UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of:

IE TMI INVESTIGATION INTERVIEW

of Mr. Craig Faust
Control Room Operator

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

April 21, 1979
(Date of Interview)

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(Tape Number(s))

NRC PERSONNEL:

Mr. Robert Marsh, Investigator
Mr. Dorwin Hunter, Investigator
Mr. Larry Jackson, Radiation Specialist

MARSH: The date is April 21st and the time is now 3:29 p.m. We are located in Trailer 203, which is the NRC interview trailer, just outside the gates of Three Mile Island. This is Bob Marsh speaking. I am an Investigator FROM Region III, the U.S. Nuclear Regulatory Commission. I would like at this time to have the other people in the room identify themselves and state their postions. The purpose we are here today is to conduct an interview with Mr. Craig Faust, who is a Control Room Operator at TMI, and Craig, you were on duty the night of March 28 when...?

FAUST: Yes.

MARSH: the problem came about. So at this time I am going to ask each of the other NRC members here to state their name and their position.

HUNTER: My name is Dorwin Hunter. I am an IE Investigator. I'm from Region III.

JACKSON: My name is Larry Jackson. I am a Radiation Specialist from Region II.

MARSH: Okay Craig, before we began here I gave you a document to read, and when this is transcribed, rather than read this one and one-half page document into the record now I am just going to ask you if

you had time to read it and then in the actual transcript of this tape at this point we will have that statement of that letter typed into this. Did you read it?

FAUST: Yes I read it.

(Letter reads as follows: The purpose of this investigation by the U.S. Nuclear Regulatory Commission is to determine exactly what occurred regarding the incident at Three Mile Island, Unit 2, which began on March 28, 1979, and the responding actions taken by Metropolitan Edison Company. The investigation will include a review of the condition of the plant prior to the incident and the period investigated will extend to 12:01 a.m. March 31, 1979.

You are asked to provide information in as much detail as you can recall concerning your site-related activities during this period, including your recommendations.

The U.S. Nuclear Regulatory Commission was given the responsibility and authority by the Congress of the United States in the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, as amended, to license nuclear power plants and to see they are operated safely to protect the health and safety of the American Public. It is from this Act and Title 10, Code of Federal Regulations, that the U.S. Nuclear Regulatory Commission's Office of Inspection and Enforcement is conducting this official investigation.

You have the right to refuse to be interviewed. If you consent to an interview, you may have someone of your choice present. To assist in obtaining every comment, exactly as it is given, and to expedite the interview, your permission to tape record this interview is requested. You have the right to refuse to have the interview tape recorded. As an alternative, U.S. Nuclear Regulatory Commission investigators may prepare a written record of your statements and request you to sign it. You have the right to refuse to give a signed statement. In the absence of a tape recording or a signed statement, the U.S. Nuclear Regulatory Commission investigators will, to the best of their abilities, write your comments for inclusion in the investigative report. Upon your request you will be given a copy of your tape recording or signed statement.

You have the right to request that your identity be protected and not used in the U.S. Nuclear Regulatory Commission investigation report. However, because of the deep concern over this incident by the American Public and government officials, the U.S. Nuclear Regulatory Commission cannot assure you that we will not release your name and interview contents if we receive official requests and requests by the public through the Freedom of Information Act. If specifically requested, all attempts will be made by the investigators to keep from disclosing to Metropolitan Edison or other parties specific information. You must recognize that this is not an absolute guarantee. Federal law prohibits your employer from discharging you or discriminating against

you because of your interview with the U.S. Nuclear Regulatory Commission.

Your help and cooperation in providing information to the Nuclear Regulatory Commission will be appreciated.)

MARSH: I have a couple of questions at the end which I would like you to respond to. Question 1 is listed as: Did you understand what was in the letter?

FAUST: Yes.

MARSH: Do we have your permission to tape the interview?

FAUST: Yes.

MARSH: And, would you like a copy of the tape or transcript?

FAUST: Yes, I would like that.

MARSH: Fine, that will be provided to you. And the 4th question, which wasn't typed on the end of the letter there but is covered in the body of the letter, is that as it indicated you can have someone from the company present or from your union. Do you have a -

FAUST: I have no preference to that, right now.

MARSH: Okay, so are you telling me you do not want someone present?

FAUST: Not unless they want to be present.

MARSH: Okay.

FAUST: I'm saying it doesn't really matter to me.

MARSH: Okay, more than them wanted to be present, it would have to be that you want them here. They obviously have a very strong feeling to be here, but it is up to you to make a decision.

FAUST: I didn't talk about it with anybody, so right now I say no.

MARSH: O.K., fine. All right, at that point then I am going to ask Larry Jackson and Dorwin Hunter to proceed. And I would like, for the ease of transcription, that each time you do make a statement to proceed it with just your last name and it will make it easier on the transcription.

HUNTER: Okay Craig, how about go through your background again for me, and your experience and how long you have been with the company and have been an operator.

FAUST: My background is from the Navy. I served as a Machinist Mate aboard the George Washington Carver. I spent two years of pre-schooling

prior going to the boat, and reported aboard and was aboard the George Washington Carver for about five years, and after that working, like I said, in the capacity of Machinist Mate, Nuclear type. From there I was hired by Met Ed and spent the next 5 1/2 years up to now working as a A operator first, then training programs, and then the CRO. I guess it's been two years now on Unit 2. I had previously at one time went up for a CRO in Unit 1 and more or less for just disagreements that occurred at that time just between, well who I was training under, who I was training, the shift I was on, I dropped back and was an AO for awhile and then I bid up again for Unit 2 when the opening came up.

HUNTER: Okay and you indicated that you are an A operator on Unit 1 now.

FAUST: Yes, definitely an A operator on Unit 1, but we were used on Unit 2 at times when needed, whenever we -- like we did the initial systems, the descriptions and lecture plans on. I was involved in some of that, and just plain tracing out the plant for initial startup.

HUNTER: And then you bid, you said, CRO for Unit 1 and due to

FAUST: It was more or less just a disagreement between me and my shift supervisor at the time, that I just felt I didn't want to pursue the program right at that point. I dropped back and I just bid up later on for Unit 2.

HUNTER: Okay, and when did you get your license on Unit 2, do you recall?

FAUST: It was March of ... I'll tell you when it was. Let me dig it out of here.

MARSH: Craig, what is it you are checking? Do you have a...

FAUST: I have a copy of my license ... somewhere. This is something I imagine you can look up too, just as easily. I thought I had one in my wallet. I used to carry one. Apparentl I don't.

HUNTER: Okay, is that '78 or '77?

FAUST: It would be in '78.

HUNTER: Okay.

FAUST: Early '78 is when I got the license.

HUNTER: All right. And as soon as you're licensed at the plant, then you are a CRO in training, or a A CRO?

FAUST: Well actually, we're a CRO in training up until the time we are licensed. In other words, we worked on the panel but at this time

we did not have fuel in the reactor. It wasn't refueled so we could stand watches without being licensed at the time, and we were in our program - our training program - at this time.

HUNTER: Then, did you load fuel in Unit -- you were a CRO when they loaded fuel in Unit 2?

FAUST: Yes. When we received our license prior to loading fuel.

HUNTER: All right. I didn't want to pursue the bidding for the job in Unit 1. But just one issue, O.K. And I wanted to ask if it was a personality conflict, or what was, you know, was the - if you would care to comment?

FAUST: It was a personality conflict more than anything. 'Cause I didn't -- the forman there, the supervisor that I was dealing with, we just didn't hit it off too well. You just run up against people that you don't get along with and that's about all it amounted to.

HUNTER: Does that person still work with Met Ed?

FAUST: Oh yeah.

HUNTER: He -- is he still a Unit 1 supervisor or ...

FAUST: Well, he covers both units. I've worked under him but there is - it's a little different, I guess, when you're training and when you're licensed and working for somebody because - I don't know how you want to put it - it sort of a reminds me of the Navy career. There were just some people I didn't want to go to for qualification because I just thought they were wrong -

HUNTER: Yeah.

FAUST: About the way they went about training.

HUNTER: Is there any problem there now?

FAUST: No.

HUNTER: After you got your license, was there any problem?

FAUST: No, there wasn't. As soon as I dropped back, there wasn't any problem.

HUNTER: What about when you came back and bid for co-license in Unit 2 or CRO in 2?

FAUST: There wasn't any problem with that.

HUNTER: O.K. The night of the 28th, or the night of the 27th, you came on the 11:00-7:00 and as I understand and recall in our previous tapes, you were the CRO taking readings in the Control Room.

FAUST: Yes.

HUNTER: And Ed Frederick was the panel CRO that night. O.K. And go through again what your duties are, in that position, as a CRO.

FAUST: As a - well we call it switching and tagging CRO. We take care of writing up safety tags, when there are safety tags to write up, whenever an application form is put in for it. On the back-shift like this, and also when you are operating, you don't normally have too many tags to write up because there is not a great deal of maintenance going on. And once this night, I didn't even have any to write up, so all I was doing, for the most part, was our normal data acquisition, where you just go around and get a set of certain readings you take every hour or just once a shift, varying also shift surveillances, which amount to when their computer schedules bring them up, provided there is no other cover sheet for it and you just schedule to do it that night. And I was - I didn't have any of them, but I had the regular shift and dailys, which are called "Shift and Daily" readings, to take that I was working on at that time or that I was finishing up.

HUNTER: O.K. And where were you located? What was your position when you saw the Unit trip? What led you to note the Unit trip?

FAUST: I just faced the panel from where the switching and tagging desk is. I had been walking over and turning around facing the panel when the alarms came in that I first noticed on the trip, which were located on the ICS alarm panel and also on the electrical board. And like I said, not before now, I'm almost sure, I had to have seen alarms on the - when I say "I had to" - it was more natural for me to actually be facing the one panel that I'm thinking about, which is the one that's on the secondary plant, which is Panel 17. The alarms had come on at that spot are very -- when you're looking at the panel that's what you'd see out of the corner of your eye first. So I'm actually saying now that one of the first alarms I saw was the ICS, which was about 4 or 5 alarms on there initially. And the ones on the turbine plant panel, which was probably a generator tripping -- generator trip panel, maybe even a condensate pump.

HUNTER: Have you been through trips before?

FAUST: Yes.

HUNTER: How many have you been through?

FAUST: I guess I've seen -- I've been in three trips before and I've ... I don't know whether you count run-backs, too. I've been in a couple of run backs. I guess about 6.

MARSH: Craig, have any of those trips been here? Can you give me an idea of how many trips have been here?

FAUST: All of the trips that I have associated with have been here. Now, if you're talking about my Navy experience, I've been on aboard the boat, but I wasn't in the Control Room. My job was as a - was known as SCR, Control Room supervisor.

