

REPORT OF INVESTIGATION

DOCKETED
USNRC

SUBJECT: GENERAL PUBLIC UTILITIES NUCLEAR (GPUN)/POSSIBLE TRAINING IRREGULARITIES -8 P2:53

REPORT NO: Q-1-84-004

REFERENCE: Q-1-83-014; Q-1-83-015

DATE CLOSED: MARCH 22, 1984

This investigation was initiated to determine the intent behind an April 27, 1976 memorandum¹ written by Alexis TSAGGARIS (hereinafter, "TSAGGARIS memorandum"). The investigation also addressed the extent to which General Public Utilities' (GPU) internal investigation report² of the March 28, 1979 accident (hereinafter, the "KEATEN Task Force") included the problems identified in the TSAGGARIS memorandum and certain other negative information³ regarding the training program at Three Mile Island.

During the NRC staff review of the GPU v. Babcock & Wilcox lawsuit records, the TSAGGARIS memorandum was identified as raising questions about management knowledge of failures to comply with NRC training requirements. The memorandum concerned problems in the requalification program related to poor lesson attendance, delay in completing makeup lessons and insufficient time spent in the control room. After the recitation of the deficiencies in the program, the memorandum stated: "We are required by federal law to meet certain requirements for licensed individuals and in several cases we do not meet them."

1. Exhibit 1
2. Exhibit 8
3. See Exhibit 2, Exhibit 3 and Exhibit 15

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Alexis TSAGGARIS was the Supervisor of Training at the Three Mile Island Nuclear Station (hereinafter, "TMI") from January, 1976 until the spring of 1977." After assuming this position, TSAGGARIS established a quarterly audit system to monitor, among other things, the amount of time spent in the control room by non-shift personnel. The term "non-shift personnel" applied to any licensed individual who was not a member of an operating shift such as the Supervisor of Operations or a Unit Superintendent.⁵ In order to ensure that non-shift personnel would log in the necessary number of hours of control room time to meet the NRC standards for biennial requalification as required by 10 CFR Part 55, Appendix A, TSAGGARIS established an internal program requiring these individuals to spend a stated number of hours per month in the control room. The purpose of the program was to avoid a situation in which an individual would not have spent any time in the control room for several months and be forced to "catch up" to meet the federal requalification requirements.⁶ TSAGGARIS currently believes that it was a failure on the part of several individuals to log in sufficient control room time on a monthly basis to which he was referring in the April, 1976 memorandum rather than a violation of the NRC requalification requirements.⁷ TSAGGARIS could not recall the specific individuals to whom he was referring in the April, 1976 memorandum. TSAGGARIS did recall, however, that, as a result of this memorandum, several operator licenses were permitted to lapse.⁸

TSAGGARIS was not aware of any violations of federal regulations governing training while he was Supervisor of Training at TMI and emphasized that his memorandum was not addressing actual instances of noncompliance.⁹ A review of NRC Region I records disclosed that an inspection performed in August, 1976 of the General and Requalification Training Programs did not result in any items of noncompliance.¹⁰

4. Exhibit 5 at 3-4

5. Id. at 7

6. Id. at 9-10

7. Id. at 10

8. Exhibit 4 at 16; Exhibit 5 at 14

9. Exhibit 4 at 18; Exhibit 5 at 11

10. Exhibit 16

Joseph J. COLITZ was the Superintendent of Unit 1 at TMI at the time of the TSAGGARIS memorandum. COLITZ did not specifically recall the April 27, 1976 memorandum but did remember TSAGGARIS raising the issue of attendance at training by non-shift personnel in the requalification program. COLITZ stated that he had experienced difficulties in keeping up with the requalification program and that, after TSAGGARIS raised the issue, COLITZ decided to allow his license to lapse. COLITZ was not aware of any violations of federal regulations in the requalification program.¹¹

John G. HERBEIN was the Station Manager at TMI at the time of the TSAGGARIS memorandum. HERBEIN held a senior reactor operator's license from approximately March, 1973 until early 1977. HERBEIN had no recollection of the TSAGGARIS memorandum or of having discussed the subject matter with TSAGGARIS.¹² In preparation for the interview, James BURNS, HERBEIN's attorney, discovered in HERBEIN's files a memorandum which apparently prescribed corrective action for the deficiencies cited in the TSAGGARIS memorandum. This memorandum, signed by COLITZ and Gary MILLER, required, among other things, non-shift licensed individuals to schedule and stand a four hour watch in the control room once per month.¹³ HERBEIN was not aware of any willful violations of federal regulations in the training program during the time he was station manager.

