

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

1 In the Matter of:

2 IE TMI INVESTIGATION INTERVIEW

3 of Mr. Robert W. Winks
4 Principal Engineer
5 Babcock and Wilcox Corporation
6 Nuclear Power Generation Division

7 REPRESENTATIVE

8 Mr. Bryon D. Nelson
9 Assistant Council
10 Babcock and Wilcox Corporation
11 Nuclear Power Generation Division

12 Trailer #203
13 NRC Investigation Site
14 TMI Nuclear Power Plant
15 Middletown, Pennsylvania

16 May 8, 1979

17 (Date of Interview)

18 June 29, 1979

19 (Date Transcript Typed)

20 185

21 (Tape Number(s))

22 NRC PERSONNEL:

23 Mr. James S. Creswell
24 Mr. Owen C. Shackleton
25

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1 SHACKLETON: This is an interview of Mr. Robert W. Winks. Mr. Winks is the
2 Principal Engineer for the Babcock and Wilcox Corporation, the Nuclear
3 Power Generation Division. This interview is taking place at 3:40 p.m.
4 eastern daylight time, May 8, 1979. Interview is being conducted in the
5 office building of Babcock and Wilcox Incorporated in Lynchburg, Virginia.
6 Present to conduct this interview from the U. S. Nuclear Regulatory Commis-
7 sion is Mr. James S. Creswell. Mr. Creswell is presently assigned to Region
8 III as a reactor inspector. My name is Owen C. Shackleton. I'm an investi-
9 gator assigned to Region V. Just prior to going on tape, I presented to
10 Mr. Winks a two page document from the U. S. Nuclear Regulatory Commission
11 which outlines the purpose and scope of this investigation and the authority
12 by which the U. S. Nuclear Regulatory Commission can conduct this investi-
13 gation. This document further specifies Mr. Winks rights to refuse to be
14 interviewed or to submit a signed statement. It also advises him that he
15 has the right to have anyone of his choosing present for this interview.
16 Mr. Winks chose to have Mr. Byron D. Nelson, the Assistant Counsel for
17 Babcock and Wilcox Incorporated, present for this interview. On the second
18 page of this document are listed three questions to which Mr. Winks answered
19 in the affirmative in writing. At this time to make it a matter of record
20 I am going to repeat these questions and ask Mr. Winks to please respond.
21 Mr. Winks did you understand the contents of the document I am referring
22 to?

23
24 WINKS: Yes.
25

1 SHACKLETON: And do we, the United States Nuclear Regulatory Commission,
2 have permission to tape this interview?

3
4 WINKS: Yes.

5
6 SHACKLETON: And I understand that you would like a copy of the tape of
7 this interview.

8
9 WINKS: Yes.

10
11 SHACKLETON: Alright sir that will be provided. And now Mr. Winks for the
12 benefit of those persons who will be listening to the information that you
13 are furnishing us would you please briefly give your own background in the
14 nuclear industry and your present job responsibilities.

15
16 WINKS: My background in the nuclear industry starts in my college days
17 while I worked for Los Alamos Scientific Laboratory. Upon graduation in
18 1956, I took on a job with Los Alamos Scientific Laboratory and held that
19 job for less than a year. I chose to go to another company in Denver,
20 Colorado, and in the employment of that company, several years later, we
21 again returned to a nuclear rocket engine/vehicle design project. From
22 that project I left that company, rejoined Los Alamos Scientific Laboratory
23 and was assigned to work at Las Vegas, Nevada. For eight years we were
24 testing nuclear rocket engine prototypes and when that program ended I then
25 was employed by Babcock and Wilcox here in Lynchburg. I've been here six

1 years. I am a Principal Engineer in the Plant Design Section of the Engi-
2 neering Department of Babcock and Wilcox here in Lynchburg.

3
4 SHACKLETON: Thank you very much Mr. Winks. Now I'll turn the interview
5 over to Mr. Creswell.

6
7 CRESWELL: Mr. Winks in the conduct of your employment here at Nuclear
8 Power Generation Division, what is your area of expertise?