MARSH: The trips out here were all referring to Unit 2?

FAUST: Yes. I was going to go on to say that I have seen trips in Unit 1, where I've been in the room, but I was only under trainee and therefore, I did not get involved directly into it. But I stood more or less, out of the operator's way so that they could perform what they needed to do.

HUNTER: The two run-back - what were they associated with?

FAUST: The two that I'm thinking about, were just where we had lost the feed pump. And it turned out, later on we found out that it was due the FWV 16 valves -- I got the right designation there, 16. I think it was the B pump that we lost, 16B that spiked open on us. It went open just enough and shut, and we didn't see the valve travel, but it was enough to drop suction pressure on the pump, so we had to drop the pump off. And I guess we ran about 97% power and we had to run back to 50% about. We had that twice.

HUNTER: Same problem, again?

FAUST: But that was within the same shift, that one.

HUNTER: O.K.

FAUST: We've had other run backs. I'm trying to place them. There has been run backs when I've been in the Control Room, but not CRO and not even switching and tagging, but I was on, like, surveillance. During the day, we had extra CRO's on and they usually run the surveillance procedures that we need to go through.

HUNTER: What about the trips?

FAUST: Well, one of the bigest ones we had was a trip during initial startup where we were testing the steam safeties. And we had to trip at approximately ... it was right around 22% power. And the bad thing about that was that we had a relief valve. One of the main safeties, steam safeties, stick open on us. It didn't re-seat.

HUNTER: Excuse me. Safety on the secondary system or the primary?

FAUST: It was on the secondary.

HUNTER: The secondary. O.K. And it stuck open and then what happened?

FAUST: It was more than one. I think it was three all together. They stuck at some point, where they didn't fully re-seat when they were supposed to at about - they should have re-seated like around 900 pounds. And they brought us down to a 600 pounds range or more, which gives you a pretty nasty cool down rate. And I think it's pretty much record, where you can read about it. It shrank the pressurizer, we lost the level out of the pressurizer, picked up high pressure injection but regained pressurizer level right away. It was a rather sharp spike, where it went straight down. In fact, I didn't even see the pen drop, it went so fast. And I carried out the procedures, once again. And we managed the recovery fairly fast.

HUNTER: O.K. Another trip?

FAUST: O.K. There are two significant ones that are hitting me right now. The other one's hard for me to picture when it was, but I know we had it though. I don't think I can picture or present it to you right now. I'd have to look it up myself.

HUNTER: O.K. We'll look at it in Trailer soon. We'll pick it up, too. And if we have any further questions, I'll come back and we'll talk about it, if it's significant. O.K. And when the unit in tripped and you saw the alarms, then you, if I recall properly, you went to the makeup panel first?

FAUST: Yes.

HUNTER: O.K. And what did you do at the makeup panel?

FAUST: I shut it down, shut our letdown isolation valve - MUV 376 - and attempted to start the makeup pump. First try, I know I didn't hold the switch long enough. Like I said before, it's a one second time delay for the lube oil pump on it ... and to pickup and apparently let the switch go too fast. I was back on it, and just about, just as I sort of let the switch go, I was back on it again, and held it over on again. The pump indicated it picked up, in other words, I got the red (stuttering), which would be really an indication that the breaker closed. Started, I even got amps on it. When I backed off and I let go of the switch, the light went off but the pump tripped back off. It was at that time that Ed Fredrick, whatever his movements were on it, reached over and started it and I just kept going across the panel to the feed station.

HUNTER: O.K. Looking at the makeup station, when you got there, what was the normal charge ng in lineup, the normal makeup lineup at the time?

FAUST: O.K. "1B" makeup pump was running at this time and it was just supplying normal makeup to the system, as needed, through the 17 valve - MUV 17 - and also seal injections through the RC reactor cooling pumps.

HUNTER: What does that normally run - those two numbers, those two values?

FAUST: Seal injections are usually about 40 gpm total, and it's hard to tell what 17's because it varies. At this time it was -- I can't even guess 'cause the valve feeds, you know, automatically. So you don't really know which position it's making up.

HUNTER: What about the letdown that you isolate? What was the letdown lineup at that time?

FAUST: O.K., that would of been around, I'd say probably about total of 50, 50 GPM, probably.

HUNTER: Is that like one orifice? or,

FAUST: Well, it's a very -- it's an orifice.

HUNTER: Okay.

FAUST: I guess there around 40 while we're making up that (phoenetic). All right, let's try to remember -- I'm getting them backwards here a minute.

HUNTER: O.K. would I find that recorded anywhere, the makeup flow and the letdown flow?

FAUST: You'll find the ... no.

HUNTER: O.K., would you have trended that on your analog recorders on the computer?

FAUST: Not unless we had a reason, and at the time we didn't.

HUNTER: O.K. What about makeup tank level?

FAUST: Well, you see that is trended on the -- there is a chart recorder for that.

HUNTER: O.K., and when you shut the letdown valve there, the letdown goes to, obviously goes to zero, and then you start the A, in this case you started the A pump. The sunction for the A pump is from where?

FAUST: Initially at this point, it's from the makeup tank.

HUNTER: Would the pump just come on, on recirc?

FAUST: The pump would come on on recirc. Actually, it would be -- the header for the A pump is lined up the same as the B pump. That's why this one was selected initially.

HUNTER: O.K.

FAUST: To start the "C", I would have had to go around the panel, run around that back panel and open up CHV 5A, or B rather, to get suction to the C pump before I could start it, 'cause the pumps will burn up in about 3 seconds without any kind of suction flow going to them.

HUNTER: Elaborate on that a little bit for me, all right? The B pump is lined up to the makeup tank. It's normally charging flow and letdown so it's stabilized and balanced.

FAUST: Right.

HUNTER: And you start the A pump, and its suction is from where?

FAUST: It's coming off the same flow pack that the B pump is, the makeup pump, and its discharge path will then be the same too, through seal injection and recirc.

HUNTER: O.K. Parallel path, the. At that time, the pressurizer level would have dropped, or going down.

FAUST: The procedures call, on a reactor trip like that, it doesn't hurt to start the A pump in this manner. Because unless you open the 16A, you're not feeding anything else. You can have the pump if you

need it. That's the big point - getting it on. Next step, is you monitor, you see what the pressurizer is doing and where your level's going. That's when you'd crack open your 16A valve. And if you really have a problem and are not recovering it right away, the operator would go behind and open the 16, or CHV 5A, CHV 5A, and that would put you on on the BWST.

HUNTER: And through the 16A valve, or whatever the-- Now what's the lineup of C?

FAUST: C is isolated from A, at this time -- or this configuration at this time was, the cross connect (unintelligible mumbling) were isolated. You have to provide a suction as well as -- you would be O.K. once you have a suction path from the BWST for initial light off of it, but you wouldn't want to run like that, because you would fill you makeup tank up from the BWST through the recirc pumps. When you use the C pump you won't have another place to go.

HUNTER: O.K. And as far as moving the 16 valve on the A pump, you just passed the station and that was left up to Ed Frederick? In other words, all you did is start the pump?

FAUST: If Ed hadn't been right there at that point and reached over, I would have still been there. In other words, I might have even never got over to the feed station. I might have been on pressurizer.

HUNTER: Right. He picked it up at that point? He didn't open the H dome or anything?

FAUST: He picked it up at that point, so I just left.

HUNTER: O.K. And then, Ed was there and you proceded to the secondary area, the emergency feedwater station. O.K. You talked a little bit before about --

FAUST: Maybe I should -- what I was proceding for wasn't the --

HUNTER: Go ahead.

FAUST: When I'm saying emergency or if we're starting to say emergency, what I was looking for was a normal feed path, when I was going over there. I was going to the feed station.

HUNTER: Right. I understand.

FAUST: It's all located in the same place, but --

HUNTER: But you were going to the secondary system, looking

FAUST: What I wanted to see was if steam generator was going towards low level limits.

HUNTER: O.K.

FAUST: And that's what I was looking for, mainly.

HUNTER: Give the items that you checked as you go to the secondary panel.

FAUST: The things I was looking for first were the -- and I missed it in the first part of it, but I said I saw the rod bottom lights when I was heading over, at least I feel I did. And all green lights caused the (unintelligible) onto that. To me that's rod bottom lights, very. That's telling me the reactor has tripped. No question to me. The next thing I was looking for was feed station, coming from the makeup station, was to check that for going over low level limits and first thing I looked at was the startup range. And I had indications that it was coming down. It was somewhere in mid-scale on the startup range at this time, right. It didn't take any time to look to see, all I wanted to see was the turn in trend down, that it was coming down. I looked over ... all I can say is that I looked over and I saw feed pumps were off, I don't know why I did. I just looked over and the feed pumps were off. The next thing I checked was all the emergency feed pumps on, which they were. So I proceeded, and I figured, in my own mind, I figured, well, coming down to the low level limits. And I proceeded over to the turbine plant, secondary panel ... I'm missing something ... Something else that was strange to me at that time. It

wasn't strange to me but it sort of is now, because the 11 valves were traveling open. And to me it shouldn't. And when I think about it now, they shouldn't have been traveling open at that time because I was still high in the operating range. I don't think there is anything, you know -- as levels dropping down it has to actually has to go below low level limits a little bit before the valves start fully traveling. Or be right within the range of it. So, that could just be something I don't know. Maybe it does travel sooner, but I think it's a device that you're actually below the low level limits and then it starts feeding -

HUNTER: You were coming to the startup limits - is that what you said?

FAUST: Well, I was on mid range of the scale, which is about 150 inches in the startup range.

HUNTER: O.K.

FAUST: So. We were actually down to about 30 inches, before the valve should have actually opened. It didn't hit me at the time. I just noticed that I was getting a dual indication on the 11 valves - the emergency feed valves. I'll pick it up later on then, on that. I went over to the secondary plant, the turbine plant, and one of the first things I looked at was the turbine generator, main generator

startup and ... looked at the governor valves and trottle valves indicators, to make sure that they were shut. One was hanging up, so one thing I did do was hit the turbine trip button, to see if for some reason this was the quick reaction, to see if something would - it would release it. The indication at that time was still open on the one throttle valve. I don't remember. I'd have to look at the panel right now to tell you which one it was. Anyway, it didn't drop down, so I continued on to the ... I believe I went from there to the generator breakers, put them in pull-to-lock and the field breakers in pull-to-lock. And I was looking on the back panel, coming back now from here, looking over the back panel at the extraction valve. The indicators back there, there's a whole list of them, and they were traveling. So I looked at that, and also saw that saw the turbine drain valves were going open, I was getting dual indication on them. I came back across and had sort of paused. I was going to do another part of our EP, which is starting our lube oil pumps on the main turbine. Then it was just like -- it was a pause. I can get that later. I don't have to worry about that now. I went back to the feed station. First thing I saw was 10 inches indication on both generators, which is, again, to me is a dry generator because it's also stated to treat them as if they are dry when you get below about 10 inches. The first thing that I more or less looked at was the 11 valves, and they were shot. I jumped on them, and when I say "jumped", in other words, I took the daily station for the 11 valves in hand, to manual and then drove open on them on their demands. That time I got indication of traveling

valves. And once again, it seemed faster, but I waited. I must have been waiting for a couple of minutes because the next thing I'm looking for is to verify flow into the generator, which we do by looking at level. I realize somewhere in there that we weren't getting flow yet and announced it again, I had announced the first time that the generators are dry, and then I announced we still aren't feeding the generators. That's when I looked down over the panel, and I'm sure I looked twice. The first time I didn't see anything abnormal, but I realized that after a second scan the one indicator light for the one valve is right on the edge of the panel, and I was actually pretty well leaning over the panel looking back under me like. And I was looking for this.