Gary P. MILLER was the Superintendent of Unit 2 at TMI at the time of the TSAGGARIS memorandum. MILLER believed that HERBEIN told MILLER and COLITZ to get together with TSAGGARIS to resolve the problems raised in the memorandum. TSAGGARIS assisted MILLER and COLITZ in writing the June 10, 1976 memorandum¹⁴ which responded to the problems raised in the TSAGGARIS memorandum. MILLER held an operator's license for approximately six months

- 11. Exhibit 11
- 12. Exhibit 12
- 13. Exhibit 10
- 14. Exhibit 10

but gave it up at HERBEIN's direction because of the demands of his normal duties. During the time period of the TSAGGARIS memorandum, MILLER was not aware of any willful violations of federal regulations in the training program during the time he was unit superintendent.¹⁵

Richard ZECHMAN replaced TSAGGARIS as Supervisor of Training at TMI in November, 1977. ZECHMAN is currently the Technician Training Manager for TMI. ZECHMAN had no knowledge of the TSAGGARIS memorandum and stated that he was not aware of any actual noncompliances in the area of training and was not aware of any instances in which noncompliances were identified and management made a decision to conceal the noncompliances from the NRC.¹⁶ As a result of a records search, ZECHMAN provided the following names as the non-shift licensed personnel at TMI during 1976 and 1977:

Nelson BROWN, Joseph J. COLITZ, James FLOYD, John G. HERBEIN, George KUNDER, Gary MILLER, Dennis BOLTZ, William MARSHALL, James O'HANLON, and James SEELINGER. ZECHMAN also found in the training files a copy of the same memorandum,¹⁷ signed by COLITZ and MILLER, which was apparently prepared in response to the TSAGGARIS memorandum. ZECHMAN had no personal knowledge concerning the COLITZ and MILLER memorandum.

The investigation determined the TSAGGARIS memorandum did not come to light during the KEATEN Task Force investigation and, thus, did not influence the task force reports.¹⁸ Robert W. KEATEN was in charge of the task force and is currently the Director of Engineering Projects for GPU Nuclear Corporation. KEATEN did not specifically remember the TSAGGARIS memorandum but did recall discussing some of the topics addressed in the memorandum, e.g. poor lesson attendance, during the task force's investigation. KEATEN explained that the task force did not do a general investigation or audit of the training area

15. Exhibit 13

16. Exhibit 9

17. Exhibit 10

18. Exhibit 5 at 29; Exhibit 7 at 11-12; Exhibit 17 at 35-37
Exhibit 6 at 54-55; and Exhibit 14

but primarily limited its activity to interviewing the Training Department staff about their perception of the training area. The task force looked into the training area only in relation to its mission "to understand the factors that led the operators to take the ... incorrect actions on the morning of March the 28th."¹⁹

Alexis TSAGGARIS, who continued as a member of the KEATEN Task Force even after he left the GPU organization in January, 1980, was not a primary member of the task force's investigation in the training area. TSAGGARIS stated that his primary assignment on the task force was in the area of emergency planning and that he was not involved in the training aspects of the report because the task force felt that he may not have been able to be objective since he had had responsibilities for training at TMI.²⁰ TSAGGARIS did not bring the April, 1976 memorandum to the attention of the task force. KEATEN did not recall an intentional decision to exclude TSAGGARIS from the training area of the report but did agree that, except for task force meetings, TSAGGARIS was not active in the training aspects because most of his time was devoted to the emergency response area.²¹ KEATEN also explained that a July 26, 1979 memorandum²² prepared by himself which listed TSAGGARIS as being responsible for the training area was superseded and this responsibility was delegated to someone else.²³ KEATEN listed Dr. Robert LONG, Ronald WILLIAMS, and himself as the primary members of the task force in the training area.²⁴

