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NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF:

PUBLIC MEETING

DISCUSSION OF RADIOACTIVELY CONTAMINATED
WATER AT TMI & RELATED SUBJECT

Place - Washington, D. C.

Date - Friday, 28 September 1979

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

PUBLIC MEETING

DISCUSSION OF RADIOACTIVELY CONTAMINATED
WATER AT TMI & RELATED SUBJECT

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Room 1130
1717 H Street, N. W.
Washington, D. C.

Friday, 28 September 1979

The Commission met, pursuant to notice, at 2:35 p.m.

BEFORE:

- VICTOR GILINSKY, Commissioner, Presiding
- RICHARD T. KENNEDY, Commissioner
- PETER A. BRADFORD, Commissioner
- JOHN F. AHEARNE, Commissioner

PRESENT:

Messrs. Bickwit, Case, Collins, Snyder, Stello, and
Vollmer.

* * *

DH gsh 1 COMMISSIONER GILINSKY (presiding). We're met here
2 to receive a briefing on the subject of radioactively
3 contaminated water in Three Mile Island and its related
4 subjects.

5 Before we get into that, the commission will have
6 to vote to hold this meeting on less than one week's notice.

7 Supposing we vote to do that.

8 (A chorus of ayes.)

9 COMMISSIONER GILINSKY: Will you lead the briefing?
10 I'd like to mention a few points that I'd like you to cover.
11 I hope you'll go over the amounts and types of radioactively
12 contaminated water, where they're located at Three Mile
13 Island, the various problems that we're facing in continued
14 storage of such water, the options for continued future
15 storage, the status of the various clean-up efforts, and the
16 prospects and opportunities for future clean-up efforts.

17 As you know, we've received a letter on the subject
18 from our Senate oversight committee. One of the points that
19 was raised in that letter is that storage is diminishing, the
20 remaining storage capacity, and a figure of 40 days, which
21 I had not earlier heard mentioned, is the amount of time that
22 is left before current storage facilities are used up.

23 I want you to address that.

24 Another point raised is the health physics program.
25 I would like you to go into that.

DH gsh 1

So with that, would you please —

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COMMISSIONER AHEARNE: Victor, in the presentation which I imagine will be yours, plus some of your colleagues with NRR, I imagine that you will also then address the current status of the environmental statement that was out for public comment on EPICOR, which, as I recall, had come to the commission for review and I think is the basis for the 40 days.

I think that's the estimate that's presented in that.

(At 2:39 p.m., Commissioner Bradford leaves the room)

COMMISSIONER AHEARNE: Also, there have been a number of discussions with yourself and Commissioner Bradford and myself on this health physics problem, summarizing sort of the ongoing pressure that we have been placing upon TMI.

MR. STELLO: Okay. What I propose to do is to take the issues in the approximate order that you've given them. I'll take the health physics issues as a separate issue and I'll cover that last. And I'll ask Dick Vollmer to start by covering the issues in the approximate sequence.

But I suggest maybe it would be useful to start with the last one, the current status of so many of the elements, the current status of the environmental statement, what our plans are.

DH gsh 1 MR. VOLLMER: Okay. As far as the status of EPICOR,
2 the public comment period was over on September 19th, and as
3 a result of the public comment period, we received 38
4 comments, 35 of which were not particularly substantive from
5 the technical point of view, but rather addressed concern
6 with potential clean-up disposal of water and radioactive
7 gasses.

8 More substantive comments were received through a
9 letter from the City of Lancaster, through a lengthy comment
10 from the Susquehanna Valley Alliance, and from the
11 Commonwealth of Pennsylvania.

12 The City of Lancaster and the Susquehanna Valley
13 Alliance basically were opposed to the use of EPICOR to
14 decontaminate water. They made a number of technical and
15 legal comments on that.

16 We are preparing an evaluation of comments on these
17 and are prepared to discuss them with the commission on
18 October 4th. The Commonwealth of Pennsylvania had a few
19 technical comments which we will address.

20 Their basic bottom line, however, was that they
21 feel it was the correct thing to do to get on with the use of
22 EPICOR to decontaminate the auxiliary building water.

23 The staff, I think as a result of review of the
24 comments and the intervening activities that have taken place
25 would basically have the same concerns that we expressed to

DH gsh

1 the commission before the May 25th statement that we feel
2 it's important to immobilize the activity contained in the
3 water at this time.

4 It still represents a source of operator exposure
5 and the current --

6 COMMISSIONER KENNEDY: Are we talking about the
7 water in the containment building or the aux building?

8 MR. VOLLMER: We're only talking at this time about
9 the water in the auxiliary building, which is addressed in the
10 EPICOR assessment.

11 I'll go now to the aux building, since that's
12 directly associated with the use of EPICOR, the aux building.

13 MR. CASE: The tanks in the aux building.

14 MR. VOLLMER: Right, okay. In the auxiliary building
15 there are roughly 300,000 gallons of contaminated water.
16 The activity levels associated with those are as high as
17 about 35 microcuries per milliliter of Cesium 137. The
18 iodine activity at this point in time is almost negligible
19 in all parts of the facility because of the half-life of
20 iodine.

21 Some of the tanks in the auxiliary building have
22 activities as low as about one microcurie per milliliter
23 of cesium.

24 Now, the auxiliary building has a couple of sources
25 of contaminated leakage into it. There is some leakage from

DH gsh

1 the reactor purification and make-up system which, as you
2 know, is part of the primary system that goes out into the
3 auxiliary building from the containment building. There is
4 some leakage, pump leakage and valve leakage, which provides
5 an additional source of contaminated water in the auxiliary
6 building.

7 COMMISSIONER GILINSKY: What is the rate of that
8 leakage?

9 MR. VOLLMER: The rate of the leakage in the auxiliary
10 building.

11 COMMISSIONER GILINSKY: Oh, I see. It's in the
12 auxiliary building. But it's to the auxiliary building tanks.

13 MR. VOLLMER: In the auxiliary building tanks. It's
14 on the order of a 1,200 gallons per day.

15 Most of that comes from -- not from the primary
16 system, but from, for example, leakage from the pumps that
17 are used to supply containment cooling water.

18 And so this is generally non-radioactive water,
19 but it's collected in sumps. It does pick up contamination
20 through the floor drains and then it is immediately put in
21 tanks.

22 But the collection of that water represents a major
23 source of activity. And, of course, in order to keep the
24 reactor building maintained at a negative pressure, which it
25 has been since the accident, it's important to keep the

DH gsh 1 reactor building as cool as possible.

2 And so, one of the criteria that we've imposed
3 that whenever the reactor building gets close to being a
4 pressure equal to atmospheric, they have to keep pushing it
5 down to maintain its sub-atmospheric.

6 So by doing that, they're going to add leakage into
7 the auxiliary building by virtue of those pump seals, which is
8 the normal occurrence.

9 COMMISSIONER GILINSKY: What is the capacity of the
10 tanks in the auxiliary building?

11 MR. VOLLMER: The capacity of the tanks in the
12 auxiliary building is roughly 300,000 gallons. In addition,
13 the tank farm which was installed after the accident in the
14 spent fuel pool of the fuel handling building contains
15 110,000 gallons and is also about full.

16 Basically, as I've said --

17 COMMISSIONER KENNEDY: About full, meaning --

18 MR. VOLLMER: Well, we have a capacity for about
19 30 or so more days. It's difficult to address it exactly
20 because the leakage rate varies. But we project the average
21 leakage that has occurred in the last seven days, you have
22 about 30 or so, 35 perhaps, days more available tankage in
23 the auxiliary building, plus the tank farm.

24 At that point in time, the Unit 2 tankage would be
25 essentially full and additional tankage in the Unit 2 would

DH gsh 1 not be available.

2 At that point in time, if the processing of the
3 water by EPICOR system had not proceeded, then the only --

4 COMMISSIONER KENNEDY: What's the process? I
5 understand that. What's the process rate in EPICOR 2?

6 MR. VOLLMER: The process rate in EPICOR 2 would be
7 in excess of 10,000 gallons a day. It's nominally 20 GPM.
8 But when we correct for things which we're expecting,
9 10,000 or more gallons per day.