MARSH: Craig, car I ask you to break for just a second. Let me interrupt and change tapes here. I'm breaking at this time. The time is 3:59 and I'm reading 472 on the meter. It's still 3:59. We'll continue.

FAUST: I was making the second scan on the channel below me, when I saw that, it would have been the EFB 12A, indicating light was indicating shut. I voiced, I starting voicing, I voiced actually both of to them shut. I know I yelled that out. And I was reaching for the 12, and there was this tag that we had on the EFV 16 it's FWV 16B, which had problems with it due to -- it's an automatic recirc valve for the feed pump. The tag from that was covering the uppper valve lights, indicating lights. It was like - I can't rem ber the motions, but I pushed the

tag aside and at the same time just about was opening both valves, and somewhere in there at the same time saying to everybody else that I knew what was going and what I found that EFV 12A and B were shut. Bill Zewe the supervisor, voiced his opinion of it, you know, suprised at it more than anything. He said get them open. As soon as those valves started traveling -- I'm not sure how much further along it was when I found a new indication of feeding, and that was sound of the noise monitor. We were just imagining 50 to 60 degree water going into a hot -- down an ice cold pipe into a hot generator. And we were hearing it on the gen-- I'm pretty sure it was selected to the number 5 point, which was the A generator, tube sheet for the A generator. I fed -

MARSH: May I ask a question, before we get away from it? Those two switches. You talked about the tag hanging down, covering the lights of the upper valve indicator lights.

FAUST: Yes.

MARSH: What about the lower?

FAUST: No, that was --

MARSH: That was also in a closed position?

FAUST: That was in a closed position.

MARSH: Had you noted t[illegible]one or?

FAUST: Pardon?

MARSH: Had you noted that that one had been closed?

FAUST: I yelled - when I yelled to the operator, you mean ...

MARSH: That's the one you are addressing, is the lower one?

FAUST: That was the A valve, 16A ... or I'm mixing them -- the 12A. I'm giving 16s and As here. That's EFV 12A was the first one I saw at the time, that I yelled. I actually yelled. I think I put the tag on the upper one while I was going to the A valve and opening that one. Flipped that, and I was reaching down and opening the B, 'cause it makes more sense to me now, and then saying 16's, or I mean the 12's are shut.

MARSH: So, if I understand it right, when you initially noticed the lower indicator lights as being closed and as you went to open that valve and flipped tag across and noticed that the upper one was also closed.

FAUST: When, I was reaching for it, I reached for it with one hand and flipped the tag with the other one. And I guess it was in that sequence, I started voicing what I found. It's hard to straighten that one out to me.

MARSH: I just wanted to try and clear it in my own mind to. I had looked at the valve positions and just want to clear it in my own mind. Thank you.

HUNTER: Let's step back to the 11 valves. There's a couple of points there that are intriguing, to say the least. As you passed them, you noted initally that the 11 valves were, they did have dual indication on them or that they were moving.

FAUST: Yes.

HUNTER: So that would indicate to you that, even though the level was up, they were opening.

FAUST: Yes.

HUNTER: Then when you came back, they were closed.

FAUST: Yes. Somebody was behind me, that can also pick that one up for me, too. Because they noted that the initial, when they saw me

grab the station, noted the initial travel on the 11 valves, too, due to the change in the lights.

HUNTER: Now, who was behind you?

FAUST: I thought it was Ed, but now I'm not sure.

HUNTER: Cause Ed was over --

FAUST: Yeah. It must have been Bill.

HUNTER: Bill who?

FAUST: Zewe.

HUNTER: We'll find him. -- O.K.

FAUST: I can picture ... when I said that I can picture him coming over there then, too. Because the first thing I said was we weren't feeding. And of course, he took an immediate concern in that. And I'm sure I wasn't alone over in that corner, though. I just didn't look around to see who was there.

MARSH: Do you recall him saying anything in response to that? Do you have any recollection at all?

FAUST: You mean initial - what I said initially -- I was taking the action. There wasn't any need to say anything. For one thing, he could see what I was doing.

MARSH: Well, what you're saying is he would have been concerned. Do you recall then anything specifically that he did to show concern? Did he start talking to you as he walked forward towards you, or do you have any recollections at all?

FAUST: I can't remember, now, to tell you the truth. I think somebody could be talking to me right at that point and I was so busy trying to get feedback in my own mind, that I wouldn't have heard him. And I imagine that's what it would have been. He could have been saying something to me and it didn't register on me.

HUNTER: O.K. The fact that the 11 valves were not opening when you came back, or had not opened, and you were 10 inches, that shows, that appears to show a problem.

FAUST: Yes.

HUNTER: Those valves should have fully stroked open.

FAUST: Yes, they should have.

HUNTER: Realizing that the 12 valves were also closed. They weren't in automatic? There was nothing, you didn't do it?

FAUST: The 11 valves are automatic.

HUNTER: Right. There was nothing wrong with them, that you are aware of?

FAUST: No. As far as I know, we had no problems with them. But a ---

HUNTER: What about steam generator level at that time, steam generator level?

FAUST: Steam generator level was at -- when I first came back over, it was at 10 inches indication on both generators. When I say 10 inches, you could look at the gauge on this end of it, and it's really hard to read it. It wasn't pegged out on the bottom. And I'm pretty sure that I got the 10 inches about right, because I was looking pretty hard at this. But like I say, once again -- in fact, I'm not even sure if it's in the procedure right now. But we, in the past, when we had problems with the generator, it was put out that if you go below 10 inches, you assume the generator's dry. So, that's where I was going from that point. Somebody was behind me when I jumped on the 11s. That's about all I can say on that So, if it was Bill,

that would be a good reason why he didn't say anything. Another thing that you might be thinking about is, when I'm on the 11's there, I'm actually leaning over the panel and over these 12 valves, so that he couldn't see them.

HUNTER: There is no way you could hit them ... in other words, that ought to have been (mumble) at that time.

FAUST: As we were saying, I can't picture my body rubbing up against the switch - that type of switch.

HUNTER: It's not a handle switch or a

FAUST: You would have to be at a 30 degree angle there or less.

HUNTER: O.K.

FAUST: And plus, one switch is even that much further up on the panel than the other one, and you'd just really have a hard time hitting them.

HUNTER: O.K. I guess the question is what channels feed -- the level channels feed those 11 valves. And then the question would be, was the actual level that the control system supply with valves indicating high, and closing the valves back? I don't know.

FAUST: That would have been - that comes off our startup range indication.

HUNTER: You were looking at startup range and it was 10 inches.

FAUST: That then feeds into our ICS system where - that's logic, whatever the logic is --

HUNTER: How did you open the 11 valves? What did you do to open them then?

FAUST: What you do is you have to take the daily stations to manual, which are two - it's sort of like a - it's not a toggle switch, it's like a slide switch. You just pull it down, in other words, what you ended up doing... Not down - I'm sorry. What you're doing is, you're pushing buttons on this. I'm thinking about the - just buttons, on that part of it. And you just hit the right side of it. You push or press on them and it transfers the station into a manual state where you can control it. Then a toggle switch is onto control it.

HUNTER: Did you ever see those valves fail to open before?

FAUST: We had problems with those valves during one of these trips that we had. That it was the result of getting indicating lights up on the panel, so that we could tell that the 11 valves were actually moving. Because the only indication they had of it was on the daily

station itself, which is just an indication of the signal going to it. Which really doesn't tell you anything. So we had a problem with feeding the generators, one time before. And it stemmed -- you wasted a lot of time trying to tell if the valve was moving by the daily station or change in generator level, you had to wait. There wasn't any real, immediate indication that the valve was moving. So that what your lights came in for.

HUNTER: O.K. So now, after you've started feeding the generators, you heard the A generator, apparently the feed water, the crackling and the hammer, noise, because of the water. And then you were feeding to recover A water level, or what was your ---.

FAUST: I was shooting for a water level - 30 inches in the generator.

HUNTER: O.K.

FAUST: I think it was the B. I can't remember which one it was now. It's getting too far away.

HUNTER: It's all right. Go ahead.

FAUST: I think I said, I believe the B level, I guess was leading. One of them was leading the other one, and when I started to get an indication on it, I started backing off on the 11 valve. On the

generator an indication was coming up, because I know at the time I was already feeding pretty heavily on it, but I also felt that -- I didn't really have a feel, myself, to tell you how long we could go without feed on those generators. I figured, the primary was getting pretty hot and I just wanted to get water in there and start cooling it down, to get some heat out of there. I'm not sure how much of this reasoning was in my mind at the time. My main concern was that I didn't have water in the generator. And I wanted some in there.

HUNTER: O.K. There was a point in this event also that you shifted the steam dumps to manual.

FAUST: This - when I was waiting - when I initially - when I first hit the 11 valve, one of the things I was looking at and expecting to see for a dry generator was a fairly sharp decrease in steam pressure. I wasn't sure at the time, while I was waiting in there, I thought maybe I am feeding it and I'm just not seeing it. I reasoned something out to myself that I looked over, I realized that the header pressure was less than what the atmospherics was supposed to lift at. O.K. Not the atmospherics, but what the bypass valves were supposed to lift at. They're set to go at 1010 and maintain air pressure at that. And it was right around 1000, it was just about on the borderline, I'd say, at the time. I figured I'd get a little cooling rate on it that way, and I put the valves manual over there and cracked them. When I say cracked them, I just hit the toggle switches until I just got the

first indication that the light went from red to green and stopped it there. I got a drop in pressure from that, which like I say now, I know I was actually just bleeding the pressure off that was in there from the dry generator. I recovered it, and it only went down about 300 pounds, I guess. And I recovered it when I first starting getting steam in tere, feed in there.