Ronald L. WILLIAMS was a consulting specialist prior to leaving GPU in March, 1980. WILLIAMS was the author of four pages of handwritten notes²⁵ of a KEATEN Task Force interview on October 18, 1979 with three members of the TMI Training Department. Although he was not the author and does not know who wrote the training section of the KEATEN Task Force report, WILLIAMS thought that the problems raised in the October 18, 1979 interview were sufficiently addressed in the task force report.²⁶ KEATEN also thought that the problems

19. Exhibit 7 at 25

20. Exhibit 5 at 26-28

22. Exhibit 18

24. Id. at 4

26. Exhibit 14

21. Exhibit 7 at 4-5

23. Exhibit 7 at 6

25. Exhibit 15

identified in WILLIAM'S notes were generally included in the "Operator Training" and "Recommendations" section of the final task force report.²⁷

In a memorandum²⁸ to the TMI-1 Plant Superintendent, dated June 17, 1977, Theodore L. BOOK, a former TMI-1 Reactor Operations Shift Foreman, discussed the inadequacy of reactor operator training and implied that the number of hours of training recorded in the operator training records was not correct. The contents of this memorandum were the subject of a previous OI investigation.²⁹ In a memorandum³⁰ to the TMI-1 Plant Superintendent, undated, Larry G. NOLL, then a Control Room Operator Shift Foreman, implied that other shifts at TMI-1 were falsifying training records. The contents of this memorandum were the subject of a previous OI investigation.³¹ None of the KEATEN Task Force members interviewed had any knowledge of the BOOK or NOLL memoranda,³² and these memoranda had no impact on the Task Force Investigative findings in the area of training.

STATUS OF INVESTIGATION

This investigation has not produced any information to indicate that the TSAGGARIS memorandum was in reference to actual conditions of noncompliance with any requirements of the requalification program, nor was there any testimony to indicate that the licensee willfully concealed information concerning noncompliances from the NRC. Additionally, an NRC Region I inspection performed within several months of the TSAGGARIS memorandum did not identify any instances of noncompliance which should have been reported.

27. Exhibit 8

28. Exhibit 3

29. Report Number Q-1-83-014; closed May 31, 1983

30. Exhibit 2

31. Report No. Q-1-83-015; closed July 26, 1983

32. Exhibit 14; Exhibit 7 at 20-24; and Exhibit 5 at 15-16, 21.

There did not appear to be a direct correlation between the NOLL, BOOK and TSAGGARIS memoranda beyond the fact that each identified different aspects of problems within the training department at the time. These memoranda do not appear to have had any effect upon the KEATEN Task Force report. In light of the above, OI has terminated any further investigation into this matter.

Prepared by:

L. J. Norton
L. J. Norton, Investigator
Office of Investigations
Region I

Approved by:

R. Keith Christopher
R. Keith Christopher, Director
Office of Investigations
Region I

EXHIBITS

1. Metropolitan Edison Company memorandum dated April 27, 1976 from A. TSAGGARIS to J. G. HERBEIN, J. J. COLITZ and G. P. MILLER.
2. One page, undated, handwritten note from [Larry] NOLL to George [KUNDER]. Attached to the note is a Metropolitan Edison Company memorandum dated June 28, 1977 from N. D. Brown to Shift Supervisors and Shift Foreman [sic].
3. Three page, handwritten letter dated June 17, 1977 from T. L. BOOK to Jim O'HANLON.
4. Sworn Testimony of Alexis TSAGGARIS, Page 7, 14-18/dated January 31, 1984.
5. Sworn Testimony of Alexis TSAGGARIS/dated March 5, 1984.
6. Pages 50-59 of the Sworn Testimony of Robert C. ARNOLD on February 29, 1984.
7. Sworn Testimony of Robert Winn KEATEN on March 8, 1984.
8. Pages 12-13 and 38-39 of the "GPU Accident Review Task Force Final Summary Report", dated December 15, 1980.
9. Report of Interview of Richard ZECHMAN on March 9, 1984.
10. Metropolitan Edison Company memorandum dated June 10, 1976 from J. J. COLITZ and G. P. MILLER to Licensed Operators.
11. Report of Interview of Joseph J. COLITZ on March 6, 1984.