10 (At 2:47 p.m., Commission Bradford enters the room)

11 MR. CASE: There is available tankage in Unit 1.

12 MR. VOLLMER: I will get to that. There is a
13 substantial additional tankage available in Unit 1 which we
14 have tried, as you know, from the Unit 1 order that we've
15 prepared, the commission prepared, we've been trying to keep
16 Unit 1 and Unit 2 separate. But indeed, that is the same
17 type of package available in Unit 1 that you have in Unit 2.
18 Basically, 250,000 or so, gallons will be available.

19 Those tanks are generally free.

20 COMMISSIONER GILINSKY: They're interconnected, or
21 can they be?

22 MR. VOLLMER: There are connections by which that
23 water could be pumped over to Unit 1, yes.

24 COMMISSIONER KENNEDY: Out of the existing tanks or
25 independently of them?

DH gsh 1

MR. VOLLMER: Out of the existing tanks.

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COMMISSIONER AHEARNE: These are basically the same points that were made in the assessment.

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MR. VOLLMER: Yes, sir, they are.

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COMMISSIONER AHEARNE: In the EPICOR assessment.

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MR. STELLO: Dick, you can also pump directly from the sumps, directly over to Unit 1. You don't have to take them through the tanks, do you?

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MR. VOLLMER: I believe there are connections where you could take it from the sumps, yes. But for staging and things of that nature, we generally would like to put staging tanks so that you know what we're dealing with before you start pumping it over.

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COMMISSIONER GILINSKY: So, in a sense, there is 10 times as much capacity in the Unit 1 complex as there is left at this point in the Unit 2 complex.

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MR. VOLLMER: That's correct.

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COMMISSIONER AHEARNE: Also, the point that I was trying to make which Dick has clarified is that these were the points that were made in the EPICOR assessment when it went out.

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As you recall, one of the reasons that they originally came into the proposal as to why it was necessary to address that issue --

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MR. VOLLMER: I think the points that were made in

DH gsh 1 the assessment on the general conditions of things have really
2 not changed. The leakage rates are not higher. Activities
3 are generally not higher or lower. And the same incentive
4 for processing the water now existed then and still exists,
5 and it's even getting more urgent in the sense that if it
6 does have to be pumped into Unit 1, we have created, then,
7 additional sources of exposure and additional contamination
8 throughout the facility.

9 COMMISSIONER AHEARNE: But the urgency is of that
10 kind, is it not? It's not a question of off-site releases.

11 MR. VOLLMER: That's right. The urgency would be
12 one primarily of operator exposure and contamination of the
13 facility.

14 Well, definitely, the public health and safety
15 as an issue I don't think has changed. The only public health
16 and safety issue that existed at the time that we wrote the
17 EPICOR assessment was that there was a certain amount of
18 off-gassing of the liquid, radioactive liquid waste. And
19 the off-gassing, particularly xenon and iodines, diminished
20 significantly because of the decay time that takes place.

21 For example, in the whole TMI-2 facility there is
22 probably no more than a curie or so of iodine and comparable
23 amounts of xenon.

24 So the public's problem from the off-gassing I
25 think has diminished significantly.

DH gsh 1 Now one item — unless you have additional questions.

2 . COMMISSIONER AHEARNE: Just one other question, I
3 think.

4 Were you to start running EPICOR, what is the
5 period of time between when you had the decision to start and
6 when you could actually reach this 10,000 gallons per day?

7 MR. VOLLMER: I think once it's lined up, it could
8 be accomplished in a matter of a few days.

9 COMMISSIONER AHEARNE: How long does that line up --
10 you say once it's lined up.

11 MR. VOLLMER: I think in a matter of a few days,
12 the processing could start. We have undergone an extensive
13 evaluation of the qualifications of the operators for use of
14 that system. We've done an extensive review of procedures, as
15 well as a general review of the facility itself.

16 Those have been very carefully addressed because of
17 the significance of the processing and the public concerns of
18 that.

19 MR. CASE: There is more training to be done or
20 needed in some of the operators.

21 MR. VOLLMER: That's true. We weren't as of last
22 week totally satisfied with the training of all the
23 operations people there, and I can report more comprehensively
24 on that aspect on October 4th.

25 I might add one thing. As far as the status of

DH gsh 1 EPICOR, the use of the facility itself because of the
2 segregation of certain liquid wastes in the tanks and the
3 auxiliary building, one could start processing a lower
4 contamination of waste first. But it was felt necessary to
5 get some capacity in the system.

6 And there's some concern about processing the
7 higher level waste. I don't think that there is, indeed,
8 a technical reason to delay processing of the higher level
9 waste, but there is the segregation of the contaminated levels
10 in the auxiliary building.

11 So one does have a choice of testing the system
12 out with liquid wastes of lesser contamination.

13 COMMISSIONER AHEARNE: If, again, the decision were
14 to be made to use EPICOR, given that there has not been an
15 address yet of what would be done with the water after the
16 EPICOR system was run, what would be done with the water?

17 MR. VOLLMER: The only thing that could be done with
18 the water would be sending it, Unit 1.

19 COMMISSIONER AHEARNE: So the decontaminated water
20 would be going to Unit 1 versus, in this case, the contaminated
21 water.

22 MR. VOLLMER: In any event, the water will be stored
23 because we have not done an assessment of the disposal of
24 the water, the decontaminated water.

25 The licensee has indicated that he was going to send

DH gsh

1 us his evaluation and assessment of the options and the
2 recommended course.

3 We have not yet received that.

4 COMMISSIONER AHEARNE: But in either event, as far as
5 you can see, we'll really end up being Unit 1 tanks that
6 will be receiving the water. And the issue is which kind of
7 water ain't going to be discarded?

8 MR. VOLLMER: Some of the decontaminated water could
9 be stored in the EPICOR building itself. There are tanks
10 that could probably be used to store the decontaminated water.

11 But either way --

12 COMMISSIONER AHEARNE: Have you considered
13 evaporation of that water?

14 MR. VOLLMER: Of the decontaminated?

15 COMMISSIONER AHEARNE: Uh huh.

16 MR. VOLLMER: No, we have not considered the options
17 of disposal that we discussed with the commission before
18 because we were waiting for the environmental assessment of
19 the licensee.

20 COMMISSIONER AHEARNE: That will be one of the
21 alternatives that will be looked at?

22 MR. VOLLMER: Yes.

23 COMMISSIONER KENNEDY: When do we expect to receive
24 it?

25 MR. VOLLMER: I understood we were to receive it this

DH gsh

1 week. Whether it's eminent or not, I can't answer right now.
2 But I believe it is.

3 One thing I might mention is that one of the major
4 points made in the comments received from the City of
5 Lancaster and the Susquehanna Valley Alliance were legal
6 questions. I don't know if OGC would like to address those
7 or not. But basically, they felt that this particular
8 assessment was not in compliance with NEPA because it was
9 not a comprehensive assessment of all of the decontamination
10 and recovery operations.

11 That's something that the staff would not be
12 prepared to address October 4th.

13 I trust the legal staff will.

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1 COMMISSIONER AHEARNE: The technical staff will not
2 be addressing this?

3 MR. VOLLMER: The technical staff will not be
4 addressing this.

5 COMMISSIONER GILINSKY: Could you continue your
6 inventory of the various types of contaminated water?

7 MR. VOLLMER: Yes. Basically, could I go on to the
8 reactor building?

9 COMMISSIONER GILINSKY: Sure.

10 MR. VOLLMER: The reactor building water has an
11 approximately 600,000-gallon inventory. That water resides
12 in the bottom of the reactor building and its activity is of
13 the order of 175 microcuries per milliliter of cesium 137,
14 which is the dominant isotope as far as activity is concerned,
15 although there are a number of other isotopes, cesium and
16 tritium, et cetera. But the dominant isotope is that of
17 cesium.

