

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DOCKETED
USNRC

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In the Matter of

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

METROPOLITAN EDISON COMPANY et al.

Docket 50-289 SP

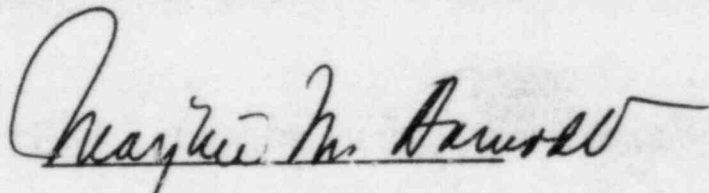
(Three Mile Island Nuclear
Generating Station, Unit 1

ERRATA TO AAMODT FILING OF MARCH 5, 1985

Exhibit A is being replaced as the copy supplied
was not legible.

The service sheet should be corrected to delete "and
a letter, dated March 5, 1985 to the Commissioners" and change
"were" following this deletion to "was".

The delivery to Licensee was by hand-delivery on
March 7, 1985 and on March 8, 1985 to those serviced by
U.S. Mail.



Marjorie M. Aamodt

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1 SHACKLETON: This is a meeting being conducted at the Department of Environ-
2 mental Resources, Commonwealth of Pennsylvania, in Harrisburg, Pennsylvania.
3 The time is now 12:11 p.m., May 3, 1979. The meeting is being conducted in
4 the office of Mr. Thomas M. Gerusky. Mr. Gerusky is present for this
5 meeting and is the Director of the Bureau of Radiation Protection. Also
6 present is Margaret A. Reilly. Ms. Reilly is the Chief, Division of
7 Environmental Radiation. Also present is Mr. William P. Dornsife. Mr.
8 Dornsife is a Nuclear Engineer with the Department of Environmental Resources.
9 Present from the U.S. Nuclear Regulatory Commission is Mr. Dale E. Donaldson.
10 Mr. Donaldson is a Radiation Specialist assigned to Region I. Also present
11 is Mr. Thomas H. Essig. Mr. Essig is the Chief, Environmental and Special
12 Project Section, Region III. My name is Owen C. Shackleton. I am an
13 investigator assigned to Region V. Please begin your conference.

14
15 DONALDSON: What our intent is or purpose or charter for the investigation
16 is to primarily look at the licensee's actions and the adequacy of those
17 actions. And the time frame specified for our particular portion of the
18 investigation is March 28 through midnight on March 30. So what we are
19 hoping to accomplish, at least, by having some discussion with you, to
20 discuss, prior to the incident, the state and nature of coordination that
21 existed between yourself and Metropolitan Edison, and then trace through
22 some of the early notification sequences, the type of information that was
23 relayed back and forth; and then discuss certain of the licensee's actions
24 in light of information that you may have provided or certain actions that
25 you may have accomplished in support of their response. I guess probably

1 the best thing we can do is start with a discussion, a general discussion
2 of the scope and nature of the coordination between the State of Pennsylvania,
3 Bureau of Radiological Health, and Metropolitan Edison.

4
5 GERUSKY: It's Bureau of Radiation Protection. Maggie, why don't you...

6
7 REILLY: You mean with respect to...

8
9 DONALDSON: With respect to emergency planning, ahead of time.

10
11 REILLY: Okay. Reilly. With respect to the emergency plan we have a document
12 called Pa. PIPAG (Plan for Implementation of Protective Action Guides)
13 which originated in 1973, which was for some years the base document regarding
14 emergency planning for reactors annexed to that or site specific annexes
15 for the various operating reactors. In 1977, in light of changes in Federal
16 guidance, particularly the EPA dose projection PHE type guidance, we rewrote
17 the plan. Specifically, sort of targeted at the Susquehanna Station, which
18 was then in its mid phases of developing its emergency plan. We've been
19 attempting to get around to the other facilities which are in operation and
20 gradually update them as to the revised plan. Insofar as Three Mile was
21 concerned, the changes regarding the notification and the PAGs and informa-
22 tion protocol, Three Mile had adopted them.

23
24 DONALDSON: I wonder if you could discuss the nature of any meetings or
25 routine meetings or discussions that would take place in the prior planning
area?

