----------x

PRESIDENT'S COMMISSION ON THE :

ACCIDENT AT THREE MILE ISLAND :

----------x

DEPOSITION of METROPOLITAN EDISON COMPANY by FREDERICK JOSEPH SCHEIMANN, held at the Three Mile Island Nuclear Generation Station, Harrisburg, Pennsylvania, on the 24th day of July 1979, commencing at 4:30 p.m. before Stanley Rudbarg, Certified Shorthand Reporter and Notary Public of the State of New York.

BENJAMIN REPORTING SERVICE
CERTIFIED SHORTHAND REPORTERS
FIVE BEEKMAN STREET
NEW YORK, NEW YORK 10038
[212] 374-1138

A P P E A R A N C E S :

METROPOLITAN EDISON COMPANY:

SHAW, PITTMAN, POTTS & TROWBRIDGE, ESQS.
Attorneys for Metropolitan Edison Company
1800 M Street, NW
Washington, D.C.

BY: ALAN R. YUSPEH, ESQ.
of Counsel

PRESIDENT'S COMMISSION ON THREE MILE ISLAND:

WINTHROP ROCKWELL, ESQ.
Associate Chief Counsel

JOAN GOLDFRANK, ESQ.
Associate Counsel

ALSO PRESENT:

CLAUDIA A. VELLETRI
LEE TEW

oOo

F R E D E R I C K J O S E P H S C H E I M A N N, JR.: having been duly sworn by Ms. Goldfrank, was called as a witness and testified as follows:

DIRECT EXAMINATION

BY MS. GOLDFRANK:

Q Will you state your full name.

A Frederick Joseph Scheimann, Jr.

Q Your current address?

A My current address is Box 268-A, RD#2, Palmyra.

Q And your current employer?

A My current employer is Metropolitan Edison Company.

Q And your current position?

A Current position is shift foreman.

Q Let me state if you don't hear or understand a question I ask you, to just ask me to repeat it. For the ease of the court reporter who is reporting this deposition, we should speak as clearly and loudly as possible because there are other noises in this room.

I will also ask that you wait until I have finished asking a question before you answer, and I in turn will wait until you have finished answering before I ask any question, okay?

A Okay.

Q Have you brought with you a resume?

A Yes, I have.

MS. GOLDFRANK: I would like to mark as Scheimann Deposition Exhibit 21 the resume of Mr. Scheimann.

(Above-described document was marked Scheimann Deposition Exhibit 21 for identification, this date.)

Q Did you prepare this resume?

A Yes.

Q Did you prepare it for today?

A Yes, it was prepared for this purpose.

Q And is this a current resume?

A Yes.

Q Your resume states that in 1965 you graduated from Electrician's Mate "A" School. Was that a school sponsored by the Navy?

A That was a Navy basic electricity school.

Q Could you explain what your training was.

A What my training at that school consisted of was an education in the basics of electrical motors and equipment, the repair thereof, and the theory behind the operation of it.

Q And that was a course that lasted for 18 weeks?

A Yes, ma'am.

Q And during those 18 weeks, was that your only responsibility?

A Yes.

Q Were there exams given in that course?

A Yes, ma'am, once a week.

Q And you were given a grade in that course?

A Yes.

Q Also in 1965, your resume reflects that you attended and graduated from Basic Nuclear Power School, is that correct?

A Yes.

Q And was that also in the U.S. Navy?

A Yes.

Q And can you tell me what your training consisted of at that Basic Nuclear Power School?

A At the Basic Nuclear Power School, we were trained in the fundamentals of nuclear reactor plant operation, reactor theory, and operation of power plants.

Q And was that classroom training for six months?

A Yes.

Q What specific subjects were covered?

A I didn't hear you.

Q What specific subjects were covered?

A Reactor theory, heat transfer, fluid flow and other related power plant subjects.

Q Was everyone required to take this course that would then serve on a nuclear submarine?

A Submarine or surface ship that was nuclear; it was required.

Q And were you given an exam at the end of

this course?

A I was given an exam once a week and at the end.

Q And you were graded on that exam?

A Yes.

Q Was there any practical experience during those six months?

A At this point, no.

Q Were you given homework?

A Yes.

Q And what type of homework was that? Was it reading assignments?

A Reading and written assignments, as well as math assignments, calculations. Different types of reactions that could occur.

Q You then attended for six months, from 1965 to 1966 a nuclear power prototype school in operations?

A Yes.

Q And was that also sponsored by the U.S. Navy?

A Yes.

Q And what type of school was that?

A That was the physical aspect of our nuclear power training, prior to going to a submarine or surface ship, that we actually operated a power plant that

was actually nuclear fueled and had all the components that we would see on either a surface ship or a submarine.

Q This was a research reactor?

A No, it was a producer-type reactor that the Navy had. It was a prototype of the various units that the Navy used for nuclear power, like they had a destroyer unit, submarine unit, and they had one of the aircraft carrier units.

Q Did it actually produce power?

A It did actually perform like a power-producing reactor. It was a power-producing reactor.

Q And what happened to the energy that it produced?

A It was diverted in a heat system that would take and dissipate the heat.

Q So that that six-month course was a purely practical course?

A Purely practical.

Q And were you given an exam at the end of that?

A We were given an oral exam upon completion of the course to make sure that we did know how to operate a power plant.

Q And what did that oral exam consist of?

A It consisted of system components questioning, operational procedure questioning, and emergency procedure questioning.

Q Would they pose hypothetical scenarios to you and have you run through these scenarios?

A In a sense, they would come up and say, like, "What would your action be if the turbine tripped at this point?" And then you would give your spiel on what you would actually do if the turbine had tripped.

Q Would you then actually perform that operation?

A Yes. They did in some cases perform trips during the course of your training period on the prototype. We did various equipment losses and also reactor and turbine trips.

Q And would you know in advance which scenarios you were to perform?

A No, you did not. They were brought up to you. They actually tripped the unit, and you actually took the action, as much as possible, like a real action.

Q In 1966, your resume reflects that for eight weeks you attended a basic submarine school. Is that correct?

A That is correct.

Q And what did that schooling consist of?
A It consisted of the basic operation of a submarine. At the time I went to it, they didn't really cover nuclear submarine. They covered actual operation of a submersible vessel, though.
Q So that was purely training in the operation of --
A Of the boat itself.
Q Your resume then reflects that for 23 weeks you attended Electrician's Mate "B" School. Do you remember in what year you attended that?
A That would have been, I believe, 1970.
Q And for what purpose did you attend that school?
A This school was one that was designed for additional advanced training for personnel that were going to be advancing in rating. What it would cover would be transistor theory and construction of motors, rewinding of electrical motors, and various and sundry things that a senior electrician would have to know.
Q And what was the difference between the Electrician's Mate "A" School that you attended in 1965 and the Electrician's Mate "B" School?
A The major difference was the degree of knowledge

that was imparted in the School B. The "A" School was really a basic school, just to get you familiar with electricity and the components that would use electricity, whereas the "B" School was more toward Navy pieces of equipment, such as generators and electronic elevators on a carrier and things of that nature, where we would have to actually go in and troubleshoot them.

Q And similarly, in this school you were given homework and given credit ratings for exams that you had taken?

A They graded the exams once a week, and there was one final at the end which was also graded.

Q After your training at the submarine school in 1966, did you then sail aboard USS PLUNGER from 1967 to 1968?

A Yes.

Q Was it a nuclear submarine?

A It was a nuclear fast attack.

Q And what was your position?

A My position on board was electrician's mate. I went aboard the ship -- I was a third or second class, and I pretty much held that rank through the rest of the time I was on board.

Q What would your responsibilities have been in that position?

A My responsibility would have been to take on the steam plant control panel, the electric plant control panel, and also auxiliary operator throughout the spaces.

It also consisted of maintenance on various pieces of electrical instrumentation and machinery.

Q Then, as I understand it, you came back and went to Electrician's "B" School, after serving on the USS PLUNGER, is that correct?

A Yes, and then at that point, you served on the USS THEODORE ROOSEVELT from 1970 to '71, is that correct?

A Yes.

Q And what type of ship was the USS THEODORE ROOSEVELT?

A The USS THEODORE ROOSEVELT was what we call a fleet ballistics missile submarine.

Q Is that a nuclear submarine?

A Yes, it is also nuclear.

Q And what was your position on that ship?

A I was also an electrician on that ship with the same duties I had in the past on the PLUNGER.

Q From 1971 to 1972, you were on the USS HADDO?

A Yes.

Q Is that correct?

A Yes.

Q What was your position there?

A My position there was the same, electrician's mate, with the same duties.

Q The same responsibilities as you had on the USS PLUNGER and USS THEODORE ROOSEVELT?

A Yes.

Q Your resume lists that you had other responsibilities -- machine history, petty officer; noise monitoring, petty officer; electrical maintenance, temporary leading petty officer, Electrical Division.

A Yes. Machine history, each time a piece of maintenance was performed on a piece of electrical equipment, we kept a card of the different things performed on the equipment. That is what I had there. I kept a record for the equipment that was being repaired.

As far as the noise monitoring, petty officer duties, what we had was a sound system that you actually went through the ship looking for parts in various equipment that was going to get ready to break on us.

I also ran the machinery and kept the records concerned with that.

As far as the electrical maintenance, that was any work that was performed on any electrical piece of equipment in the ship. And the last, temporary leading petty officer, I performed in that function for approximately two months on the last ship I was on, due to illness of the leading petty officer at the time.

What I was responsible for at that time was leadership of the group. I had in my charge preparation of work schedules and actually putting the people to work.

Q And did you have the responsibility, -- listed as A, B and C, under "My other responsibilities" in all three boats that you were on?

A Yes. I worked around that. I was handling them pretty good, so they let me keep them.

Q Those are not usually the additional responsibilities assigned to your position on those boats?

A Yes, it would be.

(Discussion held off the record.)

Q You served in the Navy until 1972, is that

correct?

A That is true.

Q And you came to work at Met Edison in March of 1973, is that correct?

A Yes.

Q What did you do from the time that you left the Navy in 1972 until March 1973?

A Mostly just traveled around, got myself ready to go into a type of job I figured I would stay in for quite a while, just to get loose out of my Navy past, just to relax a little bit.

I did, for a period of about eight weeks, take a job in Cleveland, Ohio, working for a motor repair company, where I repaired electrical motors, but not for any length of time. Then I left there and came back up this way.

Q Was that the only employment you had during that period?

A Yes.

Q You entered employment with Met Edison in March 1973 as an auxiliary operator "A"; is that correct?

A Yes.

Q That was on Unit 2?

A At the time, it was on Unit 1. We were training

as auxiliary operators on the No. 1 unit. No. 2 hadn't built up their staff as of yet.

Q So you served as an auxiliary operator for Unit 1?

A Yes.

Q Your resume indicates that your experience as an auxiliary operator "A" included studying systems and writing cperating procedures and alarm responses. What operating procedures were you writing?

A At the time I was an "A", we were just writing operating procedures for minor pieces of equipment that were not really safety-related or anything like that. I would say stuff like lube oil purifiers and stuff like that.

Q Would this have been Unit 1 or 2?

A Unit 1 at the time.

Q And would you consult anybody in writing the procedures?

A Yes, I would. I would consult my superiors, as well as anybody that might have information I needed pertaining to the equipment I was writing about.

Q And would your superiors have been control room operators?

A Control room operators and shift foremen.

Q Who else might you consult?

A Shift supervisor. I would consult the tech manual on the piece of equipment in particular that I was writing on.

Q You mean technical specifications?