12. Report of Interview of John G. HERBEIN on March 13, 1984.
13. Report of Interview of Gary P. MILLER on March 20, 1984.
14. Report of Interview of Ronald L. WILLIAMS on March 20, 1984.
15. Four pages, handwritten notes of Ronald L. WILLIAMS from an Investigative Task Force Interview on October 18, 1979.
16. Cover sheet and pages 1-7 of IE Inspection Report No. 50-289/76-19, dated August 24, 1976.
17. Pages 35-37 of the transcript of interview of Dr. Robert Leroy LONG on January 19, 1984.
18. GPU Service memorandum dated July 26, 1979 from R. W. KEATEN to R. C. ARNOLD with one page attachment.

METROPOLITAN EDISON COMPANY MEMORANDUM DATED APRIL 27, 1976 FROM
A. TSAGGARIS TO J. G. HERBEIN, J. J. COLITZ AND G. P. MILLER

Exhibit (1)

METROPOLITAN EDISON COMPANY

Subsidiary of General Public Utilities Corporation

Subject: REQUALIFICATION PROGRAM

Location: TMI Nuclear Station
Middletown, Pa.
Date: April 27, 1976

To: J.G. HERBEIN
J.J. COLITZ
G.P. MILLER
PAW *848* *10171*
W. A. EUGEN

1. After reviewing this year's performance of non-shift personnel in the Requalification Program, three problem areas are apparent.
 - a. Poor lesson attendance (in some cases no lesson attendance).
 - b. Inordinate amount of time before makeup material is returned.
 - c. Not enough time scheduled and spent in the control room.
2. It has become obvious to me that these problems will continue unless more stringent guidelines are established. I have written many memos pointing out these problem areas to the individuals concerned and am finally getting assignments turned in. I feel strongly that when a person obtains a license it is his responsibility to keep it current. This is not being done. We are required by federal law to meet certain requirements for licensed individuals and in several cases we do not meet them.
3. In view of the above problems I would like to propose some new administrative guidelines for the Requalification Program.
 - a. Each lesson is given six times, once for each shift. The schedules are published a week in advance. Non-shift personnel should schedule themselves to attend all lessons during this six week period. The tendency now is not to attend lectures and just do the makeup assignment. This must be emphasized.
 - b. Require all missed lessons (makeup material) to be completed prior to the end of the next six week cycle. (I am just now receiving makeup material that was taught back in early fall.)
 - c. Require all licensed non-shift personnel to schedule themselves for, and stand a four hour watch in the Control Room each month. I can audit this with my present quarterly audit system. We need to force personnel into the Control Room or they will not do it. Some plants already have a system like this. (We have some people who have not logged time in the Control Room for the last six to eight months).

I am submitting these proposals for your comments and/or approval. We cannot continue to do business as we have in the past and run a meaningful program.

A. Tsaggaris
A. Tsaggaris
Supervisor of Training-Nuclear

INTER-OFFICE MEMORANDUM

18 27 976

1200 775

ONE PAGE, UNDATED, HANDWRITTEN NOTE FROM [LARRY] NOLL TO GEORGE [KUNDER].
ATTACHED TO THE NOTE IS A METROPOLITAN EDISON COMPANY MEMORANDUM DATED
JUNE 28, 1977 FROM N. D. BROWN TO SHIFT SUPERVISORS AND SHIFT FOREMAN

George:

According to the attached sheet the A.O.'s are required to go over "526" - there is no way I can get the A.O.'s together long enough to go over the procedure meaningfully.

I don't have the time to give 2 or 3 lectures, so I can't meet this NRC requirement and I'm not going to fulfil it anymore like other shifts do. Get

Training for CRO's, A.O.'s, and SS/SE back where it belongs - in Training and on 6 shifts. It's about time Training

Dept Trains people - instead of keeping up paperwork only.

Roll

METROPOLITAN EDISON COMPANY

Subsidiary of General Public Utilities Corporation

TII-77-19

Subject REQUALIFICATION PROGRAM

Location TMI Nuclear Station
Middletown, Pa.