1 REILLY: Let's see, probably the last fairly large meeting we had with them
2 was, I think, last April. We got updated with Isoplax and the site map.
3 It was a great effort to have a consistent area map among all of the parti-
4 cipating agencies. And that would have been April of '78, roughly. It was
5 around this time of year.

6
7 DONALDSON: As part of their training and coordination program, do they
8 periodically invite you to the site to attend either their emergency director
9 training or drills or anything of that nature?

10
11 REILLY: Whenever they're having a drill they invite us down, in addition
12 to whatever it is we do out here, we haven't had anyone...

13
14 GERUSKY: Yes, Bill was down.

15
16 REILLY: Were you down there the last time they had a drill?

17
18 DORNSIFE: Yes I was. Also at that last meeting, Maggie, the last meeting
19 we had down there, all the locals, the civil defense directors and the
20 local fire chiefs and policemen were there and they were going through
21 essentially what everybody in the organization does. I thought it was a
22 very good meeting.

23
24 REILLY: They also gave Dornsife and I some briefings as to their meteor-
25 ological techniques in establishing which family of curves they want to use
for the various weather conditions.

1 DONALDSON: As of March 28th, were there any outstanding items or out-
2 standing information that the facility had agreed to provide to you that
3 had not yet been provided?

4
5 REILLY: Not to my knowledge.

6
7 DONALDSON: Then all the issues were fairly well resolved.

8
9 REILLY: Yeah. In general, we've gotten pretty good cooperation from them.

10
11 DONALDSON: Bill, do you remember whether - was Kevin Malloy or anybody
12 from State Council Civil Defense at that big meeting?

13
14 DORNSIFE: Yeah, there were quite a few. But Kevin wasn't there, I don't
15 think. Some people from the State Council were there. Lamison was there.
16 I don't know all the names.

17
18 REILLY: I don't know if Craig was there or not. There was a fair flock of
19 us... going through TMI airport there.

20
21 DORNSIFE: Lancaster County was represented with the Civil Defense Director.

22
23 REILLY: Yeah. Connors was there.
24
25

1 DORNSIFE: A lot of local fire chiefs and policemen were there.

2
3 REILLY: Some one was there from the State Police too, I believe.

4
5 DORNSIFE: Yeah, two people from State Police.

6
7 DONALDSON: Tom, do you have any questions regarding the preplanning area?

8
9 ESSIG: No, I don't have any questions regarding the preplanning area. I
10 would like to, at the appropriate time, would like to get into the initial
11 sample analyses performed by the State by the Commonwealth.

12
13 GERUSKY: We use State, that's all right.

14
15 ESSIG: OK.

16
17 REILLY: It's easier to say early in the morning.

18
19 DONALDSON: Why don't we move on into the morning of the 28th, and I
20 believe, Bill, you were the one who received the initial call from State
21 Council, from local Civil Defense. Why don't you just pick it up and
22 describe what took place that morning.

23
24 DORNSIFE: About 5 after 7:00, I received a call from Clarence Deller, who
25 was the Civil Defense Duty Officer. I was the designated Bureau Duty

1 Officer at the time. They have a list of our names and phone numbers.
2 It's updated monthly. It rotates. I got a call about 7:05 saying that
3 "Three Mile has declared a site emergency. Call back to the control room
4 Unit 2." Immediately after that I called Maggie Reilly and wanted to make
5 sure, to see if there was any phone numbers we had directly to the control
6 room. We didn't. She didn't tell me we had any - I guess we did have one
7 to the control room.

8
9 REILLY: I just rattled off the switchboard

10
11 DORNSIFE: So, I called back through the switchboard and I guess Maggie
12 went ahead and called Tom to tell him to get somebody to get in to take
13 over the office.

14
15 REILLY: The first person I called was Malloy.