A No, tech manual. Most of the stuff we wrote on wasn't technical specification-covered.

Q What is the technical manual?

A What that tells you is how a piece of equipment is supposed to work, how you perform maintenance on it, and how you operate it.

Q And all the operating procedures that you were drafting at that time were not related to safety ystems?

A No, they weren't.

Q And to whom did you submit the drafted operating procedures?

A I would have to submit the drafted one to my immediate supervisor, which would have been the shift foreman, such that he would sign the spot on the cover sheet that said, "Approved by," and then he would route it to the rest of the people in line.

Q He would route it to his shift supervisor?

A Yes.

Q And the shift supervisor would route it?

A Route it to PORC or the procedure people.

Q Who would the procedure people be?

A PORC.

Q So PORC would be the body that he would route it to?

A Yes.

Q Your resume also states that in your experience as auxiliary "A" operator from March '73 to August '75, that you operated the systems and equipment for plant startup. That would be for Unit 1, correct?

A Yes.

Q And that you performed switching and tagging. Would that be under the supervision of somebody?

A What that would be, the control room operator would write up a switching order for a piece of equipment that was to be taken out of service for maintenance, and then I would hang the tags on the designated equipment.

Q So that the control room operator would tell you what piece of equipment to hang a tag on?

A Yes.

Q Could you explain to me what you mean by acceptance testing?

A Acceptance testing is the last phase of a unit startup for the initial time, during which the actual operability of the plant is tested. It would be covering your initial power escalation and such as that.

Q What training did you receive during this period from March 1973 to August 1975?

A My initial training as an auxiliary operator consisted of a six-month classroom-type training program followed by several months of on-the-job actual training on the equipment I was going to be operating.

Q The six months' classrom training you received, was that taught by Met Edison?

A Yes, it was.

Q On-site at TMI?

A On-site, yes.

Q And the instructors were Met Edison employees?

A Yes.

Q And what type of information was covered in that six-month classroom?

A In that six months' classroom work, we started of with a math course, and then we went into basic physics. Then we went into nuclear physics, and we also covered systems, as far as where they were located

and what their functions were.

Q And during that six-month period, did you have other responsibilities?

A No, I did hot.

Q How many hours a day would you devote to class?

A We were then on a 40-hour week, eight hours a day, five days a week.

Q And were you given homework?

A Yes, we were, at times.

Q What did that homework consist of?

A Reading assignments, as well as problems and questions to answer of that type and nature.

Q Were you given a grade at the end of the six-month class?

A Yes. Then we were tested once a week and given grades on that, and then a final exam at the end of the program.

Q Did you have to attain a certain grade on that exam?

A Yes, we did.

Q And what was that?

A IT has been so long ago, I would imagine, if I was remembering right, I would imagine it took a 70

to pass.

Q Would you remember what you received?

A I received something in the nature of 85 or 90.

Q And that grade was purely based on written exams?

A Yes.

Q What type of exam was it? Was it an exam that was an objective one that required a yes or no or to fill in a blank?

A For the most part, the exam was one where it was an essay-type exam, where they would ask you a question and we would have to take and write a solution to it.

Q would you have to explain the rationale underlying your reasoning?

A In the case of any true or false questions, we would have to tell why they were false. In the actual written part, when they asked us a question, you did have to give a basis for why you answered it.

Q In your answer, would a critique be given, or would you merely just receive an overall grade at the end of that exam?

A You would get an overall exam grade, and I have a hard time remembering it, but I am pretty sure that

we did cover the exam after the grades were given out, such as to correct the wrong imprssions that anybody had in regard to the questions.

Q And the trainer, the training professor or professors, would go over with you your wrong answers?

A Yes, that is true.

Q Was this six-month period when you initially started as an auxiliary operator?

A Yes.

Q So from March 1973, when you began working, your first six months was in a classroom?

A My first month, I was home waiting for class to start. I didn't actually start the classroom until a month after that time period.

Q How many people would have been in that class?

A I believe there were 13 in my class.

Q And they were all studying to be auxiliary operator "A"?

A Yes.

Q You indicated that you also had on-the-job training?

A Correct.

Q And what did that consist of?

A That consisted of going around with an operator who was already qualified in performing operation of the equipment that we would be later operating.

Q Would that be a control room operator?

A No, this would be a qualified auxiliary operator who had already performed the evolutions in the past and had been satisfactory operating it.

Q What makes you a "qualified" auxiliary operator?

A Having operated the equipment and having undergone an oral exam by the company.

Q And you then would receive an oral exam?

A At the end of a given period, I would be given a period of time to familiarize myself with the equipment and the operation of such, and then I would have been given an oral exam.

Q And what was that period of time?

A I think it was probably around six months at the time, six to nine months.

Q So approximately within a year to 15 months, you then became a qualified auxiliary operator?

A Yes.

Q Was there a written exam?

A At that time, no. Our written exam was our actual exam that we took when we finished our classroom training.

Q So the only written exam you received was at the end of that initial six-month classroom session?

A At that time, yews.

Q Did you receive any other training during that period until August 1975 as an auxiliary operator?

A For the most part, when my crew was on training week, I would also go along with the CROs and shift foremen to the training programs that were set up for them.

Q Were you required to attend those programs?

A No, I was not required, but we were recommended that we do attend.

Q What would you do if you did not attend that program during that week?

A If I had not attended that program during the week, I would be put to work in the plant.

Q With another shift?

A With another crew.

Q Your resume then says that in August of 1975, you became a control room operator, is that correct?

A That is true.

Q And by that you mean that you became a control room operator trainee?

A Yes.

Q And was the process of moving from an auxiliary operator to a control room operator trainee by bidding up?

A Yes.

Q And what training did you receive as a control room operator trainee?

A The training I had as a control room operator trainee started out with six months in the classroom, approximately, where we discussed the system components, and we actually went out and traced down the systems to find out where all the components were. We again went into a theory section, where we reviewed reactor theory and atomic theory.

We had gone in to the point where we were studying procedures, operating procedures and emergency procedures. Upon completion of this period, again we also had weekly exams and a final exam at the end that was to be similar to a mock NRC exam, to get us familiar with the type of questioning that we would undergo.

Q And was that six-month classroom session

taught at Met Edison?

A Yes.

Q Was it taught by Met Ed employees?

A Yes.

Q And how big was your class?

A My class consisted of 13 prospective reactor operators.

Q And you indicated that you received an exam at the end of each week?

A Correct.

Q And at the end of that six-month session, you received a mock NRC exam. Did you receive any other final exam for the entire six-month period?

A That was to cover all of the material we covered in the six months. That was our first of several.

Q First of several mock NRC exams?

A Mock exams of that nature.

Q Were you given a grade for the six-month period?

A Yes.

Q What was that grade based on?

A It was based on your knowledge that you had attained through the classroom program.

Q Was it based on your performance on the

weekly exams or your performance on that first mock NRC exam?

A It was -- let me hear the question again.

(Previous question was read back.)

A The mock exam itself was based strictly on what was performed in the mock exam.

Q What I am trying to find out is what your grade for that six-month classroom session was based on. Was it based on that first mock NRC exam that you were given?

A No, it was based on the overall performance through the classroom and the mock. I misunderstood you, I guess.

Q And this mock NRC exam was in preparation for you to take the NRC licensing exam?

A Yes. It was to see if we could successfully take an NRC exam.

Q And who administered that mock NRC exam?

A It was administered by the company, the Training Department.

Q And did the Training Department grade and evaluate it?

A Yes, they did.

Q And they would go over the answers with you?

A Yes, at the end of it.

Q How many of those mock NRC exams did you take?

A It has been so long. I think I took probably three.

Q And why would they give you these additional two?

A Well, the first one was given after the classroom. After that point, we also spent one week at Penn State at their reactor, and then we spent eig.. weeks at Lynchburg, Virginia.

Q And after your one-week session at Penn State, you received another mock NRC exam?

A Not at that point. It wouldn't have been until we came back to Lynchburg.

Q After you spent one week at Penn State and that eight-week period at B&W, you then received another mock NRC exam?

A Yes. At this time, we received the company-administered exam, and we also received an exam from some contractor that came in to test us.

Q Were both of those mock NRC exams?

A Both of them were mock NRC exams.

Q Both of them were graded?

A Both of them were graded.

Q And you received feedback from either Met Ed or the company that administered it as to your performance?

A Yes. Also in conjunction with these two exams, we also underwent two oral exams, again once by the company and once by the outside concern.

Q Does the NRC exam consist of an oral part and a written part?

A Yes, it does.

Q Your resume indicates that you spent one week in 1975 on the research reactor training program at Penn State. Is that the program that you have indicated was in preparation for your taking that NRC licensing exam?

A Yes.

Q And what did that training consist of?

A What it consisted was 12 meaningful startups and 22 power maneuvers and shutdowns of the actual TRIGA reactor.

Q During 1976, you spent eight weeks at Lynchburg, Virginia at the B&W Training Center there for nuclear power plant operations courses, is that correct?

A Yes.

Q And what did the eight-week session consist of?

A Basically what it amounted to was four hours a day we were in classrooms studying components that were required for operation of the plant, and the other four hours a day, we were actually on the simulator performing startups and shutdowns, heatups, cooldowns, and various casualty procedures.

Q And were you given exams there?

A I really can't recall whether we were or not, to tell you the truth.

Q How many people were in your class at B&W?

A There were nine of us down there.

Q And was there a check made to ensure that you performed each incident that they wanted you to work through on the simulator?

A Yes. They split us up into groups, such that each man got to perform, not the same day, but in the same period, the same weekly period.

Q And were you evaluated on your performance?

A Yes, we were.

Q Did you have to receive a passing grade?

A Yes, it was either pass or fail.

Q And did you pass?

A Yes.

Q Were you required to do homework during that course?

A We would have to take and study for what we were going to cover the next day. We would have to look at the procedures. But as far as homework, I guess you wouldn't really call it homework.

Q But you were required to read the operating or emergency procedures that you would be utilizing the next day?

A Yes.

Q And those operating and emergency procedures that you utilized at the B&W simulator, were they procedures in effect at TMI at the time?

A For the most part they were. However, some of their systems at the simulator didn't match with systems that we had, meaning that we couldn't use a certain procedure of ours to take and operate the simulator, and in that case, they provided a procedure that we could use for operation.

Some of their terminology was different from what ours is, such that there were some areas that we couldn't cover the same.

Q Could you explain what you mean?

A Well, like they have different coolant systems than what we had. They had their arrangement somewhat different as far as the console and number of equipment than what we actually have.

Q And what terminology did they use differently than was used at TMI?

A Well, they called their electric busses, their shutdown electric busses, and we didn't use such terminology. We just had the balance of plant and emergency safeguard busses. Some of their coolant systems, I can't really recall what they called them, but they weren't anything like what we called them.

Q Did that make it difficult to go through that simulator training with the differences?

A Not really. Once you have pretty much operated a plant, you usually can pick out the differences, and you can more or less accommodate yourself to them.

Q When you were working on the simulator were there operating and emergency procedures for you to utilize?

A Yes, ma'am, that was the purpose of the training.

Q You didn't have to memorize?

A We had to know our immediate actions. It was

treated similar to what we have now, where we should have our immediate actions down, and then we can get the book out.

However, the books at the simulator were always available to us, as they are in the control room.

Q Your resume indicates that you also participated in an initial fueling of Unit 2, is that correct?

A That is true.

Q And what was your responsibility in that function?