18 The leakage into the reactor building is at a rate
19 of about 500 gallons per day, that leakage rate coming
20 primarily from reactor coolant pump seals and things of that
21 nature. The pumps themselves are not on, but there's still
22 a slight leakage to the seals.

23 COMMISSIONER GILINSKY: What was that leakage number
24 again?

25 MR. VOLLMER: About 500 gallons per day.

1 Now, in order to raise the water level a foot in
2 the reactor building, it would take roughly 100,000 gallons,
3 and so we're talking about a fairly imperceptible increase in
4 level in the containment building itself.

5 COMMISSIONER GILINSKY: How high is the water in
6 the containment building?

7 MR. VOLLMER: How hot?

8 COMMISSIONER GILINSKY: High.

9 MR. VOLLMER: Oh. It's about seven and a half feet
10 or so.

11 Now, that water is, again, just sitting there.
12 There's no current valve operators or electrical equipment or
13 anything that is in danger of being shorted out by that
14 water. As you know, we did make some valve manipulations some
15 months ago to protect against the non-availability of key
16 valves in the event the water level did get too high. But at
17 this point, the stability of the situation in the reactor
18 building appears to be the same for quite a long-term period.

19 COMMISSIONER GILINSKY: What is the risk of that
20 water leaving? Is there any pathway for it to get out of the
21 containment?

22 MR. VOLLMER: The containment, of course, is sealed.
23 There are isolation valves in the containment, and the valves
24 on the side can prevent that water from going out into the
25 auxiliary building around, and the system's leak integrity

1 has been checked. So there should be no leakage path of water
2 outside the reactor building.

3 COMMISSIONER GILINSKY: The next category, I suppose,
4 is the primary coolant system.

5 MR. VOLLMER: The last category, yes, is the
6 primary coolant system. That's about 80,000 gallons, and its
7 activity is on the order of 100 microcuries per milliliter of
8 cesium and several hundred microcuries per milliliter of
9 strontium isotopes.

10 The difference particularly in that water and other
11 water, because of the high strontium activity, provides a
12 higher potential exposure problem, and has created some beta
13 exposure problems in trying to fix leaks in valves.

14 COMMISSIONER AHEARNE: That's the one, also, that is
15 leaking into the containment?

16 MR. VOLLMER: That is the type of water that's
17 leaking into the containment through the seals, yes.

18 The primary system, the purification and makeup
19 system, the leakage there pretty much can't be corrected.
20 It's fairly low. But it has a very high activity area. I
21 don't think at this time it would be prudent for the operators
22 to try to correct any of those leakage paths that exist.
23 They did correct leakage paths of the valves going in and
24 trying to check pumps and things like that.

25 COMMISSIONER BRADFORD: Why is there much difference

1 in this type of activity between water in the containment and
2 the primary system?

3 MR. VOLLMER: Primarily, because of the times that
4 the activity had gotten into the bottom of the reactor
5 building. Reactor building water, a great deal of that is
6 undoubtedly water that came from the primary system, but also
7 probably water that came from the fan-cooled system, which
8 was basically noncontaminated water, but appeared to be a
9 significant leakage path at one time.

10 At the time the level of water in the reactor
11 building was increasing, those secondary leakage paths were
12 pretty well shut down, so that the only source of leakage
13 that appears to exist in the reactor building now is that of
14 the primary coolant.

15 So, initially the activity in the reactor building
16 basement water was that which was coming from the reactor
17 coolant system fresh from the accident. And as time went on,
18 the activity level in the primary coolant system diminished
19 because of decay, because it was being diluted by makeup.

20 COMMISSIONER BRADFORD: What about the strontium?

21 MR. VOLLMER: The strontium appears to have
22 increased in time in the reactor building water, undoubtedly
23 because of the leachability of strontium with respect to other
24 isotopes over the course of the long contact of primary
25 coolant system water circulating over the exposed fuel. I

1 don't have at this point in time a good time history.

2 COMMISSIONER BRADFORD: What's puzzling me is that
3 there is more strontium relative to cesium in the primary
4 cooling loop than there is in the containment building.

5 MR. VOLLMER: Okay. What I was trying to say is,
6 it appears that isotopes, for example, cesium, iodine, which
7 are more highly volatile, came out in the early phases of the
8 accident and were put into the containment building water early
9 on. Less volatile isotopes like strontium apparently have
10 leached out of the fuel rods over the long period of time
11 that they've been exposed to the primary coolant.

12 COMMISSIONER AHEARNE: The letter that we got quoted
13 Harold as talking about the possibility of having to sneak a
14 path to develop containment. Would you care to comment on
15 what sneak path that might be?

16 COMMISSIONER KENNEDY: Before you do, could you read
17 us what Harold said?

18 COMMISSIONER GILINSKY: He isn't here because he's
19 in North Carolina, right?

20 MR. CASE: I'm afraid it might take me a few minutes.

21 COMMISSIONER AHEARNE: I'll just kind of skim through
22 it.

23 COMMISSIONER GILINSKY: Well, while people are
24 skimming through documents, I wonder if you could go back to
25 the question of the additional capacity that exists for

1 storing some of this water. The place where capacity may
2 run short is in the auxiliary building rather than the con-
3 tainment.

4 MR. VOLLMER: Yes.

5 COMMISSIONER GILINSKY: It's the question of dealing
6 with water that's in the tanks in the auxiliary building?

7 MR. VOLLMER: That's correct.

8 COMMISSIONER GILINSKY: It raises the matter of
9 additional capacity. Now, we spoke of the tanks in Unit 1.
10 Are there any other tanks that are available, mobile tanks
11 or tanks that could be brought on site? Are there any plans
12 for anything of the sort?

13 MR. VOLLMER: There are a number of tanks on site.
14 However, I don't think we're in a position to say how long
15 it would take to put those into a configuration that we would
16 feel comfortable putting contaminated water into them. I
17 think before we would do something like that, the tankage
18 itself would have to be assured of integrity, we would have to
19 put them or build something whereby, if they did leak, that
20 contaminated water was prevented from going into the ground.
21 Thirdly, we would have to put in a piping which would get
22 water into the tanks which we would feel fairly certain would
23 do the job without leakage.

24 So I wouldn't want to speculate how long that would
25 take.

1 COMMISSIONER GILINSKY: So principally, it's the
2 tanks in Unit 1 that are the excess capacity at this point in
3 time?

4 MR. VOLLMER: The excess capacity would be primarily,
5 yes, the tanks in Unit 1.

6 COMMISSIONER AHEARNE: But they are the type of
7 tanks --

8 MR. VOLLMER: They are the same type of tanks that
9 we're currently storing the water in.

10 COMMISSIONER AHEARNE: So as far as the concerns
11 that you just expressed about checking it for the need for
12 additional, you don't have those concerns, do you?

13 MR. VOLLMER: We don't have those concerns for the
14 integrity of the Unit 1 tanks. They're in the Unit 1
15 auxiliary building, so they have the same safeguards built
16 into them that the Unit 2 tankage has.

17 COMMISSIONER GILINSKY: Could you also tell us
18 something about the status of cleanup efforts for the water in
19 the containment and the primary coolant system. The system
20 you referred to, the EPICOR system, would clean up water
21 that is now in the auxiliary building tanks. What about the
22 other water?

23 MR. VOLLMER: The licensee has had a couple of
24 architect-engineers or decontamination experts review the
25 best ways of decontaminating the primary system water and

1 the reactor building water. As I understand it, they looked
2 at both demineralization and evaporation possibilities. And
3 we have not yet received from them any formal plan or program
4 for decontamination of that water.

5 I do believe that, from what we know now of the
6 water in the reactor building itself, that it would appear
7 that a system, the type of EPICOR, or even EPICOR II, would
8 be capable of processing that water. Whether that's what the
9 licensee opts to do or not, we do not yet know. He has not
10 asked for our review of his programs yet.