HUNTER: O.K. There was a point also then that you, if I recall right, that you went from the -- you were having trouble and you went from the bypass valves later, to the atmospheric dumps.

FAUST: That was actually, I had already re-established levels, and this was probably 20 minutes into it, I guess. Because our next concern then was the secondary plant. We wanted to try and re-establish normal feed. In fact, I think it was sooner than that. I got involved and I directed Dale Laudermilch it turned out to be, to go down and get on the reject valve, which at this time our COV 59 valves are automatic ones, and what we were worried about is if that thing, -- if we lost let the valve go wide open, it would take away suction from the feed pump and cause a trip on us. So what we ended up doing was throttling the downstream discharge valve on COV 60, so that when it did open there would be a more controlled reject out to the storage tanks, which for the most part, under normal operating conditions, there's no real problem with that. Just a slower rate that you're rejecting at. We had a hot well level -- In fact, I saw

the tail end of go on high on the indicator up there. And I was worried about flooding out the condensor. I sent him down there to open up the reject valve. And we were also getting involved with getting the bypass around the polishers open, which is COV 12. That's on the back panel. We tried to open that up from the in Control Room there, and Bill Zewe went around the panel to get it, so I could stay in the front there. He pushed it and tried to get the thing to open and it wouldn't electrically open. So, we had an operator ... and I think at that time - this has got to be a little bit after the initial reject, getting the reject going up, or right during it. We had, I think Don Miller also went down with Bill Zewe and tried to open CCV 12, of which (Name?), I think he can tell you. I just heard words, something about the hand wheel wasn't on it. So that was another problem. It was laying over in the corner, or something like that. They got it on anyway, and they got the valve cracked open to where it could open it then. It was frozen on its seat apparently.

HUNTER: So once you cracked it, then the motor was running on ...?

FAUST: Right. By the time I got over to the secondary plant there, too, something you might want to realize is, I at this time hadn't realized we lost not only just the feed pumps but everything over there.

HUNTER: Right.

FAUST: The only thing that was running were the heater drain pumps, which were recircing the tank at low level. In fact, I think it was getting to the point where I think they should have tripped. But by the time I got over to the secondary panel there, Bill had already attempted to start the condensate pumps, apparently. And he got one running, COV-2B, or -1B was running when I got over there. It was running on recirc back to the hot well. We still had a high hot well level. I had one - I had Dale Althouse going down to open the reject valve, isolation valve downstream with it, so that we could get rid of the water faster. Another thing I attempted to do at this point was go over on the atmospherics; in theory just to stop dumping steam back there, to try to minimize the amount of water we were putting into the hot well. So I figured we could go onto the atmospherics for a period of time, till we got control of our hot well back. We did this by taking off circ water pumps, which if we down below the three circ water pumps, it automatically shifts control over to our normal daily stations that are controlling the turbine bypass valves. Then you can control your atmospheric dumps then. It wasn't what I did at that point. It wasn't too long after this that we got the - I'm having a hard time placing one thing. We received an outside call, and it couldn't have been at this time because we didn't have any problems that we would have somebody telling us to shut those valves -- Somebody from the public. They wouldn't even know anything about it. Apparently came in, - "I don't want to see that," or something like that - "steam coming out, anything out of there at this time". So it must have been later. It had to be later.

HUNTER: Again, who would call?

FAUST: I don't know.

HUNTER: Then who answered the phone?

FAUST: I can't answer that one either. I think it was ---

HUNTER: It wasn't you who answered the phone.

FAUST: I can't remember who told me - which one of the - I think it was one of the supervisors that was there at the time. So it had to be later on. And told me to shift back over - to get back over to the turbine bypass valves and stop putting it through the atmospherics.

HUNTER: O.K.

FAUST: We had hot well level back, though. That's what I'm getting. We got it back and we shifted it back and it was the second time we attempted to do that and I'm not sure why. And I don't know if it was me now. That's what so bad about this. I can't remember doing it the second time, but I can remember it struck me so funny... I hate to use that term right now during this, but that somebody was calling us from outside telling us not to dump anything like that. So, anyway, that's how fast it went over.

HUNTER: O.K. But basically, that stabilized the hot well and got that system set up normal and you were dumping ---

FAUST: No. We never got it set up normal. I think I said he had a crack. He never got the bypass around the polishers open.

HUNTER: Oh, O.K.

FAUST: Like I said, you would have to ask him, because we ended up, we couldn't get on feed... Oh, that's right. We did get it open and then we couldn't get the pumps started. We could only get a condensate pump, we couldn't get any of the booster pumps to start. Something happened to it.

HUNTER: O.K. All right. But you got the hot well back to normal.

FAUST: Right.

HUNTER: So there wasn't any problem dumping steam through the bypasses?

FAUST: We moved back to normal lineup on that, as far as the bypasses go. Now, it was right around - we were sort of holding here, fighting the problem on the primary side then.

HUNTER: Were you actually aware of the problem on the primary?

FAUST: I was aware of the high hot well. I was aware of the high level in the pressurizer. And I was aware initially of a pressure drop in the primary, but then, I believe I remember one of us saying, "it's holding, the pressure's holding. We can't get the damn." He said something like, "we can't get the hot well down". I don't know what his exact words were. I know they were busy throttling back on injection, high pressure injection, and except for that high level, it seemed like we stabalized out. And we did this before Bill Zewe left to go down to work on it, to help out or try to get that COV valve open because we wanted to stop feeding from the storage tanks.

HUNTER: O.K.

FAUST: So, we were actually just holding where we were.

HUNTER: Do you remember when Bill came back?

FAUST: Time wise, I can't say a time, but I remember him coming back.

HUNTER: Like an event or something that would tie a time when he came back up?

FAUST: Yeah. We got the fact shifting back from the atmospherics. He came back up and I think it was from him that I learned that COV 12 was open. They either got it cracked or it was open. I was still

keeping a pretty good eye, sort of off and on. I sent an operator also out to the main turbine because we were ... this was later too... Because I was watching the turbine roll down and coast down and I wanted to make sure it got on the jack.

HUNTER: O.K. sir.

MARSH: Do you recall who the operator was you sent out to the turbine?

FAUST: I think it was Steve Mull.

MARSH: Steve Mull?

FAUST: Yes.

MARSH: Thank you.

HUNTER: How did you shift from the atmospherics back to the bypasses? Do you do that by switching or restarting the circ pump or -

FAUST: Starting the circ pump remakes the interlock that's between it and shifts the control back over.

HUNTER: How many did you start? Restart? One?

FAUST: Two, I believe. I believe we got back on with four pumps running.

HUNTER: In the chronology, we can key to that because we can see on the computer when the pumps were restarted, so we --

FAUST: I see what you are trying to say. I'm pretty sure we put two back on.

HUNTER: But that will let us key to that. But it was at that time, though, that you saw Bill back, that you recall seeing Bill Zewe back?

FAUST: Right.

HUNTER: O.K. Now, basically the secondary was -- you had the primary problem. O.K. And the secondary was there, and you had trouble with the B steam generator, or apparent trouble?

FAUST: Well, OK. When I initially -- right off when I got the flow back, B seemed to be coming up, and I was throttling back was before I even got up to low level limits there. As soon as I started seeing an indication on the generator, I started throttling back on it. And I got to the point where I shut it. Levels kept coming up. Drifted up above 30, so I got up to about 35 and I said -- well, at first I thought maybe this thing is really expanding or something, in there

and it's just pushing it up. And I shut 12, it would have been 12B isolation, EFV 12B. Then the level still came up. I ended up, got up to about - I guess it got up around 45 inches. And I was then worried about really sub-cooling possibly - and giving them a harder problem on the primary with pressure. So I isolated a third valve. And it helped. Well, it sort of drifted it really turned the rate at which it was increasing till where I was paying attention to the A coming up and that one pretty well, I was able to hold the 11. Throttling back on the 11. I want to say something.

HUNTER: When did you notice -- at this time did you notice the reactor building pressure changing?

FAUST: Not during this period. What I was looking at - some many other things that I was looking at - like, I was looking over the NI(s) to make sure they were down, where I thought they should be, which in other words, it's like two to three decade drop right off. And just traveling down - it came down, which at that time was looking pretty good. I got it into the EP at that time. Somewhere in here I got under the EP, because I remember looking over the EP for the initial parts of our sequence that we wanted to cover on our reactor trip. Then I never got fully through followup actions on it when I got involved back on the panel again. And I also -- now this was later, this was another one even later on.

MARSH: Craig, can you define EP?

FAUST: It's Emergency Procedure. This would have been for the reactor trip at the time.

MARSH: O.K., thank you.

FAUST: I guess it was - I'm losing out my train of thought where I want to go right now. It just seemed to hold there for a long period of time. They got level indications back on the generator, the pressurizer. I think that sort of made us feel like maybe we never lost it. That there was still some sort of a bubble in there. At least, that's what I was thinking. 'Cause although we had a hard time holding it - I don't know whether everybodys' suspicions were at the time - but I knew we were having a problem with high level in the pressurizer, which was abnormal for what we were going through, for what we should have been going through. It seemed like we should have recovered it. And I think this was getting pretty well onto where we started noticing flow in the RQ pumps more and it was dropping off and it also, the fact that we had all the alarms on the RC pumps up there vibration wise.

HUNTER: When did you feel like you real had a problem, from your standpoint?

FAUST: Well, I can't say that we - I don't think anybody really didn't think that we did have a problem. We were having a problem with - we just couldn't reason out for ourselves what would be giving us this problem, the way we were seeing. It turned out that - it seemed like we could hold pressure, but we couldn't drop off too far in the makeup to get pressurizer level to come down any further. It was dancing high on the range, the indicating range there. And you know, that's telling you, you've got a problem. The thing of it is, trying to figure out what it is, at that time, and get other things - that about all I can say about it - and get other things done that you knew you wanted to get done and get out of the way.

HUNTER: Well, during our last interview, we made it down to a point where you had, basically the generator levels were recovered and things were looking fairly stable. And then you indicated that you had moved across then to the makeup panel.

FAUST: Before I went over there, - before I got over to the makeup panel, we had already had our indications first of a steam generator leak in the B.

HUNTER: O.K.

FAUST: All right. And plus, now after this, we had secured the RC pumps. I'm talking like, now it's like 70 minutes, 80 minutes in to

it, in that range. We res---, we attempted to restart one because I was having indications of restart accident.

HUNTER: O.K. Hold it.