9
10 WINKS: Plant performance, and I'm in a Controls Analysis and Evaluation
11 Department or Section and my main effort ever since I joined this company
12 is to follow the startup program, resolve problems in either plant perfor-
13 mance or behavior of the plant in response to transients and attempt to
14 bring the plant and the ICS and the operator action even to that which is
15 desired by the design of this plant.

16
17 CRESWELL: Okay Mr. Winks I'd like if we could to go back to the date of
18 March 28, 1979 and to the point in time which you first became aware of an
19 event or occurrence at the Three Mile Island Unit 2 Facility. Could you
20 approximately place that in time and the conditions under which you became
21 aware of the event?

22
23 WINKS: I was in Alan Wolnack's office. He is Section Leader of Plant
24 Design Section, prior to 8:00 in the morning, talking about another subject,
25 unrelated, when Dr. Don Roy entered the room and informed us of an emergency

1 at TMI-2. He sat down long enough to give us a very very brief sketch of
2 what was going on there at which time I immediately volunteered to be part
3 of a team to go up and look into what was... what had happened...what was
4 happening up there...offer to go to the site and contribute. My contribu-
5 tion would be understanding what had been recorded and what that meant to
6 us and was not in any way to tell operators or to tell the customer what to
7 do; that is not my strongpoint.

8
9 CRESWELL: Okay thank you Mr. Winks. You say that you were in Mr.
10 Wolnacks' office at 8:00. Was that approximately the time that Dr. Roy
11 came in?

12
13 WINKS: A few minutes before 8:00 right.

14
15 CRESWELL: Okay. Did Mr. ... did Dr. Roy indicate how he had found out
16 about the event?

17
18 WINKS: I believe he was called by Spangler of Nuclear Service. I wouldn't
19 say that absolutely for sure but I believe that's my recollection of at
20 conversation.

21
22 CRESWELL: Okay. Now you mentioned that your role at that point in time
23 would be of an evaluation nature of data, is that correct? And that possibly
24 you...would you from that evaluation make certain recommendations to either
25 your company or to the licensee? Excuse me, the word licensee in this
context means your client, the Metropolitan Edison Company?

1 WINKS: In the role that I saw coming up, I think I would have been mainly
2 answering back to B&W people here. A team selected to go as quickly as
3 possible to see what we could obtain from the plant...I think, without even
4 pondering it very long we knew the reactimeter was there, the reactimeter
5 was gathering data but was an assumption it actually could have been off
6 but assuming that it was up and running we'd have then delogged it and
7 looked at the data and decided what were the instigatingly...situation and
8 then what followed after that. It would be a more of a post-mortem, it
9 could also be used by the people here as a where do we go from here?

10
11 CRESWELL: What was your recollection of what Dr. Roy described as the
12 condition of the plant at that point in time?

13
14 WINKS: I can't even recall what he said, to be honest. I haven't even
15 thought about trying to reconstruct that description. I better just say I
16 don't know.

17
18 CRESWELL: Okay. After this happens what were the next events of which you
19 participate in that morning?

20
21 WINKS: There was a meeting called approximately about 10 to 10:30, and now
22 there were probably about 50 people in that meeting all who have in the
23 past taken an active part in problems occurring at sites under startup,
24 generally coordinated between lead people in engineering and lead people in
25 nuclear service and one of these meetings was in progress and I attended it

1 very late. I walked in and they said well you know that you're going. I
2 said yeah I volunteered. No, its been definitely decided that you will
3 catch a plane and you will be leaving at such and such a time. I was
4 really attending to some other function and that was why I didn't happen to
5 be there at the very beginning of that meeting.

6
7 CRESWELL: The other function, Bob, would have been?

8
9 CRESWELL & WINKS: Just other work related to the event.

10
11 WINKS: Yeah the TMI-2 event.

12
13 CRESWELL: You mentioned that someone told you that you would be going. Do
14 you recollect who that was?

15
16 WINKS: No in fact there was quite a few people standing near the back door
17 as I walked in and it's as if...well if you didn't know we are telling you
18 now.