11 COMMISSIONER AHEARNE: It is correct that, until we
12 have gone through a process, that he can't take any action?

13 MR. VOLLMER: That's correct.

14 COMMISSIONER GILINSKY: At any rate, that's now in
15 the planning stage.

16 MR. VOLLMER: That's in the licensee planning stage,
17 yes, sir. We have not been asked to review his plans for
18 that. He has not submitted his plans for that to the
19 Commission yet.

20 COMMISSIONER AHEARNE: After he submits it, what do
21 we have to do?

22 MR. VOLLMER: After he submits those plans, we would
23 do a safety and environmental assessment, I think. It's
24 similar to what we did for the processing of the auxiliary
25 building water. Again, I don't know whether his plans for

1 processing that water include disposal alternatives, either.

2 COMMISSIONER AHEARNE: But to reiterate the point I
3 just made, until we have reached a final position he can't
4 do anything with that, is that correct?

5 MR. VOLLMER: That's correct.

6 COMMISSIONER GILINSKY: Mr. Case, would you care to
7 respond to Mr. Kennedy's question?

8 MR. CASE: The questioner is Mr. Grome, who asked
9 this question: Would you feel there is any urgency to that
10 need, that is, the need to reprocess the water in the contain-
11 ment building? Would you feel uncomfortable if, in one year,
12 two years, three years passed, and the plant, with a very high
13 inventory of curies and the potential for release persisted
14 with no cleanup activity?

15 Mr. Denton: No, I would not feel very comfortable
16 with letting it go like that. I think as long as there is
17 radioactive material disbursed in the containment, there might
18 be sneak paths that develop in the containment that result in
19 release to the environment, which should be foreclosed. So
20 I don't see the need to rush into it. Neither would I be
21 satisfied with an inordinate procrastination. It's an awful
22 lot of activity in that 700,000 gallons of water, and we are
23 depending on containment to confine it.

24 COMMISSIONER KENNEDY: For my help, could you go
25 back and read the last part of that again, something about,

1 while I would not see the need to rush into it.

2 MR. CASE: So I don't see the need to rush into it.
3 Neither would I be satisfied with inordinate procrastination.

4 COMMISSIONER KENNEDY: Thank you.

5 MR. VOLLMER: Okay. Now, to respond to your
6 question, sir.

7 COMMISSIONER AHEARNE: The question, it was, it
8 started out two or three years; is that correct?

9 MR. CASE: Yes.

10 COMMISSIONER AHEARNE: One year, two years, three
11 years. Okay.

12 MR. VOLLMER: I don't see any sneak paths. We have
13 looked for that particular potential and we have further
14 requested the licensee to give us a program for sampling the
15 ground water around the containment building. And we have not
16 received yet the licensee's program for this. The reactor
17 building is several feet thick, of course, and we don't feel
18 the water is leaking out.

19 We feel the sampling of ground water is appropriate.
20 We've also looked into the question of whether or not, if
21 there were leakage, is there likely to be a significant source
22 of contamination of the river, and the hydrologists, who also
23 did the review of the plant for spills of rad waste tanks as
24 part of our original safety assessment, tell us that it would
25 take an extended period of time, months, before any

1 contaminated water could get out into potable water sources.

2 COMMISSIONER AHEARNE: But you don't at the moment
3 see anything?

4 MR. VOLLMER: We do not see any reason to be
5 concerned. That sampling, putting in well points for sampling
6 of that water, we think is just an extra step to take.

7 COMMISSIONER AHEARNE: To clarify, Dick, Harold had
8 been asked, would he be comfortable at one, two, or three years
9 and he said, no, certainly not. You wouldn't be comfortable
10 if one, two or three years went on, would you?

11 COMMISSIONER KENNEDY: I don't think that's what
12 Harold said.

13 Let me come back and have Harold's answer again be
14 put into the record. I don't think we ought to put words in
15 Harold's mouth. And if we're going to change what Harold
16 said, we'll let Harold do that.

17 COMMISSIONER AHEARNE: All right. Let me ask the
18 question, though: Would you be comfortable if one, two or
19 three years went by and nothing had been done?

20 MR. VOLLMER: Well, no, I wouldn't. But not because
21 I think there's a potential for contamination of the river
22 or something is there. I don't believe the integrity of the
23 system is adequate. But again, we have large amounts of
24 relatively mobile activity, and I think that all due steps
25 should be taken.

1 Let's see. I guess we've sort of covered the options
2 for continued storage. I think really the option is either
3 process through EPICOR and store the decontaminated water or
4 start using Unit 1 tankage. I guess the third option clearly
5 would be to install new tanks. But again, I would want a
6 careful review of that type of process before.

7 COMMISSIONER KENNEDY: Are my mathematics correct
8 that if you used Unit 1 tanks, that at the current rate
9 those tanks would then be filled in about a year?

10 MR. VOLLMER: That's about correct.

11 COMMISSIONER AHEARNE: So the sense I'm getting is
12 that, at least as far as what you've told us, it's not dis-
13 similar to what you told us before and what was in the assess-
14 ment on EPICOR. There is no real new information.

15 MR. VOLLMER: I don't believe that there's any new
16 information, except we're a little closer to running out of
17 room. That's all.

18 COMMISSIONER AHEARNE: Running out of room without
19 using TMI-1 tanks.

20 MR. SNYDER: Dick, isn't there some recycling of
21 the water to feed back?

22 MR. VOLLMER: John Collins mentions the disposal
23 of water.

24 COMMISSIONER GILINSKY: Use the microphone, please,
25 Mr. Collins.

1 MR. COLLINS: I apologize for being late. But the
2 problems that you have in using water are two things. At the
3 present time, of course, we're trying to empty the storage
4 tanks from Unit 1, to further examine it. So that water has
5 to go someplace. Some of that water would go into the leak
6 tanks in Unit 1.

7 The additional problem is that if we start trans-
8 ferring water from Unit 2 to Unit 1, it's going to be very
9 hard to prove to the public that you have not contaminated
10 that system, and then you're discharging water from Unit 2,
11 which the order says we're not permitted to do.

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1 Recognize you're going to get the piping systems
2 contaminated, and then you're going to have a problem trying
3 to prove you didn't discharge water from Unit 2.

4 COMMISSIONER AHEARNE: You mean if at such time we
5 were discharging water from Unit 1?

6 MR. COLLINS: You're discharging from Unit 1 right
7 now.

8 MR. VOLLMER: John's saying allowing continuous
9 processing of Unit 1 water through EPICOR. Of course, there
10 are several sources of leakage in Unit 1.

11 MR. COLLINS: If you remember, Commissioner, that
12 was part of the problem that we had with the 40,000 gallons,
13 was the discharge. That was contaminated from a tank that
14 contained Unit 2 water.

15 COMMISSIONER GILINSKY: I guess I didn't entirely
16 follow that. Are there not tanks in Unit 1 which are not
17 leaking?

18 MR. COLLINS: It's not the fact that it's
19 leaking. It's the transfer piping system from Unit 2 to
20 Unit 1 is going to get contaminated, and it's that same
21 interconnecting piping that's processing water in Unit 1 for
22 discharge out to the Susquehanna. It's all the same
23 internal piping system.

24 MR. CASE: We're under a commission mandate not to
25 discharge water from Unit 2. But John is saying if you

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1 transfer clean water from Unit 2 to Unit 1, it has some
2 speck of activity from Unit 2 in getting into Unit 1. That
3 might preclude discharges from Unit 1.

4 COMMISSIONER KENNEDY: Because discharges would go
5 through the same piping through which the Unit 2 water was
6 processed.

7 MR. COLLINS: That's correct.

8 MR. CASE: He's not discussing a public-safety
9 problem.

10 COMMISSIONER GILINSKY: But the fact is if we need
11 the tank capacity, it's there. Is that not right?

12 MR. CASE: That's correct.

13 MR. COLLINS: That's correct. If you assume,
14 though, that Met Ed would not remove the water from the
15 borated water storage tank, then you have sufficient
16 capacity for a number of months. But if they empty out the
17 borated water storage tanks four or five hundred thousand
18 gallons, you've eaten up a lot of that capacity in Unit 1.