MARSH: At this point here, I would like to break for just a minute and replace tapes. The time is now 4:28 and I'm 26 feet on the meter and I'll be ending at this time. The time is 4:40. The date is April 21, 1979. We are continuing with a second reel on the interview of Mr. Craig Faust. I have zeroed out the meter, and we are, once again, going with a new tape. People present are still Dorwin Hunter, Larry Jackson, Mr. Craig Faust, and myself, Bob Marsh. Dorwin, I think you had finished up with a question, and I'll let you pick up again at this time.

HUNTER: You were going to expound on a restart problem or an indicated problem.

FAUST: O.K. Like I said, like I was saying, indications I was getting on NIs 1 and 2, mainly... the thing that I was watching pretty well, was also the strip chart recorder on this was giving us trends of it, which would be NI 1 and intermediate range NI 4, which was showing up there. NI 1 started trending up. We had stopped the RC pumps, trying to establish natural circulation, and it was becoming pretty obvious that we weren't getting. But, one of the main things I was noticing

was increases on the counts on NI 1, which would go up a little bit, settle back down. It would almost be like a bouncing -- well, not bouncing, but it'd be a trend, and then back down. I noted this to the supervisor and everybody else that was there at the time, which we had quite a few people around then.

HUNTER: Excuse me, would the supervisor be Bill ...?

FAUST: Yes, it would be Bill Zewe. Well, there was a lot of people there. There was Kuhn, Kunder was in, I think Joe Logan was there at this time, I believe. Somewhere in there, I can't be sure if it was Mike Ross was in here now or not - I think he came later. Anyway, I started seeing the trends go up. I pointed it out, went on monitoring this, as well as just trying to watch the generators. I was also feeding the generators up during this, to 50% indication on the operating range.

MARSH: You say you pointed it out - do you recall to whom or do you mean you just called it out in general?

FAUST: Well, I noted it -- I pointed it out to Fred Scheimann, our foreman, because he was right along. He was watching pressurizer level and pressure at the time, trying to help control that. I'm pretty sure Ed heard me because he was over around the panel there. I know I got Bill Zewe, I can't remember, when we first started to get

first indications, if I got the word to him right then, but when I started getting a good solid increase and I actually picked up on the intermediate range on it, and I was getting a little concerned about getting -- I wanted to try to start an RC pump. I don't know what their reasons where, but that alone, I felt that we weren't getting water or boron in there. Earlier -- I shouldn't even bring that in now -- but I just felt we weren't getting water in there.

MARSH: Feel free to bring in anything you want to discuss, but at this time, was there any discussion of courses of action, or do you recall any response to your calling this out?

FAUST: The discussion was being carried on, more or less. We were talking about it, but the main discussion I -- you know, it is hard for me to say -- seemed like -- it wasn't with me anyway, for the most part. I was relaying information, more or less reacting to what I saw the best I could. The decisions were -- I'm using the term like coming from behind me, which would have been Bill, and Kunder, and I believe Joe Logan at this time. I'm really not sure of all these people right then. But we were talking about starting it. I said something about I just wanted to jog it just to get water in, jog the thing, shoot water in, just move it in instead of trying to run it, because at this time everybody was pretty well assured, assured that we were drawing a . . . producing a lot of steam in the core. Something else I would like to just emphasize is that just prior to stopping

those pumps, we did reinitiate, we hit high pressure injection just prior to stopping the pumps. I don't know if that was brought up before, it should be though. We got the decision, in other words, we made the decision and I'm not sure how you can look at that. We decided, anyway I'd look at it at all of this to get one of those pumps back on. I made the initial attempt myself to starting the pumps and I started with the A pumps, and my reasoning there, once again, was get spray back at first, if we could, so we would have spray control and pressure. We needed it. I worked my way across, and I believe it was, I ended up getting the two B going. Neither of the A pumps would start. The B pump picked up and ran, but it ran with little or no indication of flow. But there was enough amps to have the initial peg out on the amps, peak out on the amps, and they came back and they went to near next to nothing, they were down around 100 or something like that. Definitely they were reading the meter closely, but it was darn low that it was wrong.

HUNTER: When you normally start a pump at the current pegs, how long did it take for the current to come back?

FAUST: It's under, it's right about 9 seconds, in that range. It came back pretty quick. It just bounced up and then came right back.

HUNTER: So, and then it stayed at 100 amps.

FAUST: Right, which sort of tells you... I don't even think that registered right then, but I just remember that the amps went up and came off right away. O.K., I can remember that now, but I at the time I can't. I can't honestly say I said, "Oh my gosh. Look at this."

MARSH: I'm not a technical type, but what would that tell me, that it's not catching, it's just spinning free?

FAUST: What we would relate that to, would be like no impeller hooked up. It's just spinning the motor.

HUNTER: Okay. And one point you pointed out and I understand . . . and we'll still talk about, I want to go back before you stopped the pump. You indicated that you had manually initiated ESF safety injection, and at that time that would put the two high pressure injection pumps on?

FAUST: Right.

HUNTER: At maximum flow?

FAUST: Right. Well, at sixteens would travel open till a preset at 240, actual a total 250 gpm in each loop. In other words, I'm saying it would be putting actually a 1,000 gpm. That'ss what they're set up to do, 250 per loop off the pumps.

HUNTER: And what was the reasoning behind initiating SI?

FAUST: You're taking off your main coolant flow path, now, so our trend of thought was, at least mine was, you want water going in there. You're trying to establish natural circulation, but to me we were also under situations that didn't really indicate that, to me, that we were gonna make it because we started to cavitate our pumps. Its a lot of - the indication to me was a lot of voids, whatever you want to call it, voiding out in the loops. So we -- I'm not sure which -- it seemed like, try. We were trying to establish circulation. We had flow before we stopped it, so to us it wasn't inconceivable, anyway.

HUNTER: Who initiated the ESF?

FAUST: Ed Fredrick.

HUNTER. Okay, were you in that area then, near the pumps, or you were near the pumps but ...

FAUST: I was at the RC pumps. 'Cause I was the one that - I did initial start attempts on them and started the first one.

HUNTER: All right, and when the B pump kicked off low, starting current up, back down immediately almost, very quickly, and running 100, what was the first thing that happened then?

FAUST: The first thing I was looking at was the NI(s), they went down and stayed down. That's what I was observing, that's what I was really -- I'm sure everybody else was too -- but I was really concerned about that because I was starting to wonder exactly what I was seeing there. To me I assumed right off it was the indication of restart accident. It's an indication that we don't have boron in there. We were already coming, you know -- zenon should be doing everything for us, as far as building up and peaking out at this time, but for some reason we were still getting indications on this NIs going up, which ever way it you analyze that out now, I don't know. But I think it was considerations of starting the pump were not only that helping in there, they were talking about restarting them just for flow, just to try to get flow back into it because, by this time, it didn't look like we were establishing natural circulation. So, ...

MARSH: Again, you said "they" were talking about it. Are we still talking about who, Zewe and who else?

FAUST: I'm being a little, I'm being actually vague about this because we were putting input in, but ultimately the decision to really do something would be stated by the supervisor.

HUNTER: In your case that would be ...

FAUST: Bill Zewe.

HUNTER: Were you getting orders from more than Bill Zewe?

FAUST: At this point the orders were coming from, at least on this particular thing, we took -- maybe I should redefine something. The RO takes immediate actions, right. We get back up then, we all work together to put the information together and recommend the best way we can see to go on something, and that's the best way I say it, I guess. We were making recommendations and we all come up with the same reasoning that we wanted that pump going anyway. Try to get it back on the line.

HUNTER: You saw the NI, the nuclear instrumentation Intermediate range and the source range?

FAUST: The source range first, then the intermediate range.

HUNTER: You saw it dip? What was next, what was the next thing that yo. saw or that you recall at that time?

FAUST: That's where I can't remember what I did exactly... Oh, okay. We just started a pump. There's a hard part here on time, but the next thing we really started, like I said before this, we had noticed or indicated that intermediate let down coolers had alarms on the rad monitors back there, as far as the secondary closed side of it, which we pointed out and reasoned that due to probably the location

of the ... just due to the location of those detectors, which are down by the let down coolers, were outside the room from it but they're down in that area of the let down coolers - the sensors are - that just high background was probably setting it off at this time, down there. There's things I'm missing right now because I can't remember when we started seeing building pressure come up, because at the time the answer that I got back, I said, "why the heck are we getting that?" It would indicate a leak in the heat exchanger to me, going possible leak. And we really didn't have any problems with the level on the intermediate closed surge tank to indicate a primary secondary leak on the let down coolers. So, it was just reasoned out, it's down near the sump down there and it's high, probably high background right now because we were dumping water in the sump.

HUNTER: Being high background, would that mean that it was primary coolant to you, a radioactive coolant of some type?

FAUST: Yeah. It would have to be. To tell you the truth, I figured it was ... at the time I thought this, but I was thinking that was sort of -- I hate to say this too -- but that was sort of an intermediate problem to me, to what we were having out front. So, it was said high background, and for some reason, I visualized a lot of crud coming out of the system because of the thermal shock we had just put it through, and probably coming down in through the let down coolers. You really have to get into it. I don't have a real feel for what

kind of curie content, microcuries, you'd be seeing in this crud of such a crud burst. I pictured that it would be a big one and I just figured that possibly it would be coming from there.

HUNTER: But that was your reasoning at the time then?

FAUST: That was mine. I just let that go then, to that point because the way it looked, we didn't have a leak from the surge tank level, indications in the surge tank might be increasing. So, that's the only orders we had too. This was before we stopped the RC, or I mean restarted the RC pumps.

HUNTER: Now you restarted the RC pumps, and source range dipped and Intermediate range dipped, and then do you recall anything after that?

FAUST: The next thing I seem to recall is there were an awful lot of monitors up there on panel 12, all started alarming on the high alarms.

HUNTER: They all went high?

FAUST: Yes.

HUNTER: That's, if I recall right, that's alert alarm and a high alarm.

FAUST: Yes.

HUNTER: They all went high.

FAUST: This was on immediate. I mean, what we saw was an immediate, a site emergency, you know, followed by a general emergency. This is what I have a hard time placing is, I don't remember if it was starting the first time - we started the pump twice. I can't remember taking it off, and I probably was the one who turned it off. Because of the indications we were having, we shut it off again for fear of damage, possibly rupturing piping somehow from vibrations on it or something. It would be nice to have a tape recorder in this of this right now, in there.

HUNTER: We have radiation alarms, many radiation alarms, on all recorders, all the channels alarm.

FAUST: Bill was then pulled, more or less, away from our initial problem there. He was back making the announcements needed and getting into the emergency procedures associated with site and general emergency. He announced general emergency, he announced evacuation of the Auxiliary Building, and then he went to the paper work. He announced it several times and then got the books out to start following up on the procedures. There's people he had to call, he had to get more people out. We had Ken Bryan was there. We had -- I'm almost sure at this time -- Logan

was there, and Kunder was definitely there. So they were taking care of that.