A Most of my responsibilities in Unit 2's initial fueling were concerned with plotting the 1/M plots, where we kept track of how many fuel assemblies we put in, making sure that we had the proper loading.

Q And under whose supervision would that have been done?

A That would have been done under the refueling shift foreman.

Q Who at that time was?

A Any shift foreman who was involved at the time, it was his shift.

Q You say "under the refueling shift foreman," but actually this would be an initial fueling for

Unit 2, correct?

A Yes. What it amounted to was we had our crew split in half, to where one crew handled the control room functions, and the other crew handled the refueling, or handled the initial fueling.

Q You were control room operator for Unit 2, but Unit 2 in this period from August '75 to February '78 was not critical, correct?

A Towards the end of that period, we were doing hot startup testing on Unit 2.

Q And initially what were your responsibilities?

A Initially my main responsibilities were to get as familiar as possible with the plant itself and also to keep up on my emergency procedures and normal operating procedures.

Q Were you helping draft emergency and operating procedures?

A I had been involved with writing a couple of them, of the normal operating procedures.

Q No emergency procedures?

A I might have reviewed some, but actually writing of them, no.

Q And in what capacity would you have reviewed the emergency procedures?

A As an operator, to see if they would work from an operational point of view.

Q At that point in time when the emergency procedures and operating procedures for Unit 2 were being drafted, they would have control room operators review the procedures?

A Control room operators would be one of the groups of people that would have reviewed it.

Q What other groups?

A Shift foremen and supervisors would review it, and then they would go through PORC.

Q Would those be the only people that would review it?

A Station engineers or station superintendents would have to review it after it went through PORC, to get a final approval on it.

Q Would you, in writing those procedures or those operating procedures, or reviewing operating or emergency procedures, would you consult anybody else?

A Mostly those people I mentioned, as well as the tech manuals again, for the equipment I was trying to operate.

Q Would you consult anybody outside of Met Edison?

A My supervisors mostly took care of that type of work.

Q If you had certain questions that needed outside consultation, would you direct those questions to your shift foreman and shift supervisor?

A Yes, I would.

Q Do you remember particular instances where you found it necessary to do that?

A No, that has been a while, and I have a hard time remembering back in some detail such as that.

Q But there were instances?

A Sure, there were.

Q Your resume indicates that during this period from August 1975 to February 1978, that you were writing system lectures. Could you explain what that means?

A What that meant was that it was a means of helping us be more familiar with the system.

What we would do is we would take all the information we could find on a given system, including the procedures, the system descriptions and things of that nature, and we would compose a lecture which would be given to auxiliary operators and even to other control room operators.

Q At this time, were there auxiliary operators just for Unit 2?

A No. At this time, we were still operating with a combined-unit pool of auxiliary operators.

Q Do you remember for what systems you had written lectures?

A I had written one on secondary service river water, for one, screen wash system. That is about the only ones I can remember off the top of my head.

Q And who would review those?

A Again, my immediate supervisor, as well as the Training Department, would review those.

Q And you would give these lectures?

A In some cases I would, and in some cases somebody else would use them for purposes of giving lectures.

Q Did you consult anybody in preparing these lectures?

A Again, I would have conferred at the time, we had UEC startup people, we had people that were in Engineering, and I would talk to some of those on some equipment problems.

Q You had what sort of people?

A United Engineers Company. That was the company

in for our initial --

Q You also would consult with engineers at Met Edison?

A Yes.

Q Who would that have been?

A I don't really remember at the time. We have had a lot of changes in our Engineering staff.

Q And would those Met Ed engineers have been on-site?

A Yes, they would have, for the most part.

Q They were not in Reading?

A No, those were people who were right here on the site overseeing different jobs.

Q In February 1978, you became a shift foreman, correct?

A Yes.

Q And how did you move from the position of control room operator to shift foreman?

A My supervisor came up and asked if I would like the foreman's job, and I accepted it.

Q Who would your supervisor have been?

A I believe Mike Ross was the one who offered me the job.

Q Were there certain qualifications that

you had to meet to become a shift foreman?

A Well, I had to originally hold a control room operator's license. I had to be familiar with the plant that I was taking the job for.

Q Anything additional?

A I had to show responsibility and general knowledge of how to operate and how to direct people.

Q When did you receive your reactor operator's license?

A Is it there? I can't recall off the top of my head. I think it was prior to Unit 2 coming up. We had had a cold license initially, and then we had to get that converted to hot license. I would say probably somewhere in late '77, middle to late '77.

Q And by your acquiring a reactor operator's license from NRC, you took an NRC oral and written exam?

A Yes.

Q And what grade did you receive on that exam?

A I really can't recall. It was sufficient to pass, though, more than sufficient.

Q Do you remember if you received less than 80 on any part?

A I might have had one or two sections, but I can't honestly recall.

Q Do you remember any additional studies that were required after that exam in response to a grade you received on that exam?

A Yes. What comes out of that is that if you get less than 80 on any section of the exam, you go through a training cycle. Everybody goes through a training cycle, but if a person missed or got less than 80, he gets an additional package as far as training was concerned, additional type homework assignments concerning sections he might have got less than 80 on, and in addition to that, he was required to be at all lectures that were covered in that given section.

Q And did you receive any of these additional packages?

A Again I may have, but I have seen so much paper in the last couple of years that it is really hard to pinpoint to be sure that that was the purpose of it.

Q You don't remember?

A I really don't recall. I think I may have.

Q You don't remember for which sections?

A No.

(A brief recess was then taken.)

Q Is this Operator's License No. 074590 that is referenced in Scheimann Exhibit 21 the reactor operator's license that you held as control room operator on Unit 2 at TMI?

A Yes.

Q And is that the only reactor operator's license you have ever held?

A I also held a senior license afterwards.

Q You received a senior operator's license on Unit 2 also?

A Yes.

Q And when did you receive that license?

A That was, I believe, in May or June of '78.

Q And did that also require an oral and written exam from the NRC?

A That one required a written exam. However, since it was fairly recently that I had my written and oral exam for control room operator, the oral was waived on that one.

Q If you take your senior operator's license exam within a year of your reactor operator's license exam, you don't have to take the oral part?

A I don't know if there is any given time period or not. I am not even sure technically why it was

waived, but it was waived. I thought it had to do with the fact that I had recently had my RO exam.

Q The NRC would be the entity that waived that requirement?

A Yes.

Q And did you have any specific training to take for that senior operator's license?

A I had a 300-hour, more or less, review course on system operations and design and various other features of the plant.

Q And who gave that review course?

A That one there was pretty much self-taught. However, any material I needed, I could depend on the Training Department to round it up for me.

Q You didn't have any exams prior to the taking of the NRC exam?

A Yes, I did. I had a weekly exam given.

What we did was, we covered one section of the NRC exam over a period of seven or eight days, and then we took a written exam on it.

Q And you would receive a grade on that exam?

A Yes.

Q And the Training Department would review

your answers?

A Yes.

Q And what type of questions were asked?

A They were all essay-type questions, where they would ask us to describe or to make a diagram or something, or to answer what our responses would be to a certain condition, depending on the section of the exam.

Q With respect to your answering what a specific response would be, did you have to explain why you were taking that specific response?

A That was partially involved in the answer to the question. The way the questions were worded was such that we had to tell what we expect would happen, as well as why we thought that.

Q Since you became a shift foreman, have you gone for any training?

A We did go through, as I was describing to you while we were off the record, that we run a six-shift rotation, where every sixth week is spent on training purposes for a 40-hour week.

Q And is that the only training you received?

A As far as I can recall at the present time, yes.

Q You have not been back to the B&W Training

Center except for that one time for eight weeks in 1976?

A I have been back once previous to my SRO license. As a CRO, I was up there a second time. I was scheduled to go up approximately two weeks after the incident, but we never made it since we were so wrapped up here.

(Continued on Page 43.)

Q Usually as a shift foreman with an SRO, you would be required to attend simulation sessions at B&W?

A Normally the company schedules all its licensed personnel to attend one session a year of one week duration.

Q But because of the March 28, 1979 incident, you did not go up for your yearly session?

A That is true.

Q So that the only time that you have been at B&W for simulator training aside from the eight week session in 1976, was for one other week while you were a control room operator on Unit 2?

A Yes. At the time I was a licensed control room operator.

Q And for that one week that you, at B&W as a licensed control room operator, what did that week consist of?

A The week was split up similar to the eight-week course, where we spent half of the day in classroom and the other half on the simulator, itself, performing various emergency procedures.

Q Were you given any training at the end of that?

A No, I don't recall having any training.

Q Did you receive a grade?

A No, I don't recall having a grade on it.

Q Did you receive some kind of evaluation?

A Yes, he told us whether we were sat or unsat, as far as our operation on the console.

Q Satisfactory or unsatisfactory?

A Yes.

Q And were you satisfactory?

A Yes.

Q Would they run you through certain scenarios during that week?

A The way the simulator is set up, what they have is they have a second console back in a room all by itself where they can put in any number of casualties.

What they do is by pushing a given button on that, it would cause a certain casualty to happen on the simulator console. They then-- he would go in there and give us the casualty, and then we would respond to it.

Q Were you ever given multiple casualties?

A No.

Q Were you given specific transients that had occurred at B&W plants?

A Mostly what the casualties were that we were getting was like loss of feed pumps, reactor trips, turbine trips, things of that nature.

If something did come up in another plant, some times it was incorporated, sometimes we weren't even aware that something might have happened somewhere else.

Q So sometimes you did not know if a transient that you were working on had occurred in another B&W plant?

A True.

Q Would you find out by the B&W trainer mentioning it to you?

A I really can't recall having them really so much as come out and tell us, "This casualty happened to this guy" or "This casualty happened here." Mostly the casualties were just punched into the machine, then we responded, and then we discussed why we responded the way we did.

Q You didn't give a written handout that would in advance tell you what the scenario was?

A No, we did not for the most part. On simulator schedule time we just listed as various system casualties.

Q And at the time of the simulator casualty scenarios, would they then give you a handout that would describe that scenario?

A Well, when we would go down to the simulator, we are given a looseleaf notebook that covers basically what we noted during the week we are at the simulator.

What it would consist of is what lectures they are going to give, as far as system components, and it would give us a list of procedures that we would be tested on during the period. But at any given time we did not know which casualty they were going to put on us. We didn't find out until after they pushed the button and we responded to it.

Q So that in this looseleaf, there would be a description of the scenarios that you would then run through?

A There would be a listing of the emergency procedures and a copy of them in there.

Q Would it give you a listing of the conditions that you were encountering in that particular casualty?

A What we would have -- it would tell us what our initial conditions were, and then it would tell us in the end what the final conditions should have been.

Q Did any of these ever also indicate whether or not they were real life conditions or transients or just made up by B&W?

A Not to my knowledge.

Q So that if you ever found out it was a transient that had happened at a plant, it would just be orally from somebody at B&W?

A Normally we would get a report of different incidents that would come to the plant when it did get set off. Sometimes we would see them and sometimes we wouldn't. That is what I am getting at.

It might, for instance, one thing that was questioned on us on several counts was did we hear of the thing that occurred at one of the units concerning the electromatic relief. That report we hadn't even seen prior to the questioning period.

Q You are referring to a report coming from where?

A I believe it was -- I'm not very sure who it originated with, but they asked us at the hearing in Washington whether we had heard of that report.

Q At the hearing in Washington -- you mean at the President's Commission Hearing?

A Yes.

Q And do you know to what report they were referring?

A I can't recall right at the moment.

Q Could this have been a B&W report?

A Again I can't really recall. It was like some report we would receive and some we didn't hear about until some period of time waved down the pike.