19
20 CRESWELL: Okay. Do you recollect who was in charge of that meeting?

21
22 WINKS: I think Spangler was in charge of the meeting but right along side
23 of him was both Wolmack and Roy, and so there probably was three, four,
24 five people maybe all in essentially trying to direct the meeting.

1 CRESWELL: Okay. Did you attend the meeting for any length of time were
2 there any other items discussed other than which you've related?
3

4 WINKS: No I didn't attend it very long. I got quite near the end and if
5 there was a discussion I believe that what we had then was people describing
6 maybe what Bill Spangler had told Roy and that this was now disseminating
7 it into the various representatives or the various people that normally
8 take an interest in solving site problems.
9

10 CRESWELL: Okay. So you'd been informed that you are going, what's the
11 next thing that happens?
12

13 WINKS: We were told that there would be a chartered flight ready and
14 waiting and it would be time to go home and get packed and we quickly made
15 plans for some people to get home and get packed and get back to B&W and
16 then go to the airport. But it eventually ended that we went home got
17 packed and went straight to the airport and much of what I wanted to take
18 at my desk I didn't get to take. So I arrived with about a pen in my
19 pocket or something like that, which, I don't normally go that way. We
20 arrived at the airport around 11:00 maybe a little before a little after I
21 can't remember exactly, and the three of us were there and the plane was
22 ready.
23

24 CRESWELL: This was a charter type of aircraft.
25

1 WINKS: A small five seater or three seater...no five seater, two engine
2 charter plane.

3
4 CRESWELL: Okay. Do you recall approximately what time the plane departed
5 from... was it the Lynchburg Municipal Airport? Do you recall what time it
6 took off?

7
8 WINKS: Well shortly after 11:00.

9
10 CRESWELL: Okay. And then what time did you arrive...I assume that you
11 would have arrived...arrived at the

12
13 CRESWELL & WINKS: Harrisburg International

14
15 WINKS: And that's about two hours later. We're about 1:00 or thereabouts
16 maybe a tiny bit after.

17
18 CRESWELL: Okay. At this point in time I'd like to digress...did you have
19 any communications prior to this point in time with anyone at the site or
20 were you aware of any communications from anyone at the site? Now the site
21 would be anyone in the vicinity of the plant including...

22
23 WINKS: No I didn't. Anything like prior to quarter of eight or anything
24 prior to leaving on the airplane?

25

1 CRESWELL: Right.

2
3 WINKS: No.

4
5 CRESWELL: Okay. So your information about what had transpired as far as
6 the event is concerned would have come from other individuals within this
7 organization here in Lynchburg. Okay. Upon your arrival at Harrisburg
8 what did you do?

9
10 WINKS: We rented cars at the airport...we already had a map of how to
11 get...well I guess we called Greg Schaede and got a map of how to get to
12 his house and then just took off and...essentially he lives I believe in
13 northeast Harrisburg...and we got there and entered his house 1:30 or
14 something in that time frame.

15
16 CRESWELL: Upon arrival at his home...let me digress one more time you said
17 we, there were some other individuals with you would you name those indivi-
18 duals please?

19
20 WINKS: Bob Twilly in Nuclear Service and Joe Kelly another individual in
21 Plant Design but more in a Integration role.

22
23 CRESWELL: Okay. So you arrived at Mr. Schaedel's residence
24
25

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1 WINKS: His wife let us in Greg was on the teleph...I vaguely remember...
2 I believe he was on the telephone...I won't even say I can't remember who
3 because we had just walked in and met her and...Joe Kelly had worked at
4 Florida with Greg Schaedel...knew his wife quite well...so there's quite a
5 greeting period there rather than just going right to where Greg was to
6 hear the conversation, so I missed who he was talking to.

7
8 CRESWELL: Okay. That would have been at the Crystal River Facility?

9
10 WINKS: Yeah.

11
12 CRESWELL: Okay. So after Greg got off the telephone, what happened?