Date June 28, 1977

To SHIFT SUPERVISORS
SHIFT FOREMAN (UNIT I LICENSED)

Between July 11, 1977 and August 12, 1977 you will be tested, as part of the Unit I Requal Program, on the following procedures which are to be reviewed on shift.

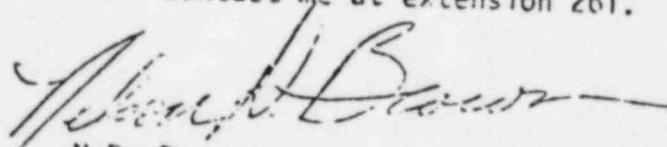
1. 1202-11 High Activity in Reactor Coolant
2. 1203-5 High Cation Conductivity in Condensate
3. 1203-7 Hand Calculation of Quadrant Power Tilt and Axial Imbalance
4. 1203-38 Post Accident Hydrogen Purge
- *5. 1203-8 Operator Determination of Gross 15 Minute degased Beta Gamma
- *6. 1203-9 Operator Determination of Boron

NOTE: Items *5 and *6 require Auxiliary Operator participation, this is an NRC Requirement.

You may ask, why should we review these procedures on-shift when we are already busy enough? The answer is that we feel the review of a procedure at the location of response will be more meaningful than sitting in a room while the procedure is read to you. The on-shift review will also re-enforce the location of the controls and indications to enable a quicker and smoother response in the event the Emergency Condition exists. The review will also enable you to compare similar procedures to identify, (with the major systems listed) the condition quickly and correctly.

Shift Supervisors please ensure that the on-shift review is documented on the attached Administrative Form.

If you have any questions or comments contact me at extension 261.



N.D. Brown
Admin. Nuc. Tech. Training

HDB:kmr
Enclosure

THREE PAGE, HANDWRITTEN LETTER DATED JUNE 17, 1977
FROM T. L. BOOK TO JIM O'HANLON

Exhibit (3)

Date: 4-2-77 File # 104-18-77

MEMO from:

JAMES P. O'HANLON

To: G. P. Miller
L. Trogger
D. Goodman
D. Zechman
G. Kunder

I am enclosing a letter
I received re. training.
I am not doing this to
upset anyone - and none
should be upset - but to
let you all know the
concerns being expressed.
Let's consider them.

Tex, please give me a
call on this.

TKS
Jim

BYW
Deft. Exh. For ID 564
Pl. Exh. in EX 8-11-82
Robert Capuzelo RPR
Doyle Reporting, Inc. RC

LT

June 17, 1977

Jim O'Hanlon,

Since taking the required exam
the past February, I have not
been in a single training lecture or
received any guidance as to what
course of study to pursue to best
fulfill the NRC requirements meaningfully.

Per
cont
prog

Also I do not believe that sending
out a casual memo or documenting on
green sheets that an E.P. was read on
back shift constitutes good training
practice.

Like all else the SIF & S/S's
have become the Godhead of 60 hrs.
required training per year. It's time to
put training back in the training dept.
where it belongs and in a responsible fashion.
This means more training space, people
and expertise. This also means 6 shifts
for CEO's, SIF and S/S's.

True

Radio Training Program per Op. 11211-2

While I fully realize that there is no pat answer for our complex training problems, I like many other operation people, have made suggestions to various training personnel. However it seems as though these fall on deaf ears or end up in the circular file. We have been told, "write up your suggestions and concerns or call us." We did! Nothing happened!

Besides being just plain frustrated over all of this, it is my opinion that it is somewhat erroneous to say we fulfill the NRC requirements when they are based on documentation of subject matter supposedly covered on shift. Many times more hours are documented than were actually used for training.

I am willing to listen to or discuss anything on the topic with anybody. I am willing to help solve the problem if I can help in a meaningful way.

5-11-68

Records being received

Something must be done!!!

Thank you,
J. L. Birk.