Q Are you referring to a licensing event report?

A Yes, in some instances, yes.

Q What other reports?

A Reports of trips that had occurred at different places.

Q And how would you receive these reports?

A Normally they would come down in a packet of different problems that have occurred at different plants.

Q And who would they come from?

A Again I'm not sure on that myself.

Q How are they forwarded specifically to you?

A Normally they would be covered -- what ones we had available would be covered when we were on our training week.

Q It would be covered by Met Edison?

A Yes. They would get us copies of it, the ones that were available, and we could look over them and see what the problems were associated with them.

Q Prior to March 28th, were you familiar with an incident that occurred at DB-1 on September 24, 1977?

A No, I was not. I believe that is the report that I was referring to earlier.

Q You did not hear of that incident until after March 28, 1979?

A No, I don't recall hearing of that one until after I got into the questioning.

Q You did not hear of that incident until you were testifying before the President's Commission?

A I believe that is true.

Q Did you hear of an incident that had occurred at another B&W plant that involved a detailed open POLD?

A No, I don't recall hearing that one either prior to the time of the incident.

Q Do you know of any control room operator at TMI that was aware of the incident at Davis-Besse?

A Well, I can't really speak for anyone other than myself in that regard. I wouldn't necessarily know what they have gotten a hold of or what they heard.

Q Did you hear of any control room operator that knew of this incident?

A No, ma'am, I didn't.

(There was discussion off the record.)

Q Is there any formal channel at TMI that you received information to as a shift foreman that provides you information concerning other plants, other nuclear plants?

A What information I would get would be based on what the station superintendents thought that the operational people needed to have, that he, himself, had.

Q The station superintendent being Gary Miller?

A Yes.

Q So that Gary Miller would receive information from other B&W plants and, as appropriate, forward it to you?

A It is conceivable he would receive it. What I'm saying is anything he received that he thought was necessary for us to know, he would forward down

to us.

Q And do you remember the specific instances where he has forwarded information concerning other B&W plants to you?

A We get paper all the time coming down to us from him on various different things.

Q Different things concerning other B&W plants?

A Only on our own plant itself. It is kind of hard to take and pick out one instance where there might be something pertaining to another plant but had been funnelled down to me.

Q But do you remember specific instances where he has funnelled information to you concerning other B&W plants?

A I do remember certain instances. However, I couldn't name them.

Q Would you retain those memorandums that he sent you or information that he sent you?

A Sometimes and sometimes not.

Q If you retained them, would they be on site?

A Right now I have very very little that is on site. Usually something that we would receive like that would be something that we would read, talk over with our crew, and then it wouldn't necessarily

be retained.

MS. GOLDFRANK: I would like to ask you to look through the information that you do have on site to see whether or not you have any such information that would have been forwarded to you by Gary Miller and bring it with you if you can tomorrow.

THE WITNESS: Okay, I will look and see what I have got up in my basket when I get up there.

Q Do you remember any instance where Gary Miller would have talked with you and not have sent you a written memorandum concerning incidents or information coming from other B&W plants?

A I am sure that he has at times told us, "Hey, this occurred here" "This occurred there." However, an exact incident, I can't really recall. I can recall them talking to us though in the past on things that happened in different locations.

Q You don't know exactly how he acquires this information?

A No, I'm not really sure myself.

Q Do you have a general idea?

A No, not really.

Q Do you know if he meets with people from other B&W plants?

A I really am not sure. I really am not up to what his job involves. I have enough with my own job.

Q Do you ever meet with people from other B&W plants?

A Not necessarily. Most of the time I wouldn't. However, we did have people from B&W plants during the first few weeks after the accident.

Q Prior to March 28th?

A I can't recall of such a case.

Q You don't remember any specific incident where you had met with people from other B&W plants?

A No, ma'am. Normally that wouldn't be handled at my level.

Q Have you ever visited another B&W plant?

A No, ma'am, I have not.

Q You have never had any training at any other B&W plant?

A No, ma'am.

Q Do you have to be requalified as a senior operator?

A I have to take a yearly company-administered

written and oral exam, and the NRC gets a copy of that exam and looks it over to see if it is of proper difficulty and covers the proper material to be covered. And if they so deem, they can come in at any time and re-question us and re-examine us.

Q And you have taken one exam?

A I have taken my senior licensing exam by the NRC and, since then, in February I took a company-administered requalification exam.

Q And you received a grade on that?

A Yes.

Q Do you know what grade that was?

A I think it was something like 84.2 overall.

Q Are you given grades on each section and then an overall grade?

A Yes, ma'am.

Q And is it similar to the NRC reactor operator's license exam, that if you don't receive aboe 80 on each section, you are required to go over certain training pamphlets?

A Yes.

Q And did you receive over 80 on each part?

A Yes, ma'am. The first time I am sure I

received over 80 on everything.

Q It is also very recent, so you can remember?

A Yes.

Q Could you tell me what type of questions that exam covered?

A Well, depending on the category, it would have asked us questions concerning design parameters of the plant. It would ask us responses to different casualties. It would ask us questions concerning our emergency equipment. It would ask us questions concerning our emergency and normal procedures.

On the senior license they have a section that is for administrative procedures and such. They also have a section where they talk about refueling and various core parameters.

It is an overall comprehensive exam on what our duties are.

Q Could you explain the differences between the NRC exam the certificate of senior operator's license and the yearly requalification exam that you took in February?

A Basically the format and the type of questioning is identical.

Q Is the substance of the questions basically

the same?

A I would say yes.

Q It is really a refresher exam?

A It would be just like taking the NRC exam again every year, the only difference being that the NRC isn't marked as you're administering it.

Q Does Met Edison grade that exam?

A Yes.

Q The training department?

A Yes.

Q If you receive over 80 on those sections, are you critiqued by the training department as to your answers?

A Yes. We do have a critique section, a short time after the exam, when the results have been obtained, and everybody attends that that is licensed.

Q And they go over what a perfect answer would have been?

A Yes. They go over what they determine should have been the answer that they were looking for.

Q Could you explain to me what the difference is between reactor operator's license and the senior operator's license exams given by the NRC?

A Right. The difference between the two is the

senior operator actually does take the reactor operator's exam. In addition, he has an additional five sections that he must take on the senior level

Q What are those five sections?

A Really all it is is a combination of the other seven sections for the CRO, all only in more detail.

What they do is bunch a couple of sections together. The only additional section that we have on the senior exam that is not on the RO exam is the administrative section. The degree of questioning is into a deeper extent though.

Q So it is more sophisticated in its level?

A Yes, ma'am.

Q And what is the administrative section?

A That consists of records, reports we are required to make to the NRC and technical specifications in depth and various things of that nature.

MR. YUSPEH: Is there any experience requirement to become a senior reactor operator?

THE WITNESS: The experience requirement is based on the performance the man has shown in the reactor operator type classification, plus his knowledge of being able to retain the material for the senior license and be able to answer

questions on it and be able to use the material and perform it.

MR. YUSPEH: Must he hold a reactor operator's license for a specific minimum period of time or must he serve as an actual CRO for a certain period of time?

THE WITNESS: I do not believe there is a time requirement as such. It seems to me that we had some shift foreman in our initial group that had held operator's licenses at other plants and they had come to Unit 2 as shift foreman, and they took the whole set of exams, including the RO and the SRO portions.

Q Are you required as the shift foreman to hold a senior operator's license?

A Yes, I am.

MS. GOLDFRANK: I would like to mark as Scheimann Exhibit 22 part of the SSAR pages of the numbers 14.2-5 through 14.2-8.

(The above described documents were marked Scheimann Deposition Exhibit 22 for identification.)

Q I would like you to look at what has been marked as Scheimann Deposition Exhibit 22, at the section on page 14.2-6 entitled, "Met Ed Shift

Foreman," which is number 14.2.3.8. Could you read that description below to yourself.

A Okay.

Q Would you state that that is an accurate representation of your responsibilities?

A I would say so.

Q Would you add anything to that?

A Well, I am responsible for correction of the people on the shift and responsible to the shift supervisor and supervisor of operations.

Q You are responsible to both?

(Continued on following page.)

A Directly to the shift supervisor and to the supervisor of Operations.

Q In a normal shift, you have explained that you rotate as you go to night shifts at certain times and day shifts. Would the shift supervisor also rotate with you?

A The shift supervisor, under normal circumstances, would roate with us. We would have the same shift supervisor on all shifts.

Q And is the supervisor of Operations a person who rotates, too?

A Not as such. He is here whenever needed, but mostly here on the day shift.

Q And the shift supervisor for Unit 2 is --

A First, there is one shift supervisor for Unit 2, and that is William Zewe, and he is strictly here on the day shift or if we need him at night.

Q So that prior to March 28th, he would usually be here on the day shift, and you would be able to contact him at night?

A No, prior to March 28th, each shift had a shift supervisor that was here around the clock. What I talked about was at the present time.

Q Prior to March 28th, there would then be three shift supervisors?

A No, there would be six, one for each shift, A through F.

Q And prior to March 28th, there was only one supervisor of Operations?

A Yes.

Q So that this portion of the FSAR that has been marked Scheimann Deposition Exhibit 22 is inaccurate in the sense that you do not report directly to the supervisor of Operations, but you report directly to your shift supervisor, who reports to the supervisor of Operations?

A Yes. I would say the only time I would report directly to the supervisor of Operations was if he requested certain information from me.

Q Without going through your shift supervisor?

A Correct.

Q You were shift foreman for a period before TMI 2 became critical, from February 1978 until March 28, 1978?

A Yes.

Q And what were your responsibilities at that point?

6.3

A My initial eight weeks were spent in training for my senior reactor operator's license.

Q Was it necessary for you to have a senior reactor operator's license prior to TMI 2 becoming critical?

A It was my duty to get my license in as short a period of time as I could.

Q But you did not need to have passed the NRC exam prior to TMI 2 becoming critical?

A No. To my knowledge, there was no such requirement. However, if I had my license prior to Unit 2's criticality, there would have been an extra person, and we could have had better shift rotation. I could not have directed the people with just my control room operator's license.

Q So you could not direct people until you got your license in May or June 1978, is that correct?

A That is correct. I could not take the shift as a shift foreman without my senior license.

Q So for the period from February 1978 until May or June 1978, when you received your SRO, what were your responsibilities?

A My responsibilities during that time were just strictly training purposes, to get myself ready for a

Unit 2 license, and I then spent one week in that period helping with Unit 1 refueling, but I had no on-shift responsibiities at that time.

Q Once you received your SRO in May or June of 1978, you then became the shift foreman on one of those shifts?

A Yes, ma'am.

Q And why don't you tell me what happens on a typical shift.

A It all depends on what mode you are interested in. If we were in shutdown, things would be different than if we were up and steaming.

Q Normal operation.

A In normal operation, what would happen is we would come in and take the shift and get it turned over from the guys that were leaving, about any problems that they had noticed during the shift, or any that had been noticed on the shift before.

After taking the turnover, my normal thing I would have done would be to review the log since the last time I was on shift to see if I could spot anything that was going to possibly give me a problem during the course of the shift.

Then I would get together all the surveillance

that would be required to be performed during the shift, and I would issue that out to the control room operator, who would at that time issue it out to the auxiliary operators for performance.

Then I would go about and check all my plant parameters to make sure everything was looking all right on the console itself.

During the course of a shift, I would try to get out in the plant and spend probably two to three hours checking out the equipment itself, to make sure that things were running as they should be.