MARSH: Craig, can you spell those names you mentioned, Ken Bryant is that B R Y A N T B R I A N? (Bryan)

FAUST: I'm just pronouncing it wrong.

MARSH: And you mentioned Kunder? Is that George Kunder?

FAUST: George Kunder.

MARSH: What is the third name?

FAUST: And, Logan. Jim Logan.

HUNTER: Okay. They're handling the site emergency, general emergency and . . . .

FAUST: This is hard to say now. It's not as if we were abandonned up there or anything but, in other words, we were still trying to sort out the problem up front.

HUNTER: Right. You were there doing that. And I'm, at this particular time, interested in that you were. But I want to go back, make sure

that we go back through what you're doing at that time. Are you still at the panel?

FAUST: I'm at the panel. I ended up -- I was monitoring the ... we were just trying to hold where we were at now, is what it amounted to. Trying to still get pressurizer level to go down and just remove whatever heat we could, because this is the time period now that I saw we were cooling the TC down and we couldn't get T hot to come down. T hot, when we stopped the pumps initially, went offscale high. They claimed that, at least up in the panel. They said they could still see it on the -- we have a trend recorder over on panel ... it's over by panel 8, to the left of panel 8, whatever the panel number is on that. It is used to, it monitors some of our primary components, radwaste and turbine supervisory things. I don't know who was over there looking at it, but he said he could just barely see it, which would indicate temperatures up around 790 degrees, somewhere in there on T hot. We couldn't get that to come down.

HUNTER: TC was coming down, TH was not coming down - it had gone offscale. It goes off about 620 or ... and so it's off, but it's at 790 or 800, somewhere in that range.

FAUST: Right around the side panel...

HUNTER: ...Side panel. That has each TH on it?

FAUST: Right.

HUNTER: Any cold legs on that?

FAUST: Yes, there's cold legs on it. It's a trend recorder, so it should have them, I imagine they do.

HUNTER: You're still at the panel, okay?

FAUST: We spent time now - time is very bad right now. We spent time monitoring and still trying to... I'm not even sure how, what configuration Ed had on makeup system right at that time. I know Ed ended up, when we were sort of stable, ended up going behind and, I think this was before even, looking at the RC drain tank. He was doing some other things at that time, too. So, one of the problems we were starting to have was with building pressure, now. It was gradually coming up. We still haven't had a 4 pound actuation yet on the isolation. We had other people in because I was - I turned over the feed station and I think I turned it over to Len Wright - I believe he is the operator that showed in. Hugh McGovern was in there, too. These are the people that are on shift, coming on shift now. Hugh was sort of, he was monitoring the back panel monitoring the charts, reading charts while I was writing them down and doing whatever else we were asked to get done back there at that time. Somebody else was back there too ... it was one of the supervisors.

HUNTER: Did that bring you up then, to go where?

FAUST: In this time period, I shifted to the makeup panel, and I was there about the rest of the day. Because this is where I got involved. We started trying -- of course, the ultimate thing was to try to get pressurizer level, get pressure up and temperature up in the pressurizer. Just get control of the plant, is what it amounted to. I was taking, receiving orders from -- I hate to say it because I can't even say the supervisor -- it must have been, it must have been Bill. Because they were sort of in a conference behind us... For the life of me, I know I was on the make up panel. I can answer some questions about that, but I can't answer what was going on behind. I know I asked questions. I think I asked why we were doing it, but it was like one of those things. People were too involved in trying to come up with answers to take the time to explain some of this. This is not the time to start explaining things.

HUNTER: When you were on the makeup and it was -- the makeup and you assumed that station, what was the makeup flow and the system status at that time?

FAUST: We were throttled on four of the sixteen A and B ... it had to C too, because C pump was running. We had two makeup pumps running.

HUNTER: When you throttle those makeup valves to try to maintain pressurizer level, what would you be throttling to, like flows and that type of thing?

FAUST: 250 gpm per loop at this time, but ...

HUNTER: Do you go below that?

FAUST: We were below this because of pressurizer level. We couldn't go too low because we were trying to maintain pressure too in the system. It almost ended up, you know, in a balance. You still have an indication of pressurizer level, and you're low, you're down on pressure where you don't want to be. You're down right around at saturation, or whatever that. . . .

HUNTER: Under that type balance condition, what was the flow? Do you recall?

FAUST: In the RC or the makeup?

HUNTER: In the makeup.

FAUST: At this point, it was, the flow was about 300 gpm. Because I got the word to throttle on two odd valves. I got the orders to shut C, no B and D, and throttle on C and A. I think I got them right

there. They were like opposites in the system. That was one of the questions I couldn't figure out - I wasn't sure what they were trying to. They can probably explain the reasoning behind that. They - if somebody can figure out who they are behind there. I know they were supervisors but what I'm trying to say is that I don't know how many were involved in it at this time.

HUNTER: And with A and C open, or throttled. . . .?

FAUST: Because, like ... I'm drawing a blank on this guy's name. I know him. It will come to me... Anyway, he seemed to be behind me quite a bit, at this time, in the corner. He was overseeing what was going on in there.

MARSH: Here is a list of people that were in and around the control room, if that helps.

FAUST: Where's he at?

MARSH: That's not all of them.

FAUST: Okay, Mike Ross. I believe that it was him that indicated to throttle the valves in the position I had. I had taken one of the makeup pumps off, purely because of getting down to a lower flow rate that I was throttling, I only needed one pump on. It was then that I

was actually shifting pumps. I took one off and I got down to one pump supplying 300 gallons, at one point. I had taken "C" pump off, before -- this is what I mean, this is when I have a hard time remembering -- I ended up somewhere in there I had the A makeup pump on, supplying, and that would just be through the A and B valves. I restarted C and ended up throttling on throttling configuration of supplying 150 gpm, approximately. They told me to try to shoot for 100 on the loops, and I couldn't get it down. I couldn't fine - throttle it that low, and I ended up, I was always putting in at least 300-400 gallons per minute because it was too hard to get down. I just couldn't get it down that low.

HUNTER: O.K.

FAUST: Fluctuations in let down was erratic. It was oscillating around, almost like, if I remember right, it's like a 20 gpm fluctuation around a normal 40 gpm, or 45, around. . . . . It's not 40, it's higher than that.

HUNTER: What would that indicate to you? Do you have any. . . .

FAUST: I thought it was, at the time I thought it was probably steam, but then it didn't seem to reason out to me because we had both let down coolers on and temperature in the intermediate was low, so there is no reason for that. And then I started thinking, maybe we were

getting a lot of solid partic-- no, what I was starting to think was a crud buildup possibly in the let down lines, to where it was actually starting to block it up for us. Along those lines, I even started thinking, well maybe somehow it's solidifying out, boron was starting to solidify because we had such a high concentration possibly in there, at this time.

HUNTER: Questionable.

MARSH: Okay. I'm going to break at this time for just a moment to change tapes. The time is now 5:11, and I read 475 feet on the meter, stopping at this time. Okay, we are resuming at this time. The time has just turned 5:12. We've restarted the second side of the second cassette in this interview. The date is still April 21st, and the same people are still present. Dorwin, you still had questions when we broke. I'll turn it back to you.

HUNTER: Okay. We were talking about the let down flows fluctuating 20 gallons per minute, around 40 gallons and you were indicating that it might be due to high boron concentration. What did you do then?

FAUST: Well, I didn't do anything really. We were just monitoring really. I was sort of taking reference from Fred and just listening to him calling out what, you know. Pressure seemed to be holding around, it was around 1200 -- I can't even say that because he was

sort of glued in that corner. The main thing I was trying to see is if we were getting lead way at all in pressurizer level and T(av), if the thing was starting to cool down at all. There was debate on what to do, of course. Ideas were coming up, trying to, with the possibilities of going on and trying to get the core flood tanks to flood into it. I actually can't tell you everything that was going on, as far as the reasoning going on, right now.

HUNTER: During that period of time, you're sitting. . . . .

FAUST: I actually ended up being just a monitor, because all I was doing, at that point in the game, was controlling the makeup pump because we needed it for the flow they were asking for.

HUNTER: Okay, and the flows that they were asking for were, like you mentioned, the odds throttling, trying to get down to the 100 per loop, but you couldn't get down that low on 2 valve, so you were . . . .

FAUST: I was calling back, I think it was Brian Mehler was back there. He was trying to pinpoint the -- you can't see the gauges too well from over the panel there. He was just trying to tell me when I was hitting it. Usually, just tweeking on those valves when you get down that low, you either go all the way one way or back up to 500 in one loop. It varies.

HUNTER: Let me ask one question -- cover one area and I'll let Mr. Jackson have a little while with you, if you don't mind. Two flow paths for makeup, the normal makeup valve, okay - what would be the maximum and minimum flows you would normally ever see through that flow path? In other words, if the pressurizer level is low, then that valve could come open and you could have one or two pumps pulling the water and then charging into that flow path.

FAUST: Let's put it this way. If that's 17 -- and we've experienced this in the past, it is the only was we can reference it to you -- right now, the 17 is shut, 'cause it's seeing a high level.

HUNTER: Right. I understand.

FAUST: If that valve were to open wide, you could put in six, seven hundred gallons going in through there. The way I can reason this out is because we've had, we had a trip once. We actuated ES and we weren't getting anv flow in the one loop indication back there, and it turned out that 17 went wide open and just robbed the flow from that path and put it in through B high pressure injection loop but just took it away from that side from seeing a lot of it in through the A.

HUNTER: Okay. And on the normal . . . . the ESF valves, the 16 valves - A, B, C, and D - you indicated that you couldn't get down much below 4 -- er, 100 gallons on a valve. Can you --

FAUST: I was shooting for 100-

HUNTER: Did you shut them off?

FAUST: 150.

HUNTER: You said you shut two off and you had two throttled.

FAUST: Right, that was this odd combination for what the reason they had in mind. I guess it was just try to hold long enough so we could see, I guess so they could have more time to think about what was going on.

HUNTER: Okay. I'll drop it at that point and, again, I need to come back to those details and we'll come back and discuss that area, to try to establish the actual flows, to the best of your recollection. One point, you're receiving instructions from someone at that time, either a group or Fred Scheimann? I mean...

FAUST: Fred was pretty well tied up on the pressurizer level controller. This was coming from Bill and Logan, I would say, and probably Kunder, back in the back discussing this.

HUNTER: O.K., good. No problem.

FAUST: There was other people -- in fact, there was a big meeting back in that room back there.