13
14 WINKS: He told us a little bit about the condition of the plant, the
15 communication that he was having with Lee...I believe it's that time that I
16 learned that they had this thing happen about 4 in the morning but it was
17 6:00 I guess and Lee went in by 6:30 or something like that...he wasn't
18 called immediately...and that he's still there working with them and trying
19 to bring the situation under control, and that it's like an agreement he'll
20 be calling me, Greg, periodically.

21
22 CRESWELL: Okay.

23
24 WINKS: We were then getting, you know, an offhand or a brief description
25 through Greg.

1 CRESWELL: What did that brief description consist of?

2
3 WINKS: I'm trying to think now I've seen so much data and I've seen so
4 many sequence of events to rule that out and try to think okay in his house
5 what did we know...we knew that the pumps were off and that there was a
6 bubble or vapor up in the top of the hotleg feeding the steam generator,
7 and that this...when you hear it for the first time your thoughts has to do
8 with natural circulation and that how much effort or concern or work that
9 was being done to, to do something about that bubble. So that probably is
10 about the extent, in other words, causes of failure and sequence of events
11 and what the operators doing, all that comes out later, when you begin to
12 see the data that we were plotting up or...but in the moment that we're in
13 Schaedel's house I believe the only thing we were to know is trying to have
14 natural circulation no pumps on, trying to do something about getting a
15 pump on that's probably the limit.

16
17 CRESWELL: Based on this information here what...what did you feel ought to
18 be done?

19
20 WINKS: I don't have any strong feeling on that. The reason I say that you
21 have to...to see now far out of out of realm that for me. The way our
22 Plant Design Section is set up we have accident analysis and ECCS and
23 Control Analysis which is more like just straight operational or...now what
24 you've done here is you've taken me all the way to the other end and here
25 is essentially an ECCS thing...how do you speculate on the right or wrong
things to do? I'm way out in left field to answer that question.

1 CRESWELL: Okay. Well how did you perceive your role in Mr. Schaedel's
2 residence here at that time?

3
4 WINKS: We were planning to get on site whenever possible, whenever allowed,
5 for the main purpose of taking the data that was being logged look at it
6 and make judgments based on the data...again I say to plan to go on the
7 site and go in the control room and see the condition as it is and project,
8 I had no plan to do that.

9
10 CRESWELL: Okay. In other words you felt that you would have to have data
11 to evaluate before you could make recommendation?

12
13 WINKS: No it's not my job to make a recommendation in that vane that is
14 I'm not to redirect decisions by the client or tell the operators that I
15 want them to do this. It's way beyond my...my responsibility.

16
17 CRESWELL: Okay. After you had performed an evaluation of the data would
18 you communicate the results of your evaluation to someone else.

19
20 WINKS: Oh yeah, in fact, at that point it's to be presentable to B&W here
21 and the customer so that they can see what's going on or what has gone on
22 or where they've been or where they've got to go...so I'm leaving that
23 decision really for someone else more operations oriented.

1 CRESWELL: Okay. Who in the B&W organization would you relay the results
2 of your evaluation to?

3
4 WINKS: Well, actually we did when finally twenty figures were prepared
5 they were all xeroxed as quickly as possible down to this war room so that
6 engineering and nuclear service all those that were part of this task force
7 now saw from time zero what was happening.

8
9 CRESWELL: Okay.

10
11 CRESWELL & WINKS: _____

12
13 CRESWELL:into a later point in time...I'd like if we could to move
14 back

15
16 WINKS: Sure.

17
18 CRESWELL: ...to a time where you had entered Mr. Schaedel's residence he
19 had gotten off the telephone you had discussed certain parameters your main
20 purpose at this point was to plan to get on site and do some data evaluation.
21 What's ...if that's not a fair characterization please correct me?