I could at one time or another be involved with giving an oral exam to an auxiliary operator who was getting ready for his next pay grade. I could be involved in various procedures that have to be reviewed and various other things of that nature. A lot of the job is paperwork and directing people, though.

Q You stated that on the change of a shift, you would initially talk with the people who you were taking over the responsibilities from, and they would convey to you any problems that they had encountered during their shift. Would that be orally that you would just talk to them about any problems that had

6.6

come up?

A Yes, ma'am. It would be an oral conversation.

Q And would they indicate to you in a log if anything had been reported?

A Well, we kept a piece of paper we used to write our turnover down for our own memory, and also for presentation purposes to the oncoming shift.

Q So that they would show you that on a written log?

A Yes. We would have a piece of paper up there with our turnover on it, and we would talk over each item as we would go down it.

Q And are these logs kept?

A No, they are not, ma'am, at present. Each shift, what it turns out will take and write up his turnover for the next guy, and then the next guy, he takes over the shift and would write it up at the end of his shift as to what changed from previously, and then the old ones would be discarded.

Q The old one would just be thrown away?

A Yes. There would be no further need because we managed to carry all the items on to the next shift. It is a living document, so what it amounts to.

Q And this was true before March 28th, also?

6.7

A Yes, ma'am.

Q Is that the log you were referring to that you would review upon coming on shift?

A No, ma'am. My foreman's log is the one I was referring to.

Q What is that?

A That is a book where I keep track of all events that occur during the course of the shift. This log, in conjunction with the CRO log, is where I get most of my entries from to begin with.

Q And is this your log, or is it a situation where every shift foreman maintains the same log?

A Every shift foreman maintains the same log. He makes his daily entries into this same logbook.

Q So there is one log that all three shift foremen would enter their entries into?

A All three, yes.

Q And what type of things do you enter in there?

A What I would enter in there is what technical specifications, surveillances were done during the shift. I would enter any problems that we had had in the shift with a piece of equipment, anything that was taken out of service, or anything that we did

during the shift.

Q And this logbook is maintained in the office in the control room?

A No, it is maintained right out on the shift foreman's desk.

Q And where is that desk located?

A Right in front of the shift supervisor's office in the rear of the control room.

Q And the office in the rear of the control room is the shift supervisor's office?

A Yes, ma'am.

Q And there is a desk in front of that office that is the shift foreman's desk?

A Yes.

Q So that this logbook is kept on that desk, so that when you come on duty you review that, and that contains anything that came up during the shift?

A Yes.

Q And is this also a living document, or are these logs kept?

A These logs are kept.

Q And who keeps these logs?

A Well, you fill them out until the book is completed. Then they get turned over to the Operations

engineer for storage.

Q And who is the Operations engineer?

A Right now, that is kind of confusing.

Q Before March 28th.

A Before, it had been Bubba Marshall.

Q Are these logs reviewed?

A We review them once a shift, yes.

Q And does anybody else review them besides the shift foreman?

A I believe the supervisor of Ops is required to review them once a week.

Q Do you know what he reviews them for?

A For content, whether they are being kept properly, and things of that nature.

Q Has the supervisor of Operations ever gotten back to you after a review?

A In what respect?

Q Has there ever been an instance where he has gotten back to you?

A Probably when we were first initially getting ourselves together because maybe at that time people probably weren't putting in all they should have. He may have made a comment about not having enough entries in the log.

Q Do you remember since December 30, 1978, that a supervisor of Operations has contacted you concerning the shift foreman's log?

A No, not to my knowledge.

Q If he did contact you prior to December 30, 1978, would this have been an oral contact discussing something that he wanted you to do in the log that you had not done?

A Well, it could have taken the form of an oral communication, or it could have been a letter coming down to each of the shift foremen, saying that we needed to do more work for the log, or something of that nature.

Q Would you have retained these letters?

A No, ma'am.

Q Once you received the letter, would you comply with it?

A Yes, ma'am, I sure would.

Q Then would you throw the letter out?

A I would think it would be safe to say I would have. If I kept every piece of paper that ever came across the desk, I wouldn't have any place to put it.

Q You indicated that one of your responsibilities when you came on shift in your normal shift

was concerning surveillance, correct?

A Yes.

Q And could you explain that, please?

A Well, what we have is we have two types of surveillance. We have operational surveillance, which is just checking out non-tech spec-related equipment, and we have tech spec surveillance, which would be checking out our DSAS-type components. What it amounts to is we have a sheet on the desk or sheet in the file that we keep for surveillance. It would be dated for when the surveillance is due. I would pull it out and hand it to the CO, and he would go back and make a copy of the procedure for that particular surveillance. Then he would start performing.

Q And from whom would you get the information as to what surveillances were required that day?

A We have what we call a surveillance coordinator. What he does is, once a week he brings up a fresh stock of surveillances that will be due during the course of the week.

Q So he brings this, which is a computer printout?

A Yes, it is a computer printout.

Q He brings this once a week?

A Yes.

Q Then each time you go on shift, you check to see what has to be done that particular shift?

A Yes, ma'am.

Q And who is the surveillance coordinator?

A I am not really sure who it is. I think it is Bob Beman.

Q Who would he report to?

A Again this I am not really sure.

Q How is there a check done to know which surveillance procedures to do on your shift, and which surveillance procedures are done in the previous or subsequent shifts?

A Well, the tech spec surveillances when performed are indicated in the shift foreman's log by an entry on the left-hand side of the page. It is supposed to be written down there, the time it was performed and what the actual item was that was performed.

Q So prior to your telling the CO what surveillance procedures they should perform, you would check in that log ot see which ones had already been performed?

A No, not necessarily, because each surveillance item has its own computer printout sheet, which you

staple onto the procedure itself that you are going to perform.

Then when it is done, you sign off the sheet, and then that goes over to the surveillance coordinator, and you don't have to worry that somebody else will come in and do the same surveillance because the greeen sheet for it is already in the mail.

Q So once the surveillance is done, you no longer have a computer printout for it?

A Right.

Q Once a CRO has completed the various surveillances that you have assigned him, do you then review that?

A Yes. The surveillance printout sheet has a space there for approval signature, which is the one I must make.

So what I would do is when the surveillance sheet comes up to me, I have to look at the data sheet and make sure all the things in the required specifications are done. Then I would sign that sheet, and I would sign the computer printout sheet.

Q So you check to make sure that, one, he has completed it, and two, that the readings are within the right range as required by the tech specs?

A Yes.

Q Is there anything else you check it for?

A That it is done within the required time. I would have to check that.

Q Anything else?

A Not really to speak of.

Q Does anybody else review this?

A The procedure coordinator, he will get the green sheets when they are performed, and I guess he would take and look over to make sure they were all performed. He would check to see that everybody that was required to sign it, the CROs and shift foremen, had signed it.

Q The shift supervisor does not review this?

A Not necessarily on a normal basis.

Q Under certain circumstances, he would?

A He likes to be kept informed of what we are doing, except surveillance.

Q So on an infrequent basis he would come and check?

A If he was in the control room at the time something was done, he might sign it as approving in my place.

Q But from you, the surveillance sheets would then go to the surveillance coordinator?

A That is true.

Q And is he just a record keeper, or does he perform a review function?

A I believe he is mostly assimilating all the data and putting it into a design storage area, and puts the feedback on the computer, such that it can be rescheduled next time it is due.

Q He doesn't review it to check as to the type of things that you checked for, that certain readings are within the tech spec limitations?

A Yes, he does also do a check on that, in particular, in a case where they fall out of the range. You see, if they fall out of the range, I am required to file an exception or a deficiency report on the surveillance itself, and that would flag it to the point that he has to take and observe that to see what the reporting requirements are as a result of the exception or deficiency.

Q In the surveillance, if something does not fall within the range that it is supposed to, you fill out what you call an E&D form?

A Yes.

Q And who is that sent to?

A That goes, complete with the procedure and

with the green sheet to the procedure coordinator, and he takes and distributes it from there, to who I am not really sure. Most of our procedures for surveillance, they tell you inside the procedure who has to see it if you have a problem with it, like whether it be the Maintenance Department to try to make corrective action or whatever.

Q And you are not responsible for ensuring that that information gets to that particular individual, but the surveillance coordinator is responsible for that?

A I believe so, yes.

Q So you just forward this entire packet to the surveillance coordinator?

A Yes.

Q And his attention would be brought to certain readings that you received that were not what they should be within the tech spec by this form?

A That, and also by it being flagged in the data sheet.

Q In the data sheet, meaning the actual surveillance form that you have completed?

A True. What I would do is, for every item that I put in an exception form or deficiency form, I

would also, next to that item on the data sheet, mark "E" or "D" and then whatever number it was. Like, if I had more than one exception, I would write "E-1", "E-2", "E-3", and then flag it right next to the deficient item.

Q Would you explain the difference between an exception item and a deficiency?

A A deficiency item is one that will not allow the surveillance to pass. It will cause failure of the surveillance. An exception is one that allows the item to pass, but it is notification that you are getting on the borderline of not being able to pass surveillance.

Q What happens if you find a deficiency, and therefore have failure of surveillance?

A Well, then the people involved have to take and look at it to find out why it was wrong. We would probably have Electrical Maintenance or Mechanical Maintenance or the Cognizance Branch come and look over the piece of equipment; whereupon, he would test it again in their presence, and any problem that arose from that would be worked on until it is corrected.

Once corrected, we would have to re-perform the surveillance to show that the deficiency was no longer there.

Q And what time period are you talking about?

A It would depend on the given piece of equipment. Each equipment that you have over there is governed by a different technical specification, and it would tell you in the technical specifications how long you could go without that piece of equipment operable.

Q And how is a check made to ensure that these items are corrected, so that you don't fall within a time period that has elapsed that you cannot operate?

A Well, on the shift foreman's log, we also note on the left-hand side any timeclock that we have entered, such as "such-and-such a piece of gear is out of service. Start the 24-hour timeclock" or "Start the 7-day timeclock," whichever. By referring to that, we will keep the status up on the board as to what timeclocks are in force at any time.

Q And at what time --

A -- it would expire.

Q Do the auxiliary operators report to you or to the control room operators?

A Normally, they would report to the control room operators. However, if they had a problem that

they didn't feel the control room operator could really assist them with, they would come directly to me, and then I would be required to go down and assist them in what way I could.

Say, like if they had a piece of equipment that didn't seem like it was running right, I would have to go down and check out the piece of equipment to see if to my knowledge it appeared that it was operating correctly.

Q What kind of things could the control room operator help him with?

A The control room operator is basically based in the control room. He doesn't have the freedom of being able to go out into the plant and look at a piece of equipment.

The kind of things he wouldn't be able to help him with is if they had a strange noise coming out of a pump or something of tnat nature that they weren't familiar with hearing, that would be an indication where he would come to my attention, and I would go out and look over that piece of equipment myself. If I thought I had a problem, I would call in the appropriate maintenance people.

Q Usually two control room operators are on

each shift?

A Yes.

Q And do both of them have to remain in the control room at all times?

A In the present mode, we are required.

Q No, prior to March 28th?

A They could have been out in the plant on training purposes. However, normally there is enough going on in the control room with the normal log readings that we kept one CRO that is mainly dedicated towards monitoring the plant at all times, and the other is taking care of switching and tagging and shiftly readings and things of that nature. They wouldn't have much of that nature to get out.

Q Is there a requirement that both of them remain in the control room?

A No, not to my knowledge. We are required to have one SRO and one RO in the plant.

Q In the plant?

A Meaning in the control room or in the plant. They have to be on the site there. But one CRO does have to be in the room at all times.

