAVIS: Okay, prior to the accident, the training weekshift which was mainly four people, depending on how many people were on that shift. They were utilized in Unit 2 either in Health Physics or Chemistry whichever was needed at that time. Normally we have a four man shift, two people on that shift is assigned to Chemistry and two is assigned to HP and this is how we split up in Unit 2 also, the same way.

YUHAS: During that training week though did you perform routine duties or were you, say put under the wing of the foreman over there and he instructed you to the differences between Unit 1 and Unit 2 or to operating specialized equipment.

DAVIS: Not really. We were mainly on the job, you know, routine duties. They did once in a while if a problem arose like changing filters and learning about the monitors in Unit 2, the air monitors, the ones we sampled, okay, I got the foreman a couple of times, went out and had him show me different things about them, you know, how to do them correctly because at one point we were not even sampling 227 correctly. The results we were getting from the samples were completely wrong.

YUHAS: Could you describe how you are trained in either new procedures or changes to procedures.

DAVIS: As far as I am concerned there is none. I haven't seen any new procedures come out unless I look for them myself or I happen to see them setting around on the desk or something or hear another tech talk about them. Now if it pertained...the only ones that I know of for sure that we do find out about are changes in the procedures for releases of air or liquid. Now these mainly they come through as a TCN which is a temporary change in the procedure. These we had quite frequently for awhile on our releases.

YUHAS: How are you instructed in the revisions to 10 CFR Part 19 or 10 CFR Part 20.

DAVIS: None.

YUHAS: Do you mind if I ask you a few questions just to get an idea of possibly some weak points in terms of how effective your own training of yourself has been and see what I would consider to be need to know information for junior tech.

DAVIS: Go ahead and ask.

YUHAS: You indicated you frequently used to teletectors, is that correct.

DAVIS: Yes.

YUHAS: What type of detector does the teletector have.

DAVIS: That's the GM tube detector.

YUHAS: How would the GM tube respond to 10KeV gamma rays.

DAVIS: That I am not sure. The other energy levels I am not really that sure of with the response to the detectors. I know your ion chamber is much better for higher level energies. This I just found out.

YUHAS: You indicated you just found that out.

DAVIS: Yes.

YUHAS: When.

DAVIS: I would say within the last three or four days.

YUHAS: Did you find it out because people were telling you and asking that sort of question.

DAVIS: No. I found out because I had heard, well actually one of the contractor HP people, NSS person, came over to the Unit 1 lab where I was at and asked for a RO2 that went to the 5R range instead of the RO2A which was the 50R range and I had asked him why. He told me they were instructed by the NRC to take all low level dose rates with an RO2 or a PIC-6A because of the ion chamber. From that I started digging into him and trying to find out why, and, you know if that's what was wanted fine, but I was curious in my own mind why they wanted to use those two instruments mainly because the low levels on them ... I don't think the instrument itself has the ranges and expanded enough to really, you know, if you want good low level, you know, readings or anything you're just in a ballpark using less than one or something of this nature or your GM tube, your E-520, your teletector you have ranges where you can pinpoint, you know, areas in that range, less than one or less than .1.

I asked an NRC gentleman about it and it was explained to me why this came out. Now I have still to see anything in writing.

YUHAS: I suggest you just for instance look at the technical manual for a teletector it'll show you that the energy response of the GM tube for that particular GM tube in the low energy range, say for like Xenon 133 is poor which means that about 40 percent low, between 25 and 40 percent low true dose. Let me ask you another question. When does an individual require to wear extremity monitoring say for your hands.

DAVIS: Okay, right now well I shouldn't say now. Up until the accident when we started drawing the very high level samples from Unit 2, they weren't really required that much. We didn't use them that much except for the diverse going into the Unit 1 spent fuel pool to make repairs, then we used the extremity badges on his hands, chest, head, ankles and so on. We use them now a lot for the purpose, you know, for the people when they are drawing the samples mainly because they are getting their hands or maybe even their head exposed to higher levels than what their whole body would receive.

YUHAS: Is the head considered an extremity.

DAVIS: Not really. I consider that. I know we put on ... I don't know if this is right or not ... but on the RWPs that we are using for Unit 1 Aux Building, I think last week it was, when they were underneath the

sample lines, you know two sample lines, they had some seniors reporting on the RWP to put their TLDs at the upper most part of their body which is to me is put on your head or on your hard hat.

YUHAS: Just one last question. What does breathing zone air sample mean to you.

DAVIS: I'm really not sure.

YUHAS: Okay.

DAVIS: I can take a guess at it and probably come up close but.

YUHAS: Let's go on any other comments you might have, aside from the training.

DAVIS: Okay. I know that our RWPs ... we have up until the accident now ... this is everything is before this happened. Okay we had standing RWPs in most cubicles in the Aux Building, the Auxiliary Building, Unit 1 and Unit 2 both. Okay these standing RWPs would run for one week or from survey date to survey date which generally was one week. If an exception came up we would, you know, survey it sooner than that. Okay on these RWPs very few people ever signed in or signed out on these RWPs including HP and chemistry people as well as operations.

YUHAS: Is there a procedure for documenting noncompliances with health physics procedures.

DAVIS: I am not sure I understand that question.

YUHAS: In other words, do you have within the scope of your procedures a mechanism that where if you see someone not following an RWP procedure or something like that, that you are suppose to write them up.

DAVIS: We have an HP violation, yes.

YUHAS: Is this the sort of thing that would be documented on an HP violation sheet.