16
17 DORNSIFE: Okay. Well I called back to the plant immediately after hanging
18 up with Maggie, which was about a minute later, and I got the switchboard.
19 The switchboard operator had difficulty connecting me with the control
20 room. She could get the control room, but she couldn't get us together.
21 So finally after a couple of minutes I told her, "why don't you have them
22 call me back at my home." So I gave her the number and about a minute
23 later someone from the control room called me back. I forget, I don't know
24 whether he even told me his name. I guess it was the shift supervisor,
25 whoever was on duty at the time. Things sounded very confused at the

1 plant. You could hear a lot of noise in the background. I started asking
2 questions about what had happened. They gave me a little bit of blurb, but
3 I didn't write anything down. This is just from memory. I believe he told
4 me that the plant was...it was a transient, the plant was shut down, the
5 reactor had screamed. The system was being cooled normally. The safeguards
6 systems had worked. There was a slight pressure in the containment. At
7 the time they didn't relate anything concerning the relief valve sticking.
8 That problem--they didn't say anything about anything being carried over to
9 the auxiliary building at that time. But they did tell me that there was
10 no releases offsite. They had teams out and they couldn't find anything
11 offsite. So I guess I asked a few questions additionally, what I thought
12 was appropriate. I don't really recall but I satisfied myself that the
13 conditions were stable.

14
15 ESSIG: Excuse me, just for a second, Bill. You indicated that they had
16 told you at that time, this was shortly after 7:00 in the morning, that
17 they had not found anything offsite.

18
19 DORNSIFE: Right. They definitely had teams out, they could not find anything
20 offsite.

21
22 ESSIG: Okay, sorry. Go ahead.

23
24 DORNSIFE: Then I heard in the background, an announcement--"evacuate the
25 fuel handling and auxiliary building."

1 REILLY: It really makes you feel good. (laughter)

2
3 DORNIFE: All along I'd been waiting for somebody to tell me it was a
4 drill. When I heard that I figured "oh-oh this is the biggy." Then, the
5 shift supervisor apparently put on a health physics type, and he--again
6 told me they had teams out, they had no readings offsite. Right after the
7 announcement he said to me, "I have to go, I really have to go now." Very
8 confused and very upset. "I really have to go now; I'll call you back" and
9 he hung up.

10
11 DONALDSON: This was about what time?

12
13 DORNIFE: This was about...

14
15 REILLY: A quarter after seven.

16
17 DORNIFE: Well, in that time frame, quarter after--twenty after, about
18 twenty after, I'd say. He hung up. So I figured, at that point I knew
19 people were coming into the office. I figured there was no reason to try
20 and call him back so I just took off and headed for the office. Oh no, I'm
21 sorry, I called into the office after the plant hung up on me and I told
22 one of the secretaries who was there--I told her, the first person who
23 comes in to get them to call back to the plant immediately. And just
24 briefly told her that there was a problem there, but not to alarm her
25 needlessly, because at that point it didn't seem...the situation seemed to

1 be under control, at least from what they were telling me. Except, of
2 course, you had an uneasy feeling about the announcement to evacuate the
3 fuel handling and auxiliary building...

4
5 Donaldson: I believe, are there not, some standard formats in which initial
6 notifications are to be provided to you?

7
8 DORNSIFE: Yes, there are. In the emergency plan there is a check-off
9 list, kind of.

10
11 DONALDSON: That's in the State's PIPAG, or in the State..

12
13 REILLY: It's in the annex to the...

14
15 DORNSIFE: It's in the procedures part.

16
17 DONALDSON: The annex to the Three Mile Island emergency plan?

18
19 DORNSIFE: Yeah.

20
21 DONALDSON: Then that information was or was not provided in that format?

22
23 DORNSIFE: The way I recall the format, it was not absolutely--someone
24 reading down the whole list--no. It was somewhat disjointed.
25

1 DONALDSON: In looking at that format, is there critical information on
2 that format that may have been able to have been provided that wasn't
3 provided?

4
5 DORNSIFE: No, I don't believe so. The format is pretty general. It talks
6 about a little bit of plant status, you know. I don't really think it
7 would have made much difference. I got essentially the information I
8 would've gotten through the checklist by what they told me and with the
9 questions I asked.

10
11 REILLY: The format in the plan, it's a family of formats actually, that
12 are based on design basis accidents and on anticipated transients. For
13 instance, a LOCA or a loss of AC, or a loss of load, or a fuel rod ejection,
14 things like that, things that have a recognized beginning, and they're
15 essentially developed out of SAR information.