19 MR. VOLLMER: That water would have to be
20 processed. If it was disposed of, it would have to be
21 processed.

22 COMMISSIONER KENNEDY: At what rate are we now
23 discharging from Unit 1, approximately?

24 MR. COLLINS: Well, from the plant water itself,
25 not including industrial waste treatment systems, we're

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1 probably two tankfuls a week, about 10-20,000 gallons a
2 week.

3 COMMISSIONER KENNEDY: If this problem arose in
4 the contamination of that piping and therefore a question if
5 that could be discharged, we could then be filling those
6 tanks at the rate of 10-20,000 gallons a week in Unit 1?

7 MR. COLLINS: That's right. If you were not
8 permitted to discharge.

9 COMMISSIONER KENNEDY: Which would further reduce
10 the amount of storage capacity. And if we're not talking
11 about additional year's capacity --

12 MR. COLLINS: That would still be right,
13 absolutely right.

14 COMMISSIONER AHEARNE: John, what is your estimate
15 of the capacity?

16 MR. COLLINS: In Unit 2?

17 COMMISSIONER AHEARNE: In Unit 1.

18 MR. COLLINS: In Unit 1 at the present time it's
19 approximately 225,000 gallons, assuming that you use the
20 bleed tanks.

21 COMMISSIONER AHEARNE: Now, John, what is your
22 conclusion as to the availability of Unit 1 tanks if we
23 reach that point? Do we have to put water in?

24 MR. COLLINS: The tanks are certainly available,
25 but I question whether we really want to transfer the Unit 2

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pv DAV 1 water over there and then have the potential for either
2 leakage from the piping systems and transfer of
3 contamination of the tanks from Unit 1. And then we're
4 faced with the problem of trying to assure that we did not
5 violate the commission order or the City of Lancaster's
6 petition.

7 I don't think that it should be considered as the
8 viable option.

9 COMMISSIONER AHEARNE: I am having difficulty
10 finding the link. Are you saying that it would not be a
11 viable option because it would then put you managing that
12 operation in a situation where your options would be now
13 narrowed, or do you see it as being a health and safety
14 problem?

15 MR. COLLINS: No, I don't see it as being a health
16 and safety problem. Absolutely not.

17 COMMISSIONER KENNEDY: Is there a point at which
18 it becomes a health and safety problem if, in fact, as has
19 earlier been suggested and as Harold, I think, in his own
20 statement suggested, as time goes on without any treatment,
21 the likelihood of it becoming a health and safety problem
22 eventually begins to increase? Is that true?

23 MR. COLLINS: I certainly wouldn't deny that. It
24 is. I think that's a true statement, yes.

25 COMMISSIONER KENNEDY: Therefore, if we foreclose

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1 options for dealing with it, you enhance the likelihood of
2 it becoming a health and safety problem in some way.

3 MR. COLLINS: Yes, sir.

4 COMMISSIONER GILINSKY: But I would like to
5 understand the basic point, which is, to me, if for one
6 reason or another EPICOR does not operate over the next
7 month or two, for whatever reason -- legal or mechanical or
8 technical -- is that capacity available for additional
9 storage in Unit 1?

10 MR. COLLINS: Part of that capacity would be
11 available. Part of it.

12 COMMISSIONER GILINSKY: And what is your estimate
13 of that capacity?

14 MR. COLLINS: About 50 percent of that.

15 COMMISSIONER GILINSKY: Of what?

16 MR. COLLINS: Of Unit 1 capacity would be
17 available to transfer water from Unit 2.

18 COMMISSIONER GILINSKY: Which is 50 percent of the
19 200-some-odd thousand gallons?

20 MR. COLLINS: Yes.

21 COMMISSIONER AHEARNE: You're saying at least
22 100,000 gallons?

23 MR. COLLINS: Sure.

24 COMMISSIONER GILINSKY: Why do you say "50
25 percent"?

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MR. COLLINS: The licensee can begin to empty his borated water storage tank. At the same time he's emptying, he can be processing the water through his evaporation system in Unit 1. So he does have a treatment system to handle that water so that he can slowly begin to handle that water through that system and make available then one of those lead tanks, 85,000 gallons, just to hold the water from Unit 2.

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COMMISSIONER GILINSKY: And is it absolutely essential to empty the borated water?

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MR. COLLINS: He must empty it to do further examination of the piping system on that system.

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MR. CASE: It's a necessary step.

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COMMISSIONER GILINSKY: Yes. But if we decided that we needed that capacity for storage of auxiliary building water for whatever reason, then that could be delayed; couldn't it?

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MR. VOLLMER: Yes.

COMMISSIONER GILINSKY: I am not asking you whether it's a wise thing to do or whether we ought to do it. I am just trying to understand what the capacity is.

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MR. COLLINS: It certainly could be delayed.

COMMISSIONER KENNEDY: Would, if required as an order, is that it?

MR. COLLINS: I think it would take a very strong

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1 recommendation.

2 COMMISSIONER KENNEDY: No, just technically, what
3 would it require to do it?

4 MR. STELLO: I think it would require it.

5 MR. BICKWIT: But it is not consistent with the
6 licensee's license.

7 MR. STELLO: You're prohibiting him from doing
8 something he is not now prohibited from doing. I think
9 generally that requires an order to somehow modify his
10 license, to remove that restriction.

11 COMMISSIONER AHEARNE: A further clarification:
12 if such a step were taken to prevent him from processing the
13 borated water, that in itself is or is not a health and
14 safety problem?

15 MR. CASE: It is not.

16 COMMISSIONER GILINSKY: We're not deciding here
17 which way to go. I think the answer to a simple question
18 about how much capacity there was in the most extreme
19 circumstance --

20 MR. COLLINS: I think the other thing you ought to
21 recognize, you ought to start transferring some of the
22 high-activity water from the auxiliary building in Unit 2 to
23 Unit 1. Now you've created a situation where the radiation
24 levels in Unit 1 are going to come up, offering then a
25 potential for increasing exposure to the operators in Unit

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1 1.

2 COMMISSIONER GILINSKY: I understand.

3 Okay, thank you.

4 MR. VOLLMER: Does that wrap it up on the water?

5 MR. SNYDER: I have a question. Isn't some of the
6 treated water used as makeup for the primary system that's
7 leaking? It isn't all a gain situation. There is some net
8 recycling.

9 (At 3:25, Commissioner Bradford leaves room.)

10 MR. VOLLMER: There could be. But the processing
11 of the water has not yet been allowed.

12 MR. SNYDER: I understand that.

13 MR. VOLLMER: And the disposition of the processed
14 water initially would just be put in tanks and the licensee
15 would decide what he wanted to do with it. But indeed, some
16 of that could be used as makeup. That is one option.17 MR. SNYDER: Is that the 500 gallons per day that
18 you mentioned earlier?

19 MR. VOLLMER: On that order, yes.

20 MR. SNYDER: You said you isolated the nonprimary
21 system leaks into the containment.22 MR. VOLLMER: 500 gallons per day was the estimate
23 of the leakage into the reactor building, most of which will
24 be from the primary system.

25 MR. SNYDER: That water comes from someplace.

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MR. VOLLMER: It's made up. Right.

COMMISSIONER GILINSKY: Could I ask one more question on your clean-up plans. You said that the licensee is considering plans for dealing with the water in the containment. Are they also looking at that primary coolant water?

MR. VOLLMER: Yes, sir.

COMMISSIONER GILINSKY: Do we expect to see something on this sometime soon?

MR. VOLLMER: I believe they were preparing something for us by the end of the month.

MR. COLLINS: That's been delayed. I think it will be sometime in October, at least.

COMMISSIONER GILINSKY: Would that cover both of those categories of water?

MR. VOLLMER: Yes.