22
23 WINKS: I think it's fair.
24
25

1 CRESWELL: Okay. What was the next thing that happened?

2
3 WINKS: We essentially stayed in his house from 1:30 till 7:30 or even
4 closer to 8 maybe and were interested in the periodic conversations between
5 Rogers and Schaedel. We did not hear any of them, Greg would say things I
6 believe while he was talking or if he didn't then he would tend to give us
7 some kind of a summary in several more phone calls that afternoon. I don't
8 believe there was an awful lot more added...of course in that time frame we
9 went through an exercise or depressurization type exercise and they said
10 that was successful in dislodging the bubble, there was water around the
11 pump the pump was started we now had one pump running. I think there was a
12 tremendous amount of relief felt not only in myself but in all the others
13 in Schaedel's house on that moment. I think when that point came Lee was
14 going to go home...we saw a lot of pressure off at that moment anyway and
15 we finally about 8 or so went out to have dinner.

16
17 CRESWELL: Bob you mentioned that everyone in the house felt a great deal
18 of relief when the pump was started. What was the source of this feeling?
19 Why did you feel relieved?

20
21 WINKS: I think most of us knew that if you have a core and you are depending
22 on natural circulation and there's a bubble of that size, that must be
23 effecting natural circulation. We had temperatures that were indicating...
24 temperature numbers that were indicating almost unbelievable values of
25 fluid temperature in the hotleg...we just, as I remember...of course I'm

1 biased again by the data that I saw...but prior to starting the pump the
2 hotlegs came down and I believe Lee told Greg that, so we knew something
3 about looks like we had collapsed the bubble or moved it...so I think I
4 could safely or correctly say that we knew something about that prior to
5 the actual seeing of the data. And so it meant really to us, we got cooling
6 back, that's how I think of the great relief that we felt.

7
8 CRESWELL: If they hadn't...if cooling hadn't been reestablished what would
9 have been the consequences?

10
11 WINKS: I don't know.

12
13 CRESWELL: Okay. So about 8:00 you went to dinner and what, what's the
14 next thing that happened?

15
16 WINKS: We did not return to Schaedel's house that night and we finally
17 found this motel that we were staying in Hershey and oh fairly early in the
18 evening retired. I got a call oh about 6 in the morning from Greg saying
19 alright you have been chosen to be the first ones on, it wasn't any of the
20 other two, it was myself and then people who are at the site who process
21 data, John Putnam and John Clinton. As I recall John Putnam was in that
22 evening while I was in the motel sleeping and he continued to stay on that
23 morning and work with me as a two man data reduction team and we got
24 out the first eight minutes of the transient as fast as possible and circu-
25 lated that information both the NRC people...I believe, no they weren't

1 there yet...the second day when we had more figures...we gave them the
2 figures, but we took those figures and...there were people interested in
3 making copies, as I recall Lee was there...
4

5 CRESWELL: Lee Rogers?

6
7 WINKS: Yes, and he said let me have these I'll make copies and we'll give
8 these to GPU, Met Ed and I believe we transmitted that first eight...I'm
9 unclear now...but I believe we transmitted that first eight via telecopy
10 machine to Lynchburg...if not, then it was postponed a day and we got all
11 twenty at one shot, but one way or the other as soon as we could get a
12 group of figures of finite time period why we transmitted it.
13

14 CRESWELL: Okay. How were those twenty figures prepared?

15
16 WINKS: Well there's two sets of reactimeter tape, that I mean that, print-
17 out that comes off and these were divided into the original copy which we
18 had and then the second copy which went to GPU. We were really the only
19 official plotters or data reducers, GPU was not at the same time doing the
20 same effort, but they could look up any value if they wanted to they could
21 scan it...and so we were making the plots, and everyone was giving us a
22 free hand, well just go and get it all done we'll leave you undisturbed
23 here. It's the kind of thing I'm very familiar with that is to take reacti-
24 meter data that's been printed out and and know it and know it's time
25 between steps, know its values, it's converted geneote to engineering

1 units and just go. There was nothing wrong with this data, it was all
2 continuous there were no power interruptions there was nothing that was out
3 of the ordinary, it was just, let's get with it and so we worked basically
4 twelve hours in getting the first batch out and then when Twilly and Kelly
5 came on their task was here's more tape reduce. It has about a twenty-four
6 hour capacity. Here are the next fifteen sixteen hours also printed out
7 duplicate copy, now you take and extend the transient as it's plotted out
8 to about the first seventeen hours, that was finished then in the next
9 twelve hour shift and I believe either they transmitted or we transmitted
10 it the following morning, everything. I'm a little unclear as to when all
11 twenty copies were sent to Lynchburg and also given to NRC. But just as
12 fast as we could get it out.