Q So there is a requirement that there be at least one CRO in the control room?

A Yes, ma'am.

Q And that leaves the shift foreman, the SRO, and the other CRO free to leave the control room to help other places in the plant, if need be?

A Yes. However, most of the time the additional CRO wouldn't be out in the plant too much.

Q You also mentioned in a typical shift that you would check your plant parameters. What do you mean by that?

A Well, like our RC system pressure, our temperature, our pressures, to make sure they were in normal band for mode of operation w were in.

Q Would you check positions of valves on the panel?

A Not necessarily.

Q Would that be the responsibility of the control room operator on the panel?

A I am trying to think of how I am going to word this. Periodically, yes, ye would look at certain valves, such as your makeup system valve and things of that nature. However, it hadn't prior to the 28th been something that was set down, "Yes, you will look at this, this, this and this valve every time you come on turnover."

Q So that there is no requirement that they go then -- either you as shift foreman or the control room operators -- go through a checklist of checking positions of valves?

A Prior to the accident, we didn't have any on Unit 2.

Q Have you instituted one?

A Yes. There has been one that has been instigated.

Q Do you know who suggested that?

A The Operations people worked it out themselves. It was suggested by somebody from out of the plant -- and I forget at the time who it was -- but they operators and the shift people actually compiled what they thought was really necessary to be looked at, and the 12's are on that list.

Q You also indicated that you spent two or three hours on a shift checking the equipment.

A If the two or three hours was available to me for that purpose.

Q So that was low priority?

A It was whenever I had a chance to get out, I took and made tours of the plant.

Q Was this just a general checking on plant equipment?

A Plant equipment and cleanliness, among other things, whether the equipment sounded like it was running properly. I tried to spend as much time as I could, when I wasn't tied down with a lot of paperwork in the control room, looking around and asking questions of the different operators, such as how things were looking.

Q With respect to the surveillance procedures, who would have drafted these procedures?

A They would have probably been drafted during the time of the initial manning of Unit 1, mostly by our engineering staff.

Q And would that have been Met Ed engineers?

A I believe so.

Q Did you have any input into the drafting of these procedures?

A Mostly what input I had on it was when we performed the surveillance. According to the procedure, if we had any difficulties, or if I thought something was done wrong or something of that nature, I could take and put in a change request for the given procedure.

Q And who would you put that change request in to?

A I would take and write up what we call a temporary change notice, and a procedure change request and forward that to the PORC.

Q You would forward it directly to the PORC?

A Through the company mail.

Q Nobody would review it prior to your sending it?

A Yes, my direct supervisor would review it.

Q So the shift supervisor would sign off?

A Or supervisor of Operations, whichever was available at the time that I took and wrote up the change.

Q And does that change request form, either TCN or PCR, provide space for you to explain why you think this change is necessary?

A Yes, it does, right on the front side of the page. The top of the form gives you a space for what the change is that you are requiring, and underneath, why you think it is required.

Q Were there times when control room operators or auxiliary operators would suggest to you to fill out one of these forms?

A Yes. There would be times when the control room operator would fill one out himself.

Q If they filled out one of the forms, would they need you to approve it?

A I would be the approval signature on it then.

Q Would you then need to get your supervisor to approve that?

A Not necessarily.

Q So that in filling out these forms, you really only need one additional approval signature?

A Right, prior to it going to PORC and all that.

Q Have there been times that you have sent these forms to PORC, and you have been asked by PORC to explain why you think that is necessary, that change is necessary?

A Not really. I haven't had any occasion of that nature.

Q Have most of the changes that you have sent in on these forms been approved by PORC?

A I would say yes.

Q Do you know some that have not?

A Not off the top of my head.

Q But some have not?

A I would imagine so, that probably some haven't, because there probably was no need for such a change.

Q If they felt there was not a need for such

a change, would they explain to you why?

A They should, yes.

Q Do you remember if in the particular instances that they did not approve a change request that you had made, that they told you why not?

A Not off the top of my head.

Q Would they inform you of this in writing?

A I would believe that that would be the chain. It would come down to us.

Q And with respect to changes in operating or emergency procedures, how would that process work?

A It would follow a similar procedure. We would take and get the TCN and PCR form and again submit it to PORC via the supervisory approval.

Q Do you know of instances where you submitted a change request for an operating procedure that was not accepted by PORC?

A I don't recall one.

Q Do you recall a change in an emergency procedure that you submitted that was not accepted?

A Not that I recall. I only submitted maybe three or four procedure, I mean emergency procedure changes in the length of time I can remember. I can't recall having any difficulty with them.

Q You don't remember if they were rejected or accepted?

A No. I think they were accepted for the most part.

Q When you submit these change requests, you mentioned that you explain as to why you think these changes should occur. Do you actually draft the procedure on these requests?

A What are you saying at that point?

Q As I understand it, you submit a change request as to what you think should be changed. Do you actually draft the wording of the change?

A Yes, I do.

Q Then if there is a change in surveillance procedure or in operating procedure or in emergency procedure, how is that change communicated back to you?

A That would be through our revision review book. Any time that a revision is made to a procedure as a result of a PCR, a copy of the change itself is entered in this revision review book, and it has got spaces on the front data sheet for all the licensed operators to initial that they have read it and know about the change being in effect.

Q Where is this book kept?

A It is kept up in the control room, in the shift foreman's cabinet.

Q And is that the only place it is kept?

A Well, it could be kept up front by the CRO. It is in the control room.

Q But there is only one book?

A There is only one book, to my knowledge.

Q And there is a space in that book that requires each licensed operator to check, to initial that he has reviewed these changes?

A Yes.

Q And who checks to ensure that these licensed operators have reviewed these changes?

A There is a weekly operational surveillance, where the shift foremen will look at the revision review book and will make a listing of who is not up-to-date in that, and they will post that, such that the people that aren't up-to-date are made aware of it, if they weren't already.

Q Where is that list posted?

A Well, it is pretty much handed from one foreman to the next, from the person that initiates it.

Q And how do the people know that they are on that list?

A The foreman tells his people that they need to catch up on it.

Q So it is the individual shift foreman's responsibility to ensure that the licensed operators on his shift have read these procedures?

A He is to inform them of them.

Q Are licensed operators required to memorize emergency procedures?

A It is not, quote-unquote, memorization. We are required for exam purposes to be able to come up with immediate actions that we would be performing, such that by the time you got past the immediate action, you would have the book out right at hand, then review to make sure everything was done as is supposed to happen.

I wouldn't really say it was memorization, as much as I would say -- what would be the word -- it is not memorization per se, but you are required to know the content of the emergency procedure immediate actions.

Q When PORC reviews and approves -- let me see if I understand this -- when PORC receives a change request, the process that they go through is they review, and really they just recommend to the

station superintendent for approval, is that correct?

A Yes, I believe that is true.

Q Do you know what their review consists of?

A No, I have never attended a PORC meeting for a procedure.

Q You have never been asked to attend?

A I have never been required to.

Q Have you ever been asked to?

A No.

Q Have you attended a PORC meeting?

A No.

Q Who ensures that this revision review book contains all changes that are made?

A Well, when a change is made, a copy of it is given to the Ops secretary, and she comes down and takes and puts it into the book.

Q By "Ops secretary," you mean Operations secretary?

A Yes.

Q And is that an individual that is a secretary of a committee, or is that --

A No, she is the secretary that takes care of keeping paperwork up-to-date for us, as far as having procedures and such available, and also taking and putting in

all of our TCNs and such, and making sure the material gets into the revision review book.

Q So she is the secretary to the Operations Division?

A Department.

Q And who exactly is within the Operations Department? Is that the control room operators, auxiliary operators, shift foremen and shift supervisor?

A Yes, as well as the Operations engineers.

Q Are the Operations engineers on-site?

A Mostly during the day shift, but they are available if we need them at night, that we can give them a call.

Q And how many Operations engineers are there?

A We had three, but we are down to two at the present.

(Continued on Page 91.)

SM A 1c

Q And who are they?

A The two we got now are Duane Jenkins and Bubba Marshall. However, Bubba Marshall at present is working on a rad waste group.

Q Prior to March 28, there were two?

A There were three, prior to March 28th.

Q Was Mr. Jenkins one?

A Yes.

Q And Mr. Marshall another?

A Yes.

Q Who was the third?

A I can't recall it now. He just left a little bit back, a week or so ago; he left the company.

Q Who would the Operations engineers report to?

A Jim Floyd, Ops supervisor.

Q And were there Operations enginecrs for Unit 2 and Unit 1?

A Yes. Each unit had its separate Operations engineers.

Q Would you consult with them, as need be, daily or whatever?

A Well, when I had a problem arise, I could get in touch with them, and they could help me straighten out what I had.

Q What kind of issues or questions would you raise with them?

A Probably anything in the operational view of the plant that I really couldn't understand myself or had a problem with.

Q Could you give me an example?

A Like we had initially, we were working with the polisher system, and we had had one of them down there for the first, I would say, several weeks, and we were trying to operate it, and any question I had concerning the polisher, I would call one of them and ask them about it.

Q And your communication to them would always be orally?

A Most of the time, orally.

Q Sometimes you would write a memo?

A I would draw up a note for the oncoming shift. If I was on the back shift, I would draw up a note saying, "Hey, ask the Operations engineer about this or about that," if it was a problem that, you know, wasn't so pressing that it demanded immediate attention.

Q Do you have any contact with the NRC?

A At present?

Q No, this is prior to March 28th.

A Not very often. If I did at all, it was whenever one comes in for a site inspection or something of that nature, and then I probably wouldn't have anything to do with him in that instance.

Usually the only contact I have ever had with the NRC is in terms of my operating exams and such as that.

Q So other than your operating exams or a site inspection, you would not have contact with anybody from the NRC?

A Not as a rule.

Q Were there instances that you did?

A No, not that I can recall.

Q With respect to the site inspection, would you know in advance that there was going to be a site inspection from the NRC?

A That I am not sure about because I wouldn't necessarily be made known that there was a site inspection unless one of my superiors heard about it and he mentioned about it that we were going to have an NRC coming in.

Q Sometimes you did know in advance?

A Sometimes I did; sometimes I didn't.

Q How far in advance would you know?

A Probably an hour -- an hour or a couple of hours.

Q And what kind of things were involved in a site inspection?

A They would check out security, they would check out operating proceaures, emergency procedures for being up-to-date and things of that nature.

Q And there would be how many NRC inspectors?

A That would vary most of the time. I am not really sure how many would be around.

Q Were they always the same ones?

A Not necessarily. Let's say I have seen different ones.

Q Was there one that usually showed up more often than another?

A That one I really couldn't say because I haven't really seen that many of them.

Q Would they come into the control room?

A They could.

Q There have been instances they would?

A There have been times they have been up, yes.

Q Did they talk to you when they came into the control room?

A Sometimes. It would depend on what information they were needing at the time.

Q Would they go over operating procedures with you?

A They could. I don't really recall too many instances where they had. In fact, I can't really recall any instances in particular that they had come to me and said, "What about this, this, this and this procedure?"

Q What kind of questions did they raise with you?

A Most of the time, like I say, they didn't even really talk to me.

Q Do you remember when they did talk to you if they raised any particular issue?

A Not in particular.

Q Do you remember generally what kind of --

A They would ask me where do I get this procedure, where do I get that procedure,things of that nature. That was mostly the communication I had with them.

Q Nothing substantive?

A Not to speak of, no.

Q Did you ever receive any feedback from your superior after an NRC inspection?