MR. COLLINS: Yes, it would.

COMMISSIONER GILINSKY: Okay.

If there are no further questions on the water, perhaps we ought to hear about the health physics program.

MR. STELLO: Okay. We have been following the health physics program for some time, even before the accident began. Let me say the bottom line is we're not yet satisfied that the health physics program that they have on site is adequate. Let me also suggest that the bottom line

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1 on this issue is the health and safety of the operators.
2 That's principally the issue we're looking at, the adequacy
3 of the program to deal with the workers on the site.

4 There have been a number of over-exposures for
5 which there appears to have been one type or another of a
6 breakdown within the health physics program.

7 COMMISSIONER AHEARNE: Now, your reason for
8 stating it that way, Vic, is your concentration on your
9 concern is this on site?

10 MR. STELLO: If you look at the letters that have
11 gone back and forth between us and the licensee on this
12 matter, you'll see that the primary concern in those letters
13 have dealt with the system of the health physics program
14 itself with regard to dealing with in-plant protection.

15 COMMISSIONER AHEARNE: And as far as people
16 outside the plant?

17 MR. STELLO: With respect to the health and safety
18 of the public, we don't see any major weaknesses or problems
19 that suggest an inadequacy in that regard. That clearly is
20 the primary focus of what our people are worried about
21 there; that is, if there's anything that goes on that
22 suggests that there is an inadequate procedure or something
23 inadequate in the program, we are clearly looking over our
24 shoulder all the time. That's clearly our primary focus,
25 but that's not what we perceive as the major problem.

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1 COMMISSIONER KENNEDY: Could you help me by
2 identifying the approximate date of the NRC report referred
3 to in the letter we received from the oversight committee by
4 one E. R. Neely and J. R. White? It says the company is not
5 able to effectively administer the radiation program. When
6 was that?

7 MR. STELLO: That letter is dated August 1.

8 COMMISSIONER KENNEDY: '79.

9 MR. STELLO: 1979.

10 Let me go on with a very quick summary. We're
11 continuing to ask the licensee, and he is committed to a
12 number of improvements in his program. We have a very large
13 health physics program at the site and will continue to have
14 it. Initially, when we got there, we were dealing clearly
15 with an accident and an emergency situation. In fact, our
16 health physics program augmented his. We were actually
17 doing some of the surveys and monitoring ourselves with our
18 own instruments and our own people.

19 COMMISSIONER KENNEDY: That's normally expected in
20 such circumstance.

21 MR. STELLO: I am not the least bit surprised that
22 we did that. It was the proper thing to do. And in fact, I
23 think we have to be a little bit better prepared to do it
24 even better in the future.

25 So, we have moved, up to now, clearly away from

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1 that emergency situation, and they're clearly looking to go
2 to the long-term program.

3 Another thing that we are looking at is putting
4 together a blue-ribbon panel to take a step back and take
5 another look at the health physics program, both from the
6 point of view of what we do and from the point of view of
7 what the licensee is doing, because we are clearly dealing
8 with an issue that we've never had any experience with
9 before in dealing with an accident, an amount of radioactive
10 material in the plant, like we are now. We've got some
11 isotopes that are there now that are different from the
12 isotopes that we have there under normal operation.

13 What we're going to try to do is to get a team of
14 some of our best health physicists, both from within the NRC
15 itself, and we're looking very hard to get some people from
16 the laboratories outside of our system also to work with the
17 team. And we hope to have that pretty well lined up as to
18 who is going to be on the team, by the end of next week.

19 I think Harold committed we'd be doing this, in
20 his testimony up at Harrisburg some weeks ago.

21 I think it's a good idea to take a step back and
22 look at dealing with the situation at Three Mile Island
23 longer term and getting yet another independent thought,
24 another independent look at this particular issue. I don't
25 see and have not had any recommendations made to me that

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1 there is any major health and safety problem from the point
2 of view of the public. But clearly, our people are very
3 concerned and are not yet satisfied that the on-site health
4 physics program has moved to the point where we're feeling
5 comfortable with it.

6 COMMISSIONER GILINSKY: Why hasn't the program
7 improved to the point where it would satisfy us? What do
8 you see as the source of the trouble?

9 MR. STELLO: Well, I will ask someone to get into
10 the outstanding issues. They can summarize the issues that
11 the licensee has yet to address and approximate dates by
12 which he's going to do them. I don't wish to suggest that
13 what I am trying to say is to avoid the details; but I am
14 trying to get to the bottom line.

15 The bottom line is the focus of all of this has
16 been on the in-plant. You will see when we go through and
17 listen to some of these details that that's the issue. I
18 would not like to leave the impression that there is
19 something inadequate there in the health and safety of the
20 public. We're committed to make sure that that's the case.
21 We're augmenting our health physics program up there as
22 necessary, and will continue to augment it as necessary to
23 make sure that that indeed stays just that way.

24 This is especially so when you start to look at
25 the future, and if they start to get to the point where

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1 we're going into this processing the water and processing a
2 lot of the contaminated water in the building with the
3 EPICOR, if we're starting to make containment entries, as
4 some of these other programs come into place where they need
5 to do that, we're going to make certain that the program
6 that exists -- and if need be, it will be a program that
7 consists of us augmenting as necessary whatever's there to
8 assure that their overall health physics program remains
9 adequate.

10 I am convinced that over the long haul it will be
11 the case, but it is an unusual situation, clearly, we're
12 dealing with. We're bringing a lot of new people, outside
13 their own organization, to talk about this.

14 COMMISSIONER KENNEDY: Excuse me. Is the licensee
15 now in compliance with the requirements of his license, tech
16 specs, license conditions, and everything else, in this
17 field?

18 COMMISSIONER AHEARNE: Existing tech specs aren't
19 written for a reactor in the state that it's in.

20 COMMISSIONER KENNEDY: First, let's answer that
21 question.

22 MR. STELLO: They clearly have had problems with
23 their violations of existing requirements. You had an
24 over-exposure. If you have an over-exposure of an
25 individual, that's a violation of our regulations, clearly.

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1 You need to measure that, however, against the background
2 which you're working with, which is very unusual. This
3 clearly isn't a routine activity.

4 So, in terms of the procedures that they had in
5 place, we're not satisfied with that. We want more because
6 more is needed to deal with the situation.

7 COMMISSIONER KENNEDY: But before the situation
8 arose, if there were some reason to suggest that the
9 situations had weaknesses of substantial nature?

10 MR. STELLO: Yes.

11 COMMISSIONER KENNEDY: To what extent have those
12 been corrected? In other words, where are we as compared
13 with where we were?

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1 MR. STELLO: May I suggest that Jim Sniezek go
2 through and summarize the outstanding issues, what they are
3 and what the schedule is for resolutions and then answer
4 that question.

5 COMMISSIONER GILINSKY: Let me also ask whether
6 the concerns about the training of the technicians who
7 operated EPICOR are related to Health Physics matters?

8 MR. VOLLMER: Those were addressed strictly from
9 the operability of the system and knowledge of procedures
10 for the EPICOR system specifically. The use of that would
11 need the Health Physics expertise, so the problems there
12 would overlap the EPICOR.

13 COMMISSIONER AHEARNE: But those weren't
14 specifically the kinds of concerns —

15 MR. SNIEZEK: There are six basic areas where we
16 saw a concern regarding their in-plant Health Physics
17 program and protection of the plant workers. I just
18 mentioned the six areas and I talked briefly about each of
19 them.

20 The overall organization and responsibilities and
21 the Health Physics functions is one area; the QA program
22 for Health Physics was another area; the control of high
23 radiation areas; the evaluation of airborne activities
24 results, we had some problems in that area; the respiratory
25 protection program; and the bioassay program.