16
17 DONALDSON: Bill, the time you received that call did they give you a
18 generic classification of the type of event that they thought that they
19 might have had?

20
21 DORNSIFE: I believe they told me it was a transient, and that compli-
22 cations had occurred in addition to the normal transient.

23
24 DONALDSON: They did not mention anything such as a steam generator tube
25 rupture?

1 DORMSIFE: At that time--no.

2
3 REILLY: We eventually knew that fairly early.

4
5 DORMSIFE: Well, we can get to that later.

6
7 DONALDSON: Okay. Why don't we proceed from that point and pick up,
8 whoever has something to offer from that point.

9
10 REILLY: Okay. At that point I got into the office about 7:30, thereabouts.
11 Gerusky was already here and on the phone with the plant. And it was
12 around that point that they rolled over from a site to a general. Okay.
13 Meanwhile the rest of our people were coming in. Fairly early in this
14 thing I contacted the Department of Agriculture because we always perceive
15 that there is a good chance of having a dairy problem with a reactor accident.
16 We were disappointed with this one. We didn't really...it continues to
17 blow my mind. Let's see... we got the map out--all that good stuff.

18
19 GERUSKY: No, wait a minutes. Let's stop. I was the first one in the
20 office after the call from Margaret. And the secretary gave me the infor-
21 mation that Bill had called and that I was supposed to call the Island
22 right away which is our normal procedure anyway. The first person into the
23 office calls the Island, calls the reactor control room.

1 DONALDSON: There is a number, I believe you have a number that's a direct
2 line dial into it.

3
4 GERUSKY: I called 944-7259. I don't know why. I've got it written down.
5 I have no idea why I dialed that number unless that was the number Bill
6 gave. This is the notes I took as I was getting involved.

7
8 DORNSIFE: I didn't have the plan at home with me. In hindsight, I guess
9 we should have. That was our plan originally, to do that, but we never got
10 around to it, yet.

11
12 GERUSKY: You're supposed to have the plan at home with you.

13
14 DORNSIFE: Yeah, well, no one ever gave it to me. I think there was probably
15 only about a five minute lapse in communications with the control room, if
16 even that long.

17
18 GERUSKY: Well, I believe I was in the office about 7:25 and made the call
19 back to the control room. They told me that it was a site emergency, that
20 there was a steam generator primary to secondary leak and it was isolated;
21 that there was a general...at that point they went from site to general
22 emergency.

23
24 DONALDSON: Tom, do you remember who you were talking with?
25

1 GERUSKY: It was a health physics type, and it may have been...

2
3 REILLY: Dubiel, or Landry?

4
5 GERUSKY: I think it was Dubiel but I didn't write the name down. Maggie
6 came in right about that time and picked up the phone also, I believe. You
7 were on the extension weren't you?

8
9 REILLY: Yeah, I remember being out there.

10
11 GERUSKY: And went and got the map out. They then said they were going
12 from a site to a general emergency, that they had failed fuel. The dome
13 monitor was reading 800 R per hour in the reactor building and they had
14 onsite teams out checking. They told me the wind was out of 30 degrees in
15 a south-western direction. The high pressure injection initiated; some
16 loss of core coolant; failed fuel; a high radiation area. And in the
17 meantime someone was working on a prediction of dose offsite, based upon
18 the 800 R per hour reading on the dome monitor. They predicted 10 R/hr
19 noble gas, was sure at Goldsboro, based upon the dome monitor and a leak
20 rate of .2 of a percent per day in the containment.

21
22 DONALDSON: That 10 R, was that a time dependent or was that a course of
23 accident projection.
24
25

1 GERUSKY: That was an accident...that was a 10 R/hr. We then contacted
2 Civil Defense.

3
4 REILLY: PEMA (Pa. Emergency Management Agency)

5
6 GERUSKY: And I think you contacted the State Council of Civil Defense, to
7 inform them at our direction--well, I was feeding the information to Margaret--
8 to inform them, that this is where the wind was blowing and that to be
9 prepared to evacuate on the west side of the river. In the meantime I
10 requested them to try to get their teams somehow to Goldsboro, and they
11 said that the State Police helicopter was there and that they would get one
12 of their teams up in the air and over Goldsboro. We stayed on the phone
13 with them. They found no radiation levels onsite or in Goldsboro that
14 would indicate any kind of a leak. So therefore, we then notified the
15 Civil Defense to hold tight. This was all before 8:00. From that point
16 on, we maintained an open line to the Unit 2 control room, and a variety of
17 people were on the phone including--Bill was on mainly I believe. You were
18 on the phone with them, and here are your notes Bill.