MARSH: What I would like to do is switch over to Larry Jackson at this time, and when Larry's finished, if depending on how you feel Craig, if you would like to return and discuss the loops some more, we could continue. But if you begin to feel fatiqued we will rap up with Larry. So I'll let Larry take over from here, now. The time is now 5:17 and I'm reading 600 on the meter.

JACKSON: Craig, I've got some questions that relate to emergency planning, effluent control, and a couple questions related to health physics; and I know that you had some pretty specific duties in there, and some of these may call for subjective answers instead of hard data. So if I ask you a question and you don't know the answer to it, that's fine. If you've got an opinion or you've got an idea of what was going on, I would appreciate you putting that down, okay? The first question is - when in the sequence did you start getting radiation monitor indications that some type of release of radioactive material from the reactor coolant system was occurring? I know you mentioned the intermediate cooler monitors.

FAUST: Letdown coolers. That was before we even took the pumps off -- I believe it was. It's in question -- that's a hard one for me to answer. Those two, I just remember them being there, and they were

there, that we were at a point where we could say, we could at least say, like, "we got these alarms - what could they be from, or what kind of problem are we involved in here?" We made some checks on them to at least say that "it's not getting out into the system. It's still in the primary" to us. That was my indication anyway, if it was staying in the makeup system, as far as I was concerned.

JACKSON: One question on those let down monitors, or the intermediate cooler monitors - had those things gone off because of high background before, or is this something that --

FAUST: No. It never happened before.

JACKSON: This was the first time so you were having to make a judgment call on that?

FAUST: Yes.

JACKSON: Was there anyone, in particular, monitoring the radiological conditions? Is that an assigned function of one of the operators?

FAUST: It's not an assigned function from the fact that, if we think we have a problem and the problems are initiated by alarms, really on the back panel. The first one we got didn't really show us that we were having problems radiological wise, but I can't tell you when ...

I can't really say when - I think it was when we got the alarms initially that we shut our ASV-53 or -23, which is out steam supply to Unit 1, which get on their boilers pretty quick over there, because we just cut them off. We called them, they knew that we had a problem now, and they had to go on their own from there. We were supplying our own steam from what we were pulling off the generators.

JACKSON: Did you ever -- was there a point somewhere where you saw a radiological condition developing in the plant that was abnormal or, I know that you mentioned earlier that a lot of the alarms just - bang, they were there. Did anybody, to your knowledge, notice any trends before this all happened?

FAUST; No. We -- the first indication to get our eyes back there would been an alarm. We didn't receive any except, like I said, I can't place how exactly when it was the intermediate? I know it was beforethe rest of them and it was in for -- I can remember it being in for a while. That's really about all I can say to that.

JACKSON: Did you at any time get a notification from Unit 1 that their releases were going up, if they were seeing anything on the monitors?

FAUST: No.

JACKSON: What considerations were given, during this time, to such things as reactor coolant drain tank pressure, or level increases, or to the reactor building sump levels - did somebody look at those or see?

FAUST: This is what "m saying... This is even later than Ed Fredricks was looking, looked at one thing he was at was the RC drain tank. I don't know what time period this was really, but that was one thing he was looking at.

JACKSON: I'm kind of covering more... Don't restrict yourself to just this immediate time frame here, when everything was going haywire, because I'm really looking at a longer time period than dorwin, okay? I'm trying just to following things up to the 31st, where they are restricting themselves to looking at a pretty narrow time frame now. So if you think of anything that falls out of that time frame, that's fine too.

FAUST: Something you might -- as far as monitoring meters, I can't remember when Hugh McGovern came in, but he was one of the persons that ... I just have it on my mind -- we got the alarms and Hugh was there. That seems to be the way I remember it, because he was monitoring the back panels then, as far as radiation monitoring alarms, marking the charts, and then trying to keep ... trends were all pretty high at that time ... it wasn't a trend, I think it was a step change. So there wasn't much for him to monitor. There never is.

JACKSON: What position is McGovern, for my benefit.

FAUST: He is a CRO. He was to be our relief coming in at that time.

MARSH: In Unit 2?

FAUST: Yes. I could be wrong on that? I was relieved by another shift, really, so I could be wrong in that. But, he was there, that's all I can say.

JACKSON: To your knowledge, do you know when anyone started looking at the indications with the ideas of classifying the situation as an emergency? What keyed them to start doing this?

FAUST: It was pretty instantaneous.

JACKSON: Are you talking about radiation, instantaneous with relation to --

FAUST: Radiation alarms. It was obvious.

JACKSON: The radiation alarms all ...

FAUST: There wasn't any question.

JACKSON: Okay, did anybody, -- I know, one of the criteria in the emergency plan is reactor building pressure verses reactor coolant system pressure. Do you know if anybody...?

FAUST: Well, the thing of it is, we were maintaining really reactor coolant pressure. It was low, but we were maintaining it. That's one of the problems of the baffling us. What we're trying to do is get ahold of the system here. And it seemed like we had hold of it, it was just that we couldn't get it to go where we wanted it to go. We just didn't want to run off the bat and do something and maybe -- this is hard for me to say now -- but at the time we thought we were doing the right thing.

JACKSON: That's the type of thing I'm looking for, okay. I'm not trying to pin something down here. I'm just collecting data for future reference on emergency planning and this type of stuff -- What kind of thinking goes on in this type of situation do any of your EOP's -- I've noticed a number of times that you referenced pulling out, you called them EP's, maybe that's the correct terminology. Do any of those tie you into an emergency plan action at any time?

FAUST: We have a certain limit set, or stated, that gets you in general emergency, or site emergency -- that's in the reverse order -- or just a local emergency. And it would be easy to just tear the page out and show it to you, but there is a list of everything you're

looking for. They get you into this and up until that point we didn't have them.

JACKSON: You hadn't met those conditions, is that what you're saying?

FAUST: No.

JACKSON: OK.

FAUST: At least, to my knowledge, let's put it that way.

JACKSON: Do you recall a point when the decision was made -- well, you've already answered that, I think -- when the monitors when off, what was the declared first, a site emergency?

FAUST: It was a site emergency, and it seemed like it was very -- almost right after that it was declared a general emergency.

JACKSON: Okay, so very little time was between the site and general.

FAUST: Yes.

JACKSON: One question in relation to this, going into the emergency plan organization here - there's been some question about the supervisor's role in contacting people - did you have enough supervision at this

time or, maybe I should have said, did you have too much supervision at this time? I know you had a lot of people in the control room.

FAUST: I'm not sure what kind of answer I should give there.

JACKSON: Well, I'm asking for an opinion, really, OK?

FAUST: I really don't like to say one, because.

JACKSON: Okay, that's fine. Let me ask you another question then. At this point, what is your opinion about the number of people in the control room? Was the crowd managable, or was it causing, giving the operators problems?

FAUST: It's the first time I've ever hit it from this side of it, so I'm not sure how to answer it. I wasn't in any ... I had all the room I needed. I didn't seem to ... if I wanted to say something, it wasn't ignored; as far as saying it, they were going to listen. The only thing I remember saying is that before we turned the RC pumps off, I think the only thing I said is I don't really like shuting those pumps off, and nobody else did either, I'm sure. But, the direction was to try to go on to natural circulation. We had indications we were going to lose the pump, maybe A pump, or maybe all of them.

MARSH: To maybe put you a little more at your ease in answering these, remember, the purpose we're asking these is not to focus the blame on an individual, but to draw from this as much constructive information as possible for the future. So we are not after you to say well, so and so didn't do this or so and so didn't do that. We're trying to get a feeling, a flavor over all that we can draw from your experiences, to make things better, should we have another occurrence. And that's why we're looking for your feelings. So don't feel we're trying to place blame at this point, but more to draw on your experience. And only you went through it at this time. So that is why we're asking it in the manner we're asking it.

FAUST: Well, I guess I'd say, it seemed like we had a lot of input that ... what bugged me is that I didn't like them going back in the room and discussing it. I know what their reasoning was, and maybe it's better reasoning, I don't know. But it is to try to -- they were holding the plant out there, try to get here and think over what's going on out there to get a good answer. I'm sure that's the reasoning behind it, probably. So we were just standing out there, trying to hold on to it, so to speak. The idea is I can see what they were doing now - they wanted us to hold it, try to hold it to give them enough time to try to reason something out. We were the first line. We were right there on top of it, looking at the thing, and somebody's got to back off and try to see it from the overall view point.

MARSH: Has there been any discussion among the operators since then? In other words, separate from that of the supervisors, have you discussed this among yourselves? Doing this and that?

FAUST: We talked about the accident among ourselves, I mean as far as trying to reason out what's happened.

MARSH: I'm wondering, was there any feeling that -- do you feel that the operators have more of a hands on experience and definite knowledge of what was going on at the plant and the supervision may be a little more divorced from that, and that maybe your input should have been solicited more?

FAUST: I don't know if I really feel that way or not.

MARSH: I was just curious to see.

FAUST: That's been something bugging me. If I were -- I think what you're after, if I were there alone, would I have done something different. I would probably say yes. But ...

MARSH: Do you have any feelings specifically for what you would have done differently?

FAUST: I would have went on high pressure injection, I don't think I would have shut it off. Because it just seemed like way to go to me, but I felt maybe I wasn't seeing something and these people are. That's about all I can say. I shouldn't say even "these people". I just felt maybe I wasn't seeing something that everybody else was seeing.

JACKSON: What are the normal lineups for the reactor coolant drain tank and the reactor building sump? Where do they pump from, no wait, not from but where they pump to?

FAUST: They're usually lined up to go to the miscellaneous waste -- this is the miscellaneous waste holdup tank, I think it's called. They're the same tanks, they do the same thing. It's just different names are used.

JACKSON: Both the sump and the reactor coolant drain tank go to the miscellaneous...

FAUST: The reactor coolant drain tank goes to the RC bleed tanks. That would be... in fact, it goes to the vent header on it. The sump pumps to the miscellaneous hold up tank and the drain tank goes to the bleed tank, which I believe was isolated because of high pressure in the tank. I don't believe it does - it isolates itself on high pressure in the tank. I think it's only like 5 pounds in the tank or something, and it will shut and isolates it.

JACKSON: What actions were taken to try to contain the radioactive materials, now? The question is what pumps were shut off? Were there any valve lineups changed to divert water to different places?

FAUST: At the time there wasn't ... at the time when initially no alarms were in the Auxiliary Building... I think it was, I can't really answer this, I can just tell you what I know. We shut off the RC sump pumps. They were shut off before we had radiation alarms and I believe before we shut the RC pumps off. I can't, I can just locate it that way right now. This is purely later on ... this is something that Ed had have done when he was over there. He had been, like I said, he went back and looked at it, and I don't know if it was then or if it was even before then, that he had this done and was referenced, and when he went back around and took a look at the RC drain tank to see what the conditions on it were.