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1 Now, on the first one that I am going to talk
2 about, the organizations and responsibilities, the basic
3 problems that we saw up there were with this condition that
4 existed. Subsequent to the Unit 2 accident, a different
5 situation existed and they had to define the functional
6 areas and who was responsible for what. That was not done
7 promptly and that consequently caused some problems. The
8 individuals responsible for the various areas, the lines of
9 responsibility and authority, have not been defined. That
10 includes -- there are dual portions, overlapping Unit 1 and
11 Unit 2 -- who is responsible for them? How does it all tie
12 together?

13 Now, they have thus far completed the definition
14 of functional areas in the responsibilities for the
15 functional areas. One of the things that is remaining to be
16 done is really tying together a little tighter the overall
17 coordination between Unit 1 and 2 and the overall
18 responsibility for the Health Physics program. Who is
19 calling the shots on the total program at Three Mile Island?
20 In conjunction with the question that was asked of
21 Mr. Vollmer about operator training, Health Physics
22 training is a part of this overall effort that's going on.

23 In fact, the typical specifications, revisions to
24 the technical specification, will be referencing of a
25 radiation protection plan which includes the training

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1 related to radiological protection activities. And this
2 plan will be reviewed by the NRC before it is implemented by
3 the licensee. But we do not have that for review yet. I
4 don't have a firm date for when that plan will be submitted
5 for review, but it is scheduled for very near term.

6 MR. COLLINS: It was supposed to be submitted to
7 us this afternoon.

8 MR. SNIEZEK: Okay.

9 COMMISSIONER AHEARNE: Jim, when I had started
10 earlier, I mentioned something about pressing TMI. What I
11 meant was that my understanding was that I&E had been having
12 a consistent interaction with the management down there to
13 try and get these improvements. You've been working on this
14 for some months; haven't you?

15 MR. SNIEZEK: Yes, we've had at least five
16 management meetings. There was an immediate action letter
17 with the licensee where he committed to these specific
18 issues and improvements that were to be made. I'm sure
19 Mr. Collins can attest to, there's at least -- what? --
20 weekly meetings with site management on these issues, and as
21 anything is identified, immediately we meet with the people
22 to determine their steps toward corrective actions.

23 MR. STELLO: Did you mean to say we issue an
24 immediate action letter?

25 MR. SNIEZEK: It was the reverse. They came to us

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1 with the specific commitments in these areas that were to be
2 addressed.

3 MR. STELLO: Okay. Let's get that clear. We were
4 prepared to issue an immediate action letter if we didn't
5 get the commitments. We received the commitments and
6 therefore did not. That's the question. Is that true?

7 MR. SNIEZEK: That is true. That is exactly what
8 happened.

9 The second basic area in the quality assurance
10 program, we saw that they had no systematic manner of
11 overseeing what was going on, independently of the people
12 doing the work. One of the things that we saw as necessary
13 was the licensee on a very frequent basis would come in and
14 overview the effectiveness of the program they were
15 implementing, verify that the problems that were identified
16 were followed up on and resolved. They had no systematic
17 program in existence to do that.

18 Subsequent to our discussions and meetings with
19 them they initiated a quality assurance program on September
20 10th. We have not seen the initial audit results yet, but
21 the QA program that the described to be implemented, met our
22 satisfaction, and we'll be looking at those results as they
23 develop, and how effective it is.

24 The control of high radiation area. We saw
25 problems with the key control, where there was unauthorized

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1 access into high radiation areas, there was not effective
2 control, and identification of new high radiation areas,
3 which goes into the survey question -- how adequate were
4 there surveys and evaluations of what existed in the
5 facility? It existed because people were going into areas
6 where they did not expect high radiation and they were
7 running into high radiation.

8 COMMISSIONER KENNEDY: There were, in fact, some
9 overexposures at the site?

10 MR. SNIEZEK: There were some overexposures that
11 resulted from that.

12 COMMISSIONER GILINSKY: Can you tell us something
13 about how many overexposures, and when?

14 MR. SNIEZEK: The number, as I recall, the whole
15 body overexposures, I believe there were four whole body
16 overexposures, and as I recall they were early on in the
17 accident. There is, I believe -- John might have it -- six
18 people on extremity or skin overexposures, and there is an
19 evaluation --

20 COMMISSIONER GILINSKY: Did these take place in
21 the first few days?

22 MR. SNIEZEK: The extremities and the skin took
23 place several weeks after the onset of the accident.

24 MR. STELLO: No, no, several weeks ago. It was in
25 August some time.

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1 MR. COLLINS: The first three --

2 MR. SNIEZEK: Oh, yes, yes, that's right. And we
3 have not completed our investigation on that aspect, to get
4 to the bottom of the exact cause and the degree of
5 overexposure. We had some preliminary results which we have
6 to investigate further to confirm that those are the true
7 values.

8 I believe that was the extent of the overexposures
9 that we have had there. But we are continuing to take a
10 hard look at it.

11 COMMISSIONER GILINSKY: Do you have a summary
12 listing of those, that you could provide us at some later
13 point?

14 MR. SNIEZEK: Sure. As of September 10th, the
15 NRC, we reviewed the new procedures, the new procedures for
16 control of high radiation areas, access to high radiation
17 areas. We were doing the surveys and we found that they had
18 good procedures in place. There has been some continuing
19 problem on implementation, especially as related to key
20 control. So as we identify the problems, we're correcting
21 the spot problems and we're continuing in this area to
22 follow up, to make sure we keep improvements on the
23 tightening up of their key control procedures at the site.

24 COMMISSIONER AHEARNE: As I recall, in some of the
25 earlier reviews, not only yours but also the consultants'

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1 reviews for the company, part of the problem they had
2 identified was poor education of personnel, leading to not
3 following the procedures. As I recall, at a number of
4 sites, the I&E inspectors say there has been lack of
5 following the procedures. You say here that you have
6 reviewed their procedures. How about your confidence that
7 they'll follow the procedures?

8 MR. SNIEZEK: Like I say, we are having
9 implementation problems right now. This is an issue that we
10 have to keep working on. We're not satisfied with the
11 implementation yet. That is one of our ongoing concerns for
12 the protection of the workers.

13 The fourth major area was evaluation of airborne
14 activity results. And here we found that because of the
15 unique circumstances after the accident, the licensee was
16 receiving beta exposures and beta in the air, that he had not
17 expected to see. They were not up to speed on anticipating
18 the problems that they would find. They have implemented a
19 temporary procedure as of September 4 for evaluation of the
20 beta in the atmosphere, as coming up with beta-gamma
21 ratios. And the final procedure is to be issued by October
22 7. They have implemented the temporary procedure, and again
23 are evaluating implementation. It's a good procedure. We
24 have to evaluate the effectiveness of the implementation of
25 the procedure so that we have enough information to say that

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1 they're doing a good job.

2 The respiratory protection program. Here again,
3 this is tied somewhat into the beta that they were
4 experiencing in the airborne activity, which they didn't
5 anticipate, and they had to improve their techniques for
6 analyzing the isotopes and the airborne activity. There are
7 techniques for calculating the stay time. There are
8 procedures for testing, taking care of the respirators
9 themselves, and as of 9/24, we have reviewed the procedures
10 and found they have good procedures in place. The
11 implementation is scheduled for October 7th, going through
12 their training programs with people now so that they
13 understand them. They're scheduled to have them implemented
14 by October 7th.

15 Again, we'll have to follow up on the
16 implementation to make sure that it is, in fact, effective.
17 The last area we had major concerns over were the bioassay
18 programs. That ties in with the respiratory protection,
19 and their calculation of airborne activity at the plant.
20 They are upgrading their bioassay program to bring it in
21 line with Regulatory Guide 8.15 ANSI standards pertaining to
22 bioassay programs. This is the whole body counting and the
23 urinalysis aspect of action levels, whether they should be
24 doing urinalysis, whole body counting, it's scheduled to be
25 submitted to us for review by October 10th. So that program

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kapDAV 1 isn't fully underway yet.

2 Those are the key areas, and about where we stand
3 on those key areas where we have major concerns.

4 COMMISSIONER GILINSKY: What do you attribute the
5 problems to? Lack of competence of the individuals involved
6 in the program, or improper, inadequate direction, or what?