DAVIS: Yes it could.

YUHAS: Are the HP violation procedure, is it followed, is it used.

DAVIS: No, not really.

YUHAS: Could you describe why it is not used?

DAVIS: I think mainly because you don't want to write up your buddies, truthfully. Now like with these standing RWPs, as far as I can't see everybody, but generally most people that I have seen in these areas

they followed what the RWP required as far as clothing and so on and meters, you know, taking a radiation meter with you, they followed that but they never signed in with doses. Now we initiated this I would say about two or three weeks before Unit 2 had the accident in the Unit 2. We pushed for this, you know, as a change, we wanted this, to start using these and we had it pretty much in effect and then all hell broke loose and you know everybody signs in on RWP wherever they go, practically, so you don't have to, ... even right now we have, do have a problem with them now. Mostly with right now with contractors. They might sign in, they won't sign out or they forget about it, you know stuff of this nature.

YUHAS: Are there any serious violations in health physics procedures that you are aware of that have not been documented by this HP violation procedure.

DAVIS: I know that they have ..., I can't prove it that's the thing, heresay, okay? I know for a fact that supervisors, operation supervisors and foremen, they go into areas that are RWP required without RWPs. These are not the standing areas, these are other areas and a couple times they have mentioned they were in these areas. Okay our RC evaps and the miscellaneous waste evaps, they have all dumped the bottoms on these. All it takes is opening a valve on the feed bonnet, draining it onto the floor or if they have a piece of tubing long enough that drains straight into the drain, this is done without our knowledge. The

one time ... I can almost document the one time it was done, it was after the accident had occurred because they had ... a survey had been taken in the RC evap in Unit 1, smear and gamma survey on one day. A couple of days later they went in and took another survey and the smear survey itself was the levels on the contamination were considerably higher and at that point in time the only place it could have came from was dumping bottoms from that evaporator. And I did find out that the evaporator bottoms were dumped and they took a hose with reclaimed water and rinsed the floor down into the drain.

YUHAS: Do you know who did this.

DAVIS: I don't know the operators who did it, no.

RESNER: Do you remember the time or date.

DAVIS: No, not really. I know it was a few days after the accident.

YUHAS: Are there additional comments you would like to make on the RWP and the supervisors not following health physics procedures.

DAVIS: It's not only the supervisors, its the HP themselves. We don't follow to the letter. It's kind of a lacidaisical run department really. As far as contamination very few people would ... they follow dressing and undressing codes, taking meters and so on. We have very little

problem with that but you would find a lot of people in the entering areas not telling you they are going in. This is mainly with operations. There was basically I think it was in operations run plant, both plants, you know, tried to run it which they did.

YUHAS: Do you have a pretty good rapport with both the auxiliary operators and control room operators.

DAVIS: Pretty much so yes.

YUHAS: Is their department substantially different than yours in that they carefully follow all the procedures.

DAVIS: I'm not really sure about that one. All I know is what I've seen.

YUHAS: What do you see.

DAVIS: Well a lot of it goes in our own ... in the HP department ... in our procedures. And like, you know, go into areas like dumping bottoms or they'll go do a valve lineup, something in this nature. They won't even follow our RWPs.

YUHAS: What about valve lineups. Do they follow their own procedures when they are doing valve lineups.

DAVIS: They follow those procedures, yes. A lot of times we don't even know that they are doing it unless we see them. But the operations procedures themselves I don't know that much about them anymore and from what I have seen in Unit 1 anyway they do pretty good with them.

YUHAS: Do you have any other comment?

DAVIS: Not really.

YUHAS: Why did you drop out of the operator training program.

DAVIS: Well when I was in the training program itself I had to have an operation. I missed three weeks from training itself and when I came back I had to pick up the work that I had missed, not the work but the schooling that I had missed, plus keep up with what they were doing at the time and it took eight weeks before I finally bombed out or flunked out so to speak I can't sit and miss that much time and come back in and pick up where, right where they are at, at that time. When you start talking reactor theory, something in this nature, I have to be there. I asked my own questions, they may not be important to somebody else but to me it helps me understand and they ... the company themselves... I have no complaint with them because they gave me all the help I could possibly, you know, receive and there was no hard feelings anywhere around.

YUHAS: At this time I would like to ask you a question that is somewhat sensitive. Is there any reason that you might feel individual either deliberately precipitated the incident or aggregrated its effects that occurred on the 28th of March this year.

DAVIS: I don't really know. As far as aggrevating I don't think, .. I don't, ... I have a feeling about Unit 2.

RESNER: What is that feeling.

DAVIS: Well, it is a kind of a jinx. We have had more trouble in that unit than I ever remember with Unit 1, in down time, the whole works. They would, operations they put a sodium thiosulfate into the system, a sodium hydroxide whatever, sodium anyway, in the reactor system, this was injected a couple of times. On their ECS procedures, they blew the safeties and different things of this nature. I just felt a little uneasy about Unit 2 as far as the operations was concerned.

YUHAS: But you really don't have anything to substantiate your position that an individual was doing or causing these things to happen.

DAVIS: No, nothing specific coming out on that.

YUHAS: Okay, this is approaching the end of the tape, I want to thank you for coming here Mr. Davis. We certainly appreciate your candid

remarks and should you have anything come up in the future that is specific or that you think we should know about you know where to find us here on the site.

RESNER: This concludes the interview with Mr. Davis and the time now is 9:26 a.m. Eastern Daylight Time.