13
14 CRESWELL: To your knowledge that was the first telefax telecopy type of
15 information that had been sent to corporate offices in Lynchburg from the
16 site?

17
18 WINKS: No, there might have been some other things. I happened to have
19 been there for more than those twelve hours...a number of days...and it was
20 Engineering's or B&W's action to request information from B&W site personnel
21 which had access to the control room and they might have very easily put
22 down numbers on a piece of paper in answer to a specific verbal request and
23 these could have easily been transmitted long before I got all these figures
24 done. I can't really tell you accurately, but there is that possibility
25 that they were answering other questions, just randomly picking up readings

1 and sending that. That would be, you know, that would be current and we
2 would be bringing up the the particulars of the start of the transient.

3
4 CRESWELL: To your knowledge was any original charts, records, data, magnetic
5 tapes, any other types of records transmitted to Lynchburg for analysis?

6
7 WINKS: Not to my knowledge.

8
9 CRESWELL: For instance, reactimeter and magnetic tapes would have been
10 duplicated at the site...

11
12 WINKS: There was a lot of concern and I'm really not the one to talk to.
13 You would be best to talk to John Flynn. Concerns about how to get that
14 tape how to reproduce it, I believe that tape did come down here eventually,
15 but it wasn't the first or second or third day it was like discussion back
16 and forth how soon is that tape free to come down here and be dumped or
17 printed out and back again. So other than that I don't want to really talk
18 about it much because I really don't know too much about it.

19
20 CRESWELL: Okay. Just I'm asking you what you have... you personally have
21 knowledge of. Do you personally have in your possession the original data
22 from the plant?

23
24 WINKS: No I don't.
25

1 CRESWELL: Owen do you have some questions that you would like to ask
2 Mr. Winks?

3
4 SHACKLETON: No I can't think of anything right now, Bob or Jim. I think
5 we've covered ah... alright I'll turn it back to you.

6
7 CRESWELL: Mr. Winks in your capacity as a Principal Engineer, in evaluating
8 transients, have you previously evaluated transients at the TMI facility
9 that would have a similar nature to this event that occurred on March 28,
10 1978, 79 excuse me?

11
12 WINKS: The way I understand that is, have I seen evidence at TMI-2 of a
13 inability of the auxiliary feed water system to start, would that be the
14 better way to say it am I understanding you right?

15
16 CRESWELL: Well, the March 28, 1979 event I think it's been fairly well
17 established involves a loss of feed water condition okay.

18
19 CRESWELL: Okay, have you looked at transients regarding the plant behavior
20 during a loss of feed water event previously?

21
22 WINKS: I don't believe I have seen loss of feed water event at TMI-2.
23 I've seen them at other places that you and I are familiar with, but I've
24 not seen one at TMI-2.

1 CRESWELL: Okay. Have you...I think it's also been fairly well determined
2 that there was an opening of the electromatic relief valve the so called
3 EMOV during this event and that it stayed open for a prolonged period of
4 time. Have you previously analyzed data from TMI that would have involved
5 an event with similar circumstances?
6

7 WINKS: No. That denial doesn't mean it never existed, it means I was
8 never exposed to anything...
9

10 CRESWELL: I am just asking you if you personally were involved at all?
11

12 WINKS: No.
13

14 CRESWELL: Okay Mr. Winks we appreciate very much your taking your time out
15 this afternoon and discussing these matters with us.
16

17 SHACKLETON: As there are no further comments to be made we will close this
18 interview at this time. The time is now 4:18 p.m. eastern daylight time,
19 May 8, 1979.
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21
22
23
24
25