7 MR. SNIEZEK: I would attribute it to one of the
8 first things that we mentioned, the overall responsibility
9 and defining of who's responsible for what, and being caught
10 unawares of potential problems that could exist. That's
11 what I would attribute it to, not the basic technical
12 expertise of the people heading up the program.

13 COMMISSIONER AHEARNE: But if you track back,
14 though, from not only your own -- that is, I&E's -- reviews,
15 as well as the NUS review done for the company, that has to
16 call into question basic competence. You say that you don't
17 have --

18 MR. SNIEZEK: I really do not know what the major
19 contributing factor is. It's probably a combination of --

20 MR. STELLO: Perhaps commitment.

21 COMMISSIONER GILINSKY: Is the management
22 sufficiently committed?

23 MR. STELLO: I think I put my finger on that. But
24 when you look at what's there now, I think you know the
25 significant dimensions of trying to deal with that question

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1 today. If you have had an accident, you have got an awful
2 lot of things to deal with. You are dealing with a
3 difficult problem for which you don't draw on a great deal
4 of experience. So we have a dimension that's been added to
5 this program which makes elements of this now much more
6 important and difficult in terms of worker protection than
7 it's been in the past.

8 COMMISSIONER AHEARNE: But if I go back and look
9 at -- just over the last two months, take July. In the
10 middle of July when that first interchange of letters
11 between I&E and Met Ed occurred -- here's what we've come in
12 to do. The sense I get as I look at that and the beginning
13 of August letters and the middle of August letters and your
14 latest reports including today, is that it's taking much --
15 now, I don't know whether the original dates committed to
16 were realistic or not, but it seems to be taking much longer
17 to get to an acceptable stage on those steps than the
18 original agreements were, even the modified agreements.

19 MR. STELLO: That's the point I was trying to deal
20 with. And try to ask yourself how fast things ought to move
21 now. I guess I tend to be impatient. I always want them to
22 move a lot faster than they do. But I have to be realistic,
23 and take a step back, and add that dimension that the
24 accident in that environment, and those demands placed on
25 that same system -- and ask if that could be a significant

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kapDAV 1 contributor. My judgment is, it is. I don't know how to
2 separate that out.

3 COMMISSIONER GILINSKY: They're obviously in a
4 much more demanding situation than the typical licensee
5 finds himself in.

6 MR. STELLO: Very much so. And I think that is
7 what adds this difficulty in making this move as fast as we
8 want it.

9 COMMISSIONER AHEARNE: But are you saying that you
10 are satisfied with their progress?

11 MR. STELLO: No. I guess I like everything faster
12 than I get it as a general matter, so I am never really
13 happy with what I get unless it's right away.

14 COMMISSIONER GILINSKY: You're pressing them to
15 improve.

16 MR. STELLO: How much faster can we reasonably
17 expect this to move? I don't know how to answer that
18 question. I don't know how to say, Are they moving as fast
19 as they can reasonably move, because we're moving into an
20 area we've never been in before, and I don't know the answer
21 to the question. I know when I was up at the site I was
22 very impatient with the progress that was being made, but
23 then when I realistically stepped back and took a look at
24 what has been accomplished in the environment that's there,
25 I think it's a remarkable achievement. And I think maybe in

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1 a few months when we do step back and recognize what we've
2 been dealing with --

3 COMMISSIONER KENNEDY: If that is true.

4 MR. STELLO: If it indeed is true.

5 COMMISSIONER KENNEDY: Now, if that is true, then
6 I come back to your point about commitment. I don't see how
7 they have achieved this remarkable achievement without a
8 pretty high level of commitment.

9 MR. STELLO: The answer -- when I use the word
10 commitment, management commitment was prior to the
11 accident. The NUS report came out and now I say, no matter
12 what the commitment is there, I have a dimension I've
13 added that deals with the real environment and the real
14 accident. You need to take that into account in trying to
15 ask yourself, Are we trying to get things moving faster than
16 you reasonably can?

17 I know I always want it faster but then when I
18 left there I took a step back and I looked at what has been
19 accomplished. I think that indeed, it's quite remarkable.
20 An awful lot was done in a short time under very, very
21 difficult conditions.

22 COMMISSIONER AHEARNE: Is there now a single
23 person from the company side who's in charge of all of the
24 Health Physics programs?

25 MR. SNIEZEK: I must refer that to John. I don't

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kapDAV 1 think there is at this point.

2 MR. COLLINS: There is no one single individual
3 responsible for the Health Physics program because of the
4 nature of their organization. Realizing that Unit 2 is in a
5 recovery mode, Unit 1 is in a restart mode, they have split
6 their organization.

7 Now, with regard to station procedures, things
8 like dosimetry programs, air analysis programs, bioassay
9 programs, there is an individual assigned that
10 responsibility, but Unit 1 still still has their Health
11 Physics program, Unit 2 has their Health Physics program.
12 There's no one person up at the top, in a block, outside of
13 Bob Arnold.

14 COMMISSIONER AHEARNE: Is there a single person
15 who is in charge of Unit 2's Health Physics program?

16 MR. COLLINS: Yes. There's one radiation
17 protection supervisor for Unit 2 and one radiation
18 protection supervisor for Unit 1.

19 COMMISSIONER AHEARNE: It does have adequate
20 management control authority for all aspect of at least Unit
21 2's Health Physics program?

22 MR. COLLINS: Well, I think that that's been a
23 weakness, and I think it's been a slow progression, over the
24 last couple of months, in trying to get a thorough
25 management commitment to make sure that the Health Physics

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1 program stays on an upward keel. I think Vic would agree,
2 too, that immediately following the accident, management
3 attention was directed at putting that reactor in a safe
4 position. Now, we're in a mode where management has to
5 recommit themselves and get the expertise that's required,
6 get the necessary equipment in here that's required, train
7 the people because you're living in a different environment
8 now.

9 I think that's what really hurt us with regard to
10 the last six exposures. They should not have occurred. But
11 recognize that your nuclide distribution changed on you
12 dramatically. The licensee did not expect to see the high
13 energy betas that we encountered. Normally, in an operating
14 reactor you don't see that type of concentration. Normally,
15 if you take care of your beta exposure or your gamma
16 exposure, and you put protective clothing on the people, you
17 take care of the beta, but that's not the case here.

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1 COMMISSIONER AHEARNE: From the way you answered,
2 though, John, I would conclude that there is still some concern
3 on whether that Unit 2 health physics supervisor does have
4 adequate control over the health physics program.

5 MR. COLLINS: There's some concern on my part that
6 he exercises it. He may have it on a piece of paper func-
7 tionally that responsibility, but if he exercised it and
8 whether his management supports him, supports his role, I
9 don't think that we have had a long enough time to evaluate.
10 I don't think any of us up there are going to be satisfied
11 with the program until we are assured and they demonstrate
12 that we can back off from our intense surveillance on the
13 health physics program, and we haven't done that yet.

14 MR. SNIEZEK: That's the one area that we haven't
15 addressed, that tying together at the top. Right now it's
16 tied together at what may be too high a level, and that's the
17 area where we're looking at it very intensely to see if
18 improvement can be made by a closer tie together right at the
19 top.

20 COMMISSIONER GILINSKY: Does that pretty well
21 complete your presentation?

22 MR. STELLO: Yes.

23 COMMISSIONER GILINSKY: You will, of course, be
24 preparing a response to the Senate Committee, and the
25 Commission would like to see a report on the subjects.

1 COMMISSIONER KENNEDY: When can we expect that draft
2 response?

3 MR. CASE: Monday morning.

4 COMMISSIONER AHEARNE: Vic, you're not the only one
5 that wants it right away. We need it, too.

6 MR. STELLO: Monday's not very far away.

7 COMMISSIONER GILINSKY: Very well. Thank you very
8 much.

e-5 9 (Whereupon, at 4:00 p.m., the hearing was adjourned.)

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