A Usually after inspection, we hear what areas we did not up to our usual goodness at, and we would get

memos saying, "Well, we need to work at this, this, this and that," and then we would proceed to take and work on them.

Q Would your superior discuss this with you orally, or would you receive a memo?

A We could hear it orally, or it could come in memo form, sometimes both.

Q Would you hold staff meetings?

A No, I would not.

Q Would your superior, shift supervisor, hold staff meetings?

A No, I don't really believe he would either. The supervisor of Operations, he might.

Q Would you be included on those staff meetings if he held one?

A It would all depend on what the subject was.

Q If there were certain subjects, he would include you?

A It would be conceivable that I could be included.

Q Do you remember specific instances?

A Not really.

Q Did control room operators report directly to you?

A Yes.

Q Are there instances where they would report directly to a shift supervisor?

A Yes, if I was out in the plant and the shift supervisor was in the control room at that time.

Q But otherwise, they would report to you?

A Normally, they would report right directly to me.

Q Did you have any contact with people from B&W prior to March 28?

A Most of the time, none to speak of. I might be involved in a test they might perform or something of that nature, but that would be about the extent of it.

Q They would, in instances, perform tests on-site?

A Yes, and then they would come and they would brief us about what the test was going to be, what it would consist of, what we would have to do to assist them, and that would be about the extent of it.

Q They would tell you why they were performing those tests?

A Yes.

Q Do you remember particular instances where they came on-site and performed tests?

A I can't remember particular instances, but I know during the startup procedure, we had a lot of

them going on.

Q After December or after TMI 2 became critical, were they performing tests?

A They were doing their reactivity calculations and such as that, yes.

Q Any other tests?

A Not that I can recall off the top of my head.

Q After December 30, 1978, did they perform any tests?

A That I can't recall.

Q Would there be a record of that?

A I am not sure even where it would be if there was one.

Q You would not maintain a record?

A I would not maintain it, no.

Q Do you know who would?

A No, I don't.

Q Are you aware that B&W, prior to March 28, had personnel on-site?

A Yes, we did have, if I am not mistaken. We did have one guy who would come down periodically. I can't recall his name or anything, but we did have a periodic B&W man down here checking things out and how they were running, et cetera.

Q There wasn't a B&W personnel on-site permanently?

A I really can't recall that.

Q This B&W person that would come down periodically, he would just come down to check things out?

A Make sure the plant was operating the way it was supposed to be operating.

Q Did you have any contact with him then?

A I may or may not. Chances are I wouldn't be on-site when he was there.

Q Because he would come during the day?

A Yes, he would come mostly during the day, or if a problem arose, he would be contacted and he would come in.

Q Did you receive any feedback from his periodic visits?

A If there had been a problem we had been experiencing, I would probably hear the result of what was concluded about it.

Q Do you know of certain instances?

A Not off the top of my head, again.

Q Would there be a record of this?

A I am not really sure.

Q Do you maintain a record?

A No.

Q Do you have any contact with people in Metropolitan Edison management in Reading?

A Occasionally.

Q On what occasions?

A I have to go and spend a week in Reading for a shift supervisor type of development program.

Q And is this a training course to prepare you for moving into a shift supervisor's position?

A What it actually was was a one-week training course on bringing you up-to-date in the different techniques of management.

Q For your position as a shift foreman?

A Yes.

Q And that was taught in Reading?

A Yes, ma'am.

Q By the Training Department?

A By the Reading Training Department, yes.

Q The Reading Training Department is separate from the Training Department at TMI?

A Yes, I would say so.

Q Is the Training Department at Reading just concerned with management-level positions?

A No, they are concerned with training and licensing of all levels.

Q So the Training Department at TMI is under the Training Department at Reading?

A Yes, I believe so.

Q While you were in Reading taking this course, was this course taught by Met Ed management people?

A Yes, I believe it was.

Q And is that the only contact you had with those management people?

A For the most part, yes.

Q What other instances would you have contact with them?

A Well, if I did have contact -- on one occasion I did have contact after taking the shift foreman's job, where I got to take a trip down to Reading and spend half a day down there meeting different individuals in different departments, but most of them I can't even remember their names any more.

Q Was that just for introductory purposes?

A That was introductory.

Q Do you have any contact with people at GPU?

A On occasion.

Q For what purposes would that be?

A Well, like during the startup phase itself, we had GPU test engineers that were on-site directing testing of the unit, and I would have briefings with them in which I would find out what tests they were going to perform during the course of my shift, and again, what they required me to provide for them as far as manpower and such like that.

Q How about after startup; did you have any contact with anybody from GPU?

A I have, on occasion, but like I was saying, it is nothing that I can specifically come out and name, "I have seen so-and-so here and so-and-so there, concerned with this or that problem."

B Q Do you remember any names of the people from GPU that you had contact with?

A None except in the startup program.

Q Who were those test engineers that you had contact with in the startup program?

A We had a bunch of them there. We had Jack Garrison, we had John Ulrich, and a couple of them that aren't even around any more, and I can't even remember their names.

Q Do you have contact with anybody from

Burns & Roe?

A Not that I recall. I may have, but I can't really recall it per se.

Q Did you have any input into the control room design on Unit 2?

A Not to speak of. I had made requests or I had told people that I thought maybe this indication ought to be here, or we need such-and-such indication, and some of it we got, and some of it we didn't.

Q And to whom would you have communicated your desires?

A All I would have done is I would have filled out a form that we carry up in the shift foreman's desk, which is a plant modification request, and I would have submitted that by regular mail. From that point on, I am not sure where it would have gone.

Q And was this when you were a control room operator?

A As a control room operator, yes, when I first come over to the unit.

Q Do you remember in what sorts of things you thought the design should be changed?

A I mentioned about a lot of valves were high up in the air, and they needed ladders built up to them

so operators could actuate them if they had to, things of that nature.

Q Do you remember any other specific ones?

A Not off the top of my head. There were several, but it has been quite a while ago.

Q And to whom would those forms have been sent?

A That I am not really sure of.

Q You don't remember to whom you sent it?

A I just put it in the mailbox, and it went from there.

Q You don't know who it was addressed to?

A No, I am not really sure.

Q Was it addressed to somebody in Metropolitan Edison?

A It would have gone to our Engineering staff, like most change requests would possibly go there.

Q It would have gone to somebody in Metropolitan Edison and not Burns & Roe?

A I believe so. It would have initially gone to somebody in Metropolitan Edison.

Q Were any of your changes not accepted?

A That I am not really sure of. The only way I could be sure of that is if I knew which ones I had

put in, and then I would look to see if they are there or not. I know my ideas of the ladders were because they are in there.

Q Did you make a record of your suggestions?

A No. I wish I would have kept that.

Q Similarly, would you have filled out one of these forms concerning modifications in the control room design subsequent to Unit 2 becoming critical?

A No, I can't recall any at that time, just in the earlier stages of construction.

Q Could you still fill out one of these forms?

A Yes, I could have, yes. If I deemed it necessary, I can still do one now.

Q But you don't know who you would have forwarded those to?

A I would have to ask around on that, but I am really not familiar, myself, with who it went to.

Q If you wanted to fill one out now, you don't know who you would send it to?

A Not offhand. I would have to ask somebody.

Q As a control room operator on Unit 2, were you ever consulted as to your opinion as to the way the control room design should be?

A I had had questions asked. Everybody had. They asked us what changes we would like to see, things of that nature.

Q Do you remember who asked you those questions?

A No, I don't.

Q Do you know if they were people at Met Ed?

A I think that they were Met Ed people.

Q You don't remember who, specifically?

A No. It has been a long time. I have trouble, sometimes, remembering what I did two weeks ago, let alone three years ago.

Q What would you want to change now in the control room?

A I probably want to take and change the position of some of my pressure indications. I would want to change the location of my heater pressure indicator particularly because we control that with the turbines, and they are a good distance apart, things of that nature. I would like to change the position indication on pressurizer level valve, definitely would like to see that changed. I would like to see the location changed of the pressurizer heater controllers. As far as any more, I would have to think on that. I imagine I could find a lot of things I would like to see changed.

Q What is your opinion as to the control room design?

A Overall, I would say it is all right; spread out enough that for most things you don't have a big jumble, so you have got to weed through a whole jumble of things in order to get to something. It is spaced enough so you could move around.

I would like to see the front console divided, though, to give you better access around to the back panel.

But as far as everything's grouping, things are mostly grouped in systems, such that if you are going to do something in a given system, you go right to so-and-so panel.

Q Are there any instruments that you do not have in the control room that you would like to see?

A That one I would have to do some thought on. I imagine I could probably come up with some I would like to have.

Q Offhand you can't think of any?

A Not right off the tip of my tongue, no.

Q Do you know who had ultimate decision over the control room design?

A No, I don't really.

Q Do you know if it was a Met Ed decision or a Burns & Roe decision?

A Again, I am not really cognizant of that.

Q Do you know who at Met Ed would have been involved in that decision?

A No, I don't.

Q Do you know what rationale existed behind designing TMI 1 and 2 control rooms differently?

A Well, they were different plants. Initially, this plant, TMI 2, was supposed to belong to some other unit, and then at this time, I guess they decided they weren't ready for it, and we were ready for a second unit, so they brought that unit here, designwise.

As far as rationale for why the rooms are different, that I really wouldn't have anything I could say on that.

Q So the design that exists here was designed for another unit and was just incorporated as TMI 2?

A Yes, as far as I have been able to understand.

Q And as far as you know, there wasn't a conscious decision to purposely make Unit 2 different from Unit 1?

A I am aware of no such effort.

MR. YUSPEH: Could I ask a question, Joan?

MS. GOLDFRANK: Yes.

MR. YUSPEH: Are you saying it is your understanding that just the control room design--

THE WITNESS: No, I am saying the entire plant was originally designated as some other unit.

MR. YUSPEH: Oyster Creek?

THE WITNESS: Oyster Creek, I believe it was. I am not really sure on which unit. Then in the end, it actually came to be TMI.

MR. YUSPEH: Off the record.

(Discussion held off the record.)

MR. YUSPEH: With regard to your comment before, Mr. Scheimann, that the plant which is now here as Unit 2 at Three Mile Island was to have been located elsewhere, do you mean that the plant physically was to be elsewhere, or that the capacity which the plant represents was to be elsewhere?

THE WITNESS: The capacity itself was what I was driving at. They had to redesign everything to meet the requirements.

MR. YUSPEH: So to the extent that any work may have been done with regard to a nuclear unit

of the GPU system at some place other than Three Mile Island, if there was design done at that plant, it was, to the best of your knowledge, redesigned when it became Unit 2 of Three Mile Island?

THE WITNESS: Yes.

BY MS. GOLDFRANK:

Q Do you know, in fact, what redesigns were made?

A No, I don't. I wasn't even in on redesigning of the plant.

Q So with respect to the question as to whether or not there was a rationale between designing Unit 2 and Unit 1, do you know if there was a rationale involving a concern to have the two units different?

A No, I don't know of that. It would probably have been more to their advantage to have two units identical.

Q Are you cross-licensed?

A No, I am not.

Q Are you capable of being cross-licensed?

A That one there, I have spent time on Unit 1. I would have to totally re-familiarize myself with Unit 1 in order to be cross-licensed. However, at present

I don't know of any plans for myself being made cross-licensed.

(Continued on Page 111.)

c.1
sm/ew

Q But your position is a position that you could be cross-licensed?

A No, the shift foreman is strictly licensed on a single unit.

Q Was a shift supervisor capable of being cross-licensed?