19
20 DORNSIFE: The next notes we have is, about 8:30, somebody came down, I
21 think it was Mittendorf, who is the Deputy Secretary of Environmental
22 Protection, Tom's boss, came down and said that they wanted somebody to go
23 over to the Lt. Governor's office and brief him and to take part in the
24 press conference. So I could volunteer since I probably knew more about
25 the plant status than anybody at that point. So right before I left I

1 called back to the plant and said I need a real good briefing on what
2 happened and what the status is, because I have to go over and brief the
3 Governor. So I got Gary Miller on the phone. Gary was the station super.
4 And he told me that the plant was shut, that there was a turbine trip, and
5 there was a violation of tech specs also. I guess he meant by that, I
6 guess he was talking about the aux feedwater, but he didn't say that. He
7 just said there was a violation of tech specs. He said that the defense
8 posts dose rates were less than 1 millirem per hour; there was a primary to
9 secondary leak; the B steam generator was isolated; there was failed fuel;
10 they may have temporarily lost reactor coolant circulation; the dome
11 monitor reading was 600 R/hr; there was 1 lb. pressure in the reactor
12 building, one pound above atmospheric; that the boron concentration in the
13 primary was 100 PPM, and they suspected there was a negative feedback from
14 the secondary to the primary. They got some secondary side water back into
15 the primary when the pressure was reduced in the primary. High pressure
16 injection had initiated and they were using high pressure injection to keep
17 the core covered. And they may have had a bubble in the primary; they
18 depressurized. Then I went over to brief the Lt. Governor.

19 DONALDSON: At this time did they discuss any releases or any possibility
20 for releases, at any time in the future?

21
22 DORNISIFE: I just asked for plant status. I guess after that we were in
23 constant communication. I'm sure that was Miller just briefed me on
24 the plant status--what had happened, what initiated the transient and what
25

1 the status was now. We knew there were no releases occurring at that time,
2 nothing measured offsite.

3
4 DONALDSON: I believe at about 10:00 or 10:30 is when they received some
5 first offsite results indicating that there may be some levels of iodine.
6 Does that correspond with your recollection?

7
8 REILLY: That's about right. They had taken some airborne iodine samples
9 on the west shore and also some, I remember one value south of the obser-
10 vation building. The estimates that they had from the field estimating
11 techniques suggested iodine 131 concentrations to the order of 10^{-8} μC per
12 cc. And they wanted to verify this because this was getting into a rather
13 interesting inhalation pathway hazard, although not an acute problem. They
14 wanted us to verify their estimate using our counting equipment. In that
15 their backgrounds were steadily going to pot. Arrangements for this were
16 made between myself and Dick Dubiel. "And Met Ed was going to chopper the
17 cartridge to the heliport at Holy Spirit Hospital and we would send a
18 runner over to get it. I think I must of spent the greater part of 3/4 of
19 an hour trying to get through to whoever at the hospital was in authority
20 to tell them, "there is a helicopter coming with the sample--not to worry."
21 So finally we straightened that out and we ran the sample, and the con-
22 centration we observed in that was to the order of 10^{-10} . So...

23 DONALDSON: What was the minimum detectable amount on the counting system?
24
25

1 SHACKLETON: W'll break the tape at this time and Maggie can come back on
2 it and respond to that question on the other side. The time is now 12:39 p.m.
3 5/3/79.

4
5 SHACKLETON: This is a continuation of the conference taking place at the
6 Department of Environmental Resources. The time is now 12:43 p.m., May 3,
7 1979.

8
9 DONALDSON: I think when the tape ran out, I had asked you if you could
10 recall the MDA, minimum detectable activity, for the...