JACKSON: Once you had the alarms, I guess, what actions were taken to try to limit releases -- ventilation system, isolation, and this type?

FAUST: Ventilation system - did as much as you could do on it. The fans shut down and your suction and discharge dampers on the ventilation unit trip off when the upstream monitor alarms high. It just shuts the whole thing down, and it did that. And so you're sitting dead over there, basically.

JACKSON: Do you have any knowledge of radioactive materials, liquid or gases, how they might have been transferred from the reactor building to the auxiliary building? ...I'm thinking like, you know... Well, go ahead

FAUST: The only thing I can think of is that initially the RC pump, before we shut it down in the early stages of it, did pump to the miscellaneous waste tank. The only other thing I can think of would be that we -- that's manual, that would have been done manually. Nobody pumped it down. It would be the pump down in the RC drain tank, at least at this time, there wasn't any pumping now like that. So the sump pump did pump automatically and it did put it into the miscellaneous waste hold up tank. And a thing that I can't figure out, once again, we were sitting down just discussing what happened and trying to figure it out ourselves. We couldn't figure it up to the tank level indication prior to and after, never indicated it never overflowed. So, whatever came out should still have still been in that tank.

JACKSON: You mean "in that tank", you're talking about the miscellaneous waste tank?

FAUST: The only other thing I can think of is a relief lifting in the makeup, the letdown line in the makeup system, possibly. Like I said, we were getting surging. And that goes to the vent header of bleed

tanks. And it's a loop seal on that -- it's very possible that seal was loose somehow, and we started putting water ... maybe water got out on the floor or into the system that way, I don't know. I don't think they can get in there yet to determine that. The thing would have resealed itself anyway, just from operations that we're doing now, we still, we can hold the pressure on that vent header. You know, we proved that later on, so that's telling me we did put a lot of water in through that header, through another problem we had earlier. It's really a mystery to us, too, how the water got out there. We can't figure it out ourselves, for the most part.

MARSH: You say you had a problem earlier - are you talking during this event, or are you talking of a date previous to this. When you said about the seal repressurizing itself now, you had had a problem.

FAUST: This was, I was on the panel that day till about 3:30-4:00, so I went home. When I came back on at the 11:00 shift that night, and earlier that morning then, just before I got off shift again, we ran into, that's when we started making the initial releases. Because of the problem we had. To me, it got pretty serious, and I didn't want to loose what we had.

JACKSON: Do you know of any liquids being pumped from Unit 2, say from turbine building sumps, or any other sumps, to the industrial waste treatment system, or Unit 1 anywhere else?

FAUST: The only thing we had going to Unit 1, and was terminated right away, was -- in fact. it was coming to us from them, was condensate returned. We were sending them steam and getting it back, and it was isolated. The condensate return went right away because of problems with the hot well. Steam went, as soon as we had problems with ... well, we had the trip and Unit 1 was getting their boilers up, bringing their boilers up, which is normal in something like this, on just a regular trip, let's put it that way. So we could be supplied. I don't think we actually isolated it until we got the radiation alarms, then we secured the steam from Unit 1 and we made a brief announcement telling them, with a phone, I'm not sure how quick it was done. That's one of the things we've got to get off the line if we have a problem with radiation. And the liquid release was terminated right away into the river that Unit 1 was making. That's another thing that got done pretty quick.

JACKSON: One question regarding reactor coolant drain tank. If that tank - I mean, not - well yeah, the tank or possibly even the sump too - is it feasible that if those pumps are turned off manually and the lines are not isolated, that the pressure in containment could keep the flow going to the aux building?

FAUST: I don't think it got high enough at that time to do it. It was only 4 pounds. The only other thing we had was this spike in the building, which I believe now we are interpreting possibly to a hydrogen

explosion. That was beyond, we had this problem in the aux building before that. I would say no, because its got to -- the line's got to pump up to the . . . .

JACKSON: Possible, maybe due to siphon effect?

FAUST: Well, maybe ... I don't know.

JACKSON: Does the pumping go about the same level?

FAUST: It might have. I guess it's feasible.

JACKSON: Okay.

FAUST: I think Terry Daugherty shut, isolated some valves associated with turning the pumps off. You can verify that with him.

MARSH: Okay. We're at a breakpoint, I would like to terminate this tape at this time. The time is 5:41 and I am reading 934 on the meter. I am going to shut this tape off and replace it with a new tape. The time is 5:42. It's April 21, and we are continuing. This will be the third tape on an interview with Craig Faust, being conducted at the interview trailer NRC is using at the Three Mile Island site. This is Bob Marsh. I'm accompanied by Larry Jackson of NRC and Dorwin Hunter, and the fourth person in the room is Craig Faust. Larry

Jackson was raising questions when we terminated the last tape, and I will turn it back over to him at this time.

JACKSON: I'm switching the questions now to a couple of HP type questions. Did you enter the Auxiliary Building anytime, from the morning that the incident occurred to 3:31, which would have been Saturday, I guess?

FAUST: On Saturday. No, I don't believe ... I went in but I think it was, like five days later, four or five days later.

JACKSON: Okay. Do you know other individuals sent into the auxiliary building on your shift?

FAUST: I believe ... You mean after the accident?

JACKSON: Yeah? The morning or up to, say, the 31st.

FAUST: To tell you the truth, no. I said, I'm pretty sure people went in, but I can't say who, or when they went in.

JACKSON: Okay.

FAUST: And I wasn't really thinking much wrong with entering into the auxiliary building, for a while there. Other people were taking care of that.

JACKSON: Okay, fine.

HUNTER: You indicated that you worked from 11 to 7, then you went in and worked from 7 to 3, so you completed a 16 hour day on the 28th?

FAUST: On the 28th I worked my normal shift, 11 to 7. The accident held me over till 3:30.

HUNTER: Okay.

FAUST: It just, you know, the reason is, you don't turnover on something like that till you are somewhat in a stable condition, if you can. Otherwise it gets extremely ridiculous.

HUNTER: Okay.

FAUST: That's my feelings on it, anyway.

HUNTER: Okay. At the time that you were relieved at 3:30 that day, were you still on makeup panel?

FAUST: Yes, I think. I must have been on that makeup panel there ... I can't believe it, I must have been in there for four or five hours, I guess, four hours, where we just folded. I'm having a hard time seeing it being that long, but that's when I got relieved, I was there, and it was around 3:30, more like 4, when I left, around there.

HUNTER: Okay? Do you recall turning the pumps off during that time?

FAUST: During that time I was on it? Oh yeah.

HUNTER: A number of times?

FAUST: I started and stopped the pumps as, like I said, when flow conditions that I was required to maintain provided for it. It was either backed off on it to where one pump was easily within the range of what I was supposed to be holding or you know, when they gave the word to go higher and especially when we split, I was on -- I went down to one pump initially when I was told just to hold. When we shifted, I started the C pump... There is a problem with me that I'm trying to clear up now. We ended up on the B pump. I keep getting the feeling I never stopped the C pump, that the one I took off was the A, because I ended up trying to start the A, and it never started, and I went right to the B. And as far as I know, the A pump may not start yet.

HUNTER: Was there any time where you secured all the pumps or had them all off?

FAUST: No, I always had one pump on at all times, that I can remember. I can't remember securing all the pumps. I throttled back heavily when we tried to go on the core flood tanks.

HUNTER: When you ended up on the makeup, were you keeping your own log or was somebody writing the pump starts and stops down for you?

FAUST: I don't think anybody was keeping a log at this point. If they were, I didn't know about it. It's something, I think we should have been, but ...

HUNTER: Okay.

FAUST: Nobody was logging anything that I know of, in relation to the pump starts. One thing is, you sort of rely on the computer for something like that. You can go back and pick it out, you know, start and stop times on the pumps, what's on and off.

HUNTER: Okay, I would like to leave it at that point and indicate that I want to get back with you, and at that time it will be at some specific points, and it would be to include your continuing the make-up station, apparently from early morning until way late in the afternoon, and see if we can't work our way through that okay?

FAUST: Yeah, we have a lot of people who are in this. I'm sure you can tell that they will be able to help and correlate this. I can't remember stopping all the pumps, and for some reason, maybe I'm just blocking it out, but I can't remember doing it. I remember, and like I said, I'm getting the feeling I had, I went down to the C pump, not

like I remember saying I had it before because of what I did, trying to get the A back, and I ended up putting the B on. I don't think -- I know I talked to people or mentioned it to somebody, and it's something that I'm going to mention again, that that pump might not start. that A pump. I don't know if we know if it is going to start or not, yet.

HUNTER: When it tripped, is it damaged?

FAUST: This is what I mean. All I know is, when I tripped it, it went off properly and I had the lube oil the pumps on. It's when I went to restart it, later on, it didn't pick back up.

HUNTER: So it's sitting down there the way it was when you turned it off?

FAUST: As far as I know, yes. I don't know if anybody attempted to start it since it's a good point, I'm going to bring it up.

HUNTER: Okay, keep the makeup system in mind a little bit, and be aware that we need to go through that, because you are the flow recorder on the makeup system from this time to this time. Okay? You know, I'm just trying to, we need to know the makeup flow, as best as we can recall. So we'll specifically get at that, not a pressure point at all, but just something that, you must realize that we need to sit down and go through it and reconstruct it as best we can. And I'll

have the chronology, and we'll go through it and spend an hour or what ever, going through that and try to recover all the data that we can.

FAUST: Well, it might help, definitely. I know what prints I have been able to look at, did help relate to me, once again, time periods that passed. I can't believe it went that way.

HUNTER: I have no further questions. Larry, do you have anything else?

JACKSON: No, No further questions.

MARSH: Okay, before we finish up, I don't want to cut you off, either. It's been long for you and we appreciate your coming in, but is there anything else you want bring up or talk about before we finish up today? You've indicated your concern over this A pump? We'll take a look at that, but is there anything you want to talk about or bring up. In other words, I don't want it all on our side, if there's something you want to make, a statement on that, feel free to talk about?

HUNTER: If there's an area you want, that you think we should cover?

MARSH: Either now, or if you're fatigued and you want us to cover it next time, feel free to bring it out.

FAUST: Well, it seems like we've covered it all. I don't seem to be missing anything here.

MARSH: Okay, well the time is getting to be 5:51. I show 185 on this third cassette of this series with this interview. Just again, I would like to say thank you. It's a lot of your time, and we appreciate it. We recognize you're just coming off a work shift where you've put in 10, 12 hours, in there, and then come spend another 2 or 3 hours with us, so it is appreciated. So at this time, if you have anything else, I'll go ahead and terminate this tape... Nothing? OK. Then we're ending at this time, at 5:51 on April 21 ... terminate.