A Yes. In the past they were cross-licensed. You used to have one shift supervisor for both units.

Q But in your position as shift foreman, you would not be able to be cross-licensed?

A I would not be required to be cross-licensed.

Q But you could hold a cross-license?

A I could hold one, yes.

Q And that would require you to obtain a reactor operator license for Unit 1?

A Reactor and senior license.

Q You would have to acquire both licenses for Unit 1?

A I believe so because I never held a control room operator license in Unit 1.

Q And you have to receive that control room operator license for that specific unit prior to receiving a senior reactor operator license for that unit?

c.2

A I believe so.

Q But there is no suggestion made that you should be cross-licensed?

A No, ma'am.

Q Do you know why there was a decision made that the polishers on Unit 2 would be manual and the polishers on Unit 1 automatic?

A No, ma'am. I have no feel for that.

Q Do you have any feelings as to the assets of either manual or automatic polishers?

A You are better off with an automatic, on the bypass anyhow. I believe that is what you are referring to.

Q Yes.

A It is a lot better off with an automatic.

Q Why is that? Could you explain why you feel an automatic is better than that?

A Well, if you have an automatic bypass, if you have something that is going to isolate the polishers for you when you don't want them isolated, you want to maintain a flow path. If we had an automatic system, that would open on a given differential pressure. As your problem developed in the polisher, your bypass would automatically open up and you maintain flow path,

c.3

whereas in a manual system, you would have to go down there and manually open it, and that could be time-consuming by the time you get an operator to go down there.

Q How long have they been having problems at Unit 2 with the polishers?

A Off and on for a period of time, probably since we first started bringing them in and serious effort to run them. We have had a problem now and then. Maybe we wouldn't have a problem for six or eight months and then all of a sudden one would come up again.

Q Prior to March 28, how long had you had a problem?

A I think it had probably been a couple of months before we had our last problem prior to March 28.

Q So maybe in January?

A I think it might have been somewhere. I am not really exact time-wise when we did have problems.

Q Would there be some kind of record of this kept?

A It would probably have been in the polisher log. They kept a log down at the polisher. Where that is anymore, I am not really sure.

Q You say that there was a log kept at the

c.4

polisher. Is there a lot kept at every system?

A Not necessarily.

Q Which systems is there a log kept on?

A Well, you would have your rad waste panel would have a log, your polisher panel would have a log, and to my knowledge, the only other ones that would would be the control room operator's log and the shift foreman's log. Other than that you have daily logs that you take on all the running equipment which the operators would take.

Q And what else was kept in this log by the polisher?

A We would keep a record of what vessels were changed, which ones were regenerated, any problems they had with it, things of that nature.

Q And what kind of problems did they have with the polishers prior to March 28?

A Similar, they had one similar problem with getting water into the air line and causing the valve to go closed. They had problems every once in awhile over an extended period of time getting a resin bed to transfer from one place to another, stuff for the most part that was minor and nothing near as consequent as the 28th.

Q When was that previous time that they had

c.5

trouble getting water?

A Again, that was so long ago I can't really remember an exact time for it, but it was quite awhile previous.

Q That was not the previous incident to March 28th?

A Not to my knowledge. I think that was a minor resin plug, something like that, and the last one I can remember with any clarity.

Q Have you ever spoken with people at B&W who designed reactor systems?

A In what sort of a regard?

Q In any regard.

A We go up there, like I say, once a year and we talk over systems and things like that in our annual requalification up there.

Q So when you go for requalification you talk with the people at B&W who actually designed the system?

A Probably not the ones who actually designed it, but there are B&W people there that come in and give us lectures on the system at which time we are free to ask questions.

Q Do you know if you have ever spoken to people at B&W who actually designed the system?

c.6

A If I did, I can't recall it.

Q What was your opinion of the simulator training that you had at B&W?

A I thought it was worthwhile.

Q Did you ever make a suggestion or think that it would be worthwhile for Met Ed to have a simulator?

A I had been involved in some talk concerning that.

Q Who else was involved in this talk?

A This was just myself and several of my other fellow control room operators were talking back and forth and we thought it might not be a bad idea to have one here.

Q Did you suggest that to anybody?

A I am not sure whether it was or not, but I understand there was a suggestion made by somebody to that effect.

Q Do you know what happened to that effect?

A No, I don't. I hadn't heard much come out of it.

Q Who else did you hear discussing this?

A I really can't remember any specific individual, but like I am saying, all I remember is I can remember a bunch of us in a group talking it over amongst ourselves.

c.7

Q Do you know why a simulator was never purchased?

A No, I have no idea. That falls clearly out of my range of operation.

Q And you never made the suggestion to anybody that it would be a good idea?

A I don't really recall making such a suggestion. I may have, but like I am saying, there are a lot of things that I really can't remember, and specially if it is over a long period of time.

Q Could you tell me if the tech specs require that H_2 combiners would be on-site?

A I believe there is a tech spec which requires us to have one H_2 combiner on-site.

Q And was one available on March 28?

A Yes, there was.

Q Was there one on-site?

A There were two on-site. One was up in the proper location; the other one was over in the warehouse as a spare.

Q Where was the first one?

A The first one was up in the field handling building where it is supposed to be installed.

Q And was it installed?

c.8

A Yes, it was in place.

Q And what requires it to be installed there; is that set out in tech specs?

A No. That is determined in design and engineering purposes where they want it. Again, I would have nothing to do with the location of it.

Q And are there procedures that cover the availability of the H_2 recombiners?

A There are operating procedures and there are surveillance procedures concerned with the hydrogen recombiners.

Q Would those specific surveillance procedures be within your responsibility to check the H_2 recombiner availability?

A Well, we would have to periodically perform the surveillance procedure on it, yes. I would have access to that procedure, and if it fell when I was on a shift, I would be required to perform the procedure.

Q So this would be one procedure that would come through on your computer printout sheets from the surveillance people?

A Yes, ma'am. That would go on that.

Q And that procedure would have been written and previewed and approved similar to the other

procedures?

A Yes, ma'am.

Q Would it have been approved by PORC?

A Yes.

Q Was there ever any discussion as to the adequacy of the comuputer in the TMI control room?

A I believe there was on some occasion. Exactly when it was, I really can't recall, but I remember we had made complaints in the past that the thing was so slow in the case of a casualty or something like that occurring that you kept continously backlogging.

Q And to whom would you have voiced these complaints?

A I would have voiced them to my bosses and they would have gone on with whatever route they thought they should go.

Q So you would have indicated your concern over that computer to the shift supervisor?

A Yes.

Q Did the control room operators indicate to you that concern over a computer?

A Yes, they did.

Q Do you know why that particular computer was purchased?

A No, I have no idea behind that, ma'am.

Q Does TMI 1 have the same computer?

A I am not sure, to tell you the truth. It has been several years since I have had anything to do with Unit 1.

Q Do you know if their computer has been updated?

A Again, I really couldn't say.

Q What kind of information do you receive from the computer?

A You receive high temperatures, abnormal indications, you get indications of certain equipment starting and stopping, you would have temperature printouts, pressure printouts, you can just about ask for any parameter on there and you can get some sort of a printout on it or a visual.

Q Does this computer continually print out information?

A It would all depend. It would print out alarms on a continuing basis, but anything else you wanted, you would either have to put it on the viewscreen in a group or you would have to select when you wanted the information.

Q So the only information that was continually

printed out would be concerning alarms?

A Alarm conditions, yes.

Q In other words, otherwise you would have to feed information into the computer to post this information?

A Yes. You would have press in certain numerical codes which would call for a certain bit of information.

Q How much was the computer relied on day-to-day?

A Day-to-day, most of our operations was based on what our console indication was.

On a daily basis we had certain programs that were required to be printed out once a shift or once a day even for our engineering staff to do studies on the performance of the plant and the core, but for the most part we mostly operated by our console indication and used the computer strictly as a backup.

Q So that usually you did not use it for additional information but you would just rely on it as a secondary source?

A That is about what I believe it would be.

Q Did the computer ever jam?

A It had in the past.

Q How frequently?

A Not very often, periodically, though, it would, and you would have to get an INC man in to clear it and check it out.

Q An INC man?

A Instrument control technician.

Q So that you would report directly to the INC man to come and fix the computer?

A If it was during the day shift I would call the instrument foreman and have him send a man out there to look at it. If it was on the back shift, I would notify the shift supervisor and at his discretion we could either call the man out if there wasn't a man on-site familiar with the computer or if it wasn't a major problem we could leave it to the morning and the foreman would have the instrument man come and check it out.

Q So you would do that orally, not complete a form?

A It would be orally on the most part.

Q And the computer was working on March 28?

A At the onset it was working.

Q And after what period of time did it no longer work?

A Well, that was one question I am not too sure of

myself because during the course of all that activity we were pretty much busy up on the console. I had overheard somebody say that it had stopped and then in later talks I have heard that it had for a period of time stopped, but I am not really sure of what the time was.

Q You were not relying on it on March 28?

A No, ma'am, I was not. I was paying more attention to what was up in front of me on the console.

Q Was there anytime that you requested the information be pulled from the computer?

A On that day I didn't even touch the computer.

Q Did you ask somebody else to pull information from the computer?

A I don't recall asking anybody for any information off of it. Like I am saying, I was pretty much centralized in one area there. We had split up so that the group of us could combat what was going on.

Q So you don't remember an instance where you asked somebody to pull certain information from the computer?

A No, I don't.

Q And who would be responsible for seeing that the computer was in working order, would that be

the shift foreman or the control room operator?

A We would use the computer, but as far as upkeep on the computer, that would be the instrument people.

Q But if you came on shift and it was not in working order, would it be your responsibility to notify the INC people?

A Yes, it would be. I would be normally the one to call them up and have them look at it.

Q And you indicated earlier that the computer had a lag time?

A Yes, ma'am.

Q And of a couple of hours, I believe you indicated?

A It all depends on what was happening. Like on that day in particular, at times information got backed up for a good hour or so.

Q And had that happened in the past?

A On a trip or something where we have a lot of things happening at the same time, yes, it would tend to backlog; maybe not necessarily that bad. It would depend on the severity of the problem.

Q But in the past during the trip it would backlog?

A Yes, ma'am, it would.

Q And depending upon how complicated the incident was would depend how well the computer worked?

A It would depend on how far backlogged it kept. It would all depend on how many things are logged at the same time.

MS. GOLDFRANK: Let's break for today.

(Whereupon, the deposition was recessed at 6:50 p.m.)

Frederick Joseph Scheimann, Jr.

Subscribed and sworn to
before me this_____
day of_____
1979

Notary Public

o0o

INDEX

EXHIBITS

o0o

C-E-R-T-I-F-I-C-A-T-E

STATE OF NEW YORK)
) ss:
COUNTY OF NEW YORK)

We, STEPHEN McCRYSTAL, Notary Public of the State of New York, and STANLEY RUDBARG, C.S.R. and Notary Public of the State of New York, do hereby certify that the foregoing deposition of FREDERICK JOSEPH SCHEIMANN, JR. was taken before us on the 24th day of July, 1979.

The said witness was duly sworn before the commencement of his testimony; that the said testimony was taken stenographically by ourselves and then transcribed.

The within transcrcipt is a true record of the said deposition.

We further certify that we are not related to any of the parties to this action by blood or marriage, nor are we interested directly or indirectly in the matter in controversy, nor are we in the employ of any of the counsel.

IN WITNESS WHEREOF, we have hereunto set our hands this 25th day of July, 1979.

STEPHEN McCRYSTAL

STANLEY RUDBARG, CSR