11
12 REILLY: I don't think it was reported, this would not have been a routine
13 sample from the standpoint that...I have no knowledge of what the volume
14 was on it. Our usual MDA, say for 3×10^8 cc sample, which is about what
15 we collect on a weekly 1 cfm sample, our MDA on that is about 4×10^{-14} .
16 That would be a routine sample, but I don't know what it would have been
17 for this one.

18
19 DONALDSON: I wonder if you could discuss a little more, the rationale or
20 the thought process that went back and forth regarding that high sample,
21 and whether or not you decided to initiate any actions or recommend any
22 further studies on the part of the licensee.

23
24 REILLY: Okay. Well, they were continuing to take air samples and looking
25 for airborne iodines. Based on that number--the conflict between their

1 field estimate and our lab estimate, I very quickly came to the conclusion
2 that it's harder to do a decent job of estimating airborne iodines in the
3 environment than I thought. I don't recall that I told them to keep sampling.
4 That is something that I assumed that they would do because that's part of
5 their routine. I also decided at that time--we have a sampler down at the
6 observation building and I decided we were going to let that keep running
7 until whatever it was that may be coming was over so at least we would have
8 one historical sample. Our field guy was all hot-to-trot to go out and
9 change the TLDs, and I kind of wish I would have told him to go out and
10 change them that day, but I thought I'd let them in place to. Somewhere in
11 there I called AG, Department of Agricultural, to alert them to the fact
12 that something funny had gone on or would go on, and that we would get back
13 to them about sampling rational, depending on how the situation developed.
14 Somewhere in there too, around the time I was trying to tell Holy Hilton
15 that a helicopter was coming, we got a call from... I don't know--did we
16 call Mineholt or did he call us? I don't remember but...

17
18 GERUSKY: He called us.

19
20 REILLY: The RAP (Radiological Assistance Plan) gang at Brookhaven called
21 and said "Hey, do you want us?" I said, "I'm not sure yet, we'll call you
22 back." Of course, I was thinking, well you know it would really be ducky..their
23 ET was like four hours anyway. I thought, well, by that time things may
24 well be over. Then later on we decided, well you know, we will drag them
25 down. They got here around supertime, I guess.

1 DONALDSON: Maggie, do you remember that the result, cartridge result was
2 available, made available to Met Ed at the site?

3
4 REILLY: I don't remember, it would have been late morning.

5
6 DONALDSON: Before noon sometime, at any rate.

7
8 REILLY: Yeah, I believe so. I couldn't swear to it.

9
10 DONALDSON: Do you know if...

11
12 REILLY: Sometimes I think the only way I'm gonna remember any detail on
13 this is to time regress me under hypnosis. You'd get all the parentheticals,
14 too.

15
16 ESSIG: Maggie, are you pretty sure it was late in the morning hours, as
17 opposed to middle afternoon or that...?

18
19 REILLY: It could have been early afternoon.

20
21 GERUSKY: No, it was late morning, because I was here when the decision was
22 made. You were here. I think you were here when we got the information
23 over the--well, we got it while I was here anyway, and after that I went to
24 the Governor's Office in the morning so..
25

1 DORNSIFE: I can tell you exactly when it was.

2
3 DONALDSON: All right.

4
5 DORNSIFE: I was on my way to the press conference, and you called me right
6 before I left and told me that they had found 10^{-8} of iodine in Goldsboro.

7
8 DONALDSON: OK.

9
10 DORNSIFE: That was about eleven.

11
12 DONALDSON: And so it was on its way out.

13
14 DORNSIFE: Yeah, in fact everybody got mad at me over there, because I just
15 got it on the way over--before I went up there and I didn't tell anybody
16 about it. We knew there were small releases. I told the Lt. Governor and
17 everybody that there was nothing detectable offsite. And I told the press
18 that they'd found a little bit of iodine...

19
20 GERUSKY: We heard you on the radio.

21
22 REILLY: Could hear Bill shouting on the radio eventually.

23
24 DONALDSON: Do you recall whether or not, when the result of your counting
25 of that sample had returned and you passed it on to someone at the site,