SWORN TESTIMONY OF ALEXIS TSAGGARIS, P. 7, 14-18/
DATED JANUARY 31, 1984

Exhibit (4)

1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION

3 -----x
4 In the matter of: :
5 Investigative Interview of :
6 ALEXIS TSAGGAPIS :
7 -----x

8 Schneider Consulting Engineers
9 98 Vanadium Road
10 Bridgeville, Pennsylvania

11 Tuesday, January 31, 1984

12 The above-entitled interview commenced at
13 10:07 a.m., pursuant to notice.

14 BEFORE:

15 LEO NORTON, Investigator
16 United States Nuclear Regulatory Commission
17 Region I
18 631 Park Avenue
19 King of Prussia, Pennsylvania 19406

1 be getting into some of the changes a little later on.

2 BY MR. NORTON:

3 Q Just some general questions. Was there a particu-
4 lar area of the task force's work to which you were assigned?

5 A Yes. My recollection is that my area was the area
6 of emergency planning, and that's the only area that I was
7 really involved in as a primary contributor.

8 Q How about the training area, in light of your
9 background?

10 A I don't really recall being involved in the
11 training area. I don't think so.

12 Q Did you draft any portions of the report, to the
13 best of your recollection?

14 A Yes. I drafted the emergency planning portion, to
15 the best of my recollection.

16 Q And then submitted it to the task force? Is that
17 how it works?

18 A Well, I believe the way we worked is, we drafted
19 sections and then we reviewed them as a group, as a task
20 force group.

21 Q And made changes as a group or --

22 A As a group effort.

23 Q Okay. In connection with the task force activities
24 did you report to anyone other than the task force itself?

25 A No.

1 A No, I don't recall that.

2 Q This is the 5-12-60 version.

3 A What page is that?

4 Q Page 10. This is in the November version, but it
5 should be around there; the very last paragraph of the
6 subsection.

7 A I don't see it.

8 Q May I?

9 (Mr. Norton indicating.)

10 Q Here we go.

11 (Witness perusing document.)

12 A I would have to say that, you know, based on that,
13 that we felt that what needed to be done with the training
14 program and an assessment of the overall training program, we
15 felt that was really beyond what we were supposed to do.

16 Q That was too big a job?

17 A Too big a job, yes. That's what the words say.

18 Q Do you recall at all the Roddis Committee?

19 A I recall the committee. I don't recall the report,
20 though.

21 Q Did you have any interface with them, you
22 personally?

23 A I don't believe so. I don't believe so.

24 Q Were you ever interviewed by them in connection
25 with your early experiences as director of training?

1 A I don't really recall being interviewed. If I
2 was, you're going to have to tell me.

3 Q I myself don't know.

4 A I honestly do. t recall being interviewed by them,
5 I really don't.

6 Q Okay, very good. I think we've covered that.
7 While we're on the subject of training, aside from the report,
8 during a review of the documents at the B&W trial, a 1976
9 memo written by you came to light.

10 Why don't we take a couple minutes so you can read
11 through it, and then we want to discuss that. The time is
12 10:38 a.m., and we'll take a short break.

13 (Off the record.)

14 MR. NORTON: The time is 10:40 a.m., and we'll go
15 back on the record.

16 BY MR. NORTON:

17 Q Mr. Tsaggaris, we've just given you an opportunity
18 to read a memo dated April 27, 1976, bearing what purports to
19 be your signature, to Messrs. Herbein, Colitz and Miller.

20 First off, did you write this memorandum?

21 A Yes, I did.

22 Q What prompted you to write this memorandum?

23 A As I recall, I had been with the company, oh, three
24 to four months at this time, and had I think at that time
25 gotten my feet fairly firmly on the ground in the position of

1 supervisor of training, and had reviewed all aspects of the
2 training program.

3 I felt that the performance of the people that do
4 not normally stand the operating shifts -- and I refer to
5 them as non-shift personnel -- that the requirements of
6 10 CFR 55 for maintaining requalification requirements, that
7 there were areas that needed improvement for those individuals

8 Now, we're not talking about the shift supervisors
9 and the people that normally operate the plant; we're talking
10 about the non-shift personnel that had licenses and have to
11 maintain certain requirements to keep those licenses current.
12 And that is what this letter addressed.

13 Q Was there any action taken as a result of your
14 memo?

15 A I don't really recall. I would have to look at the
16 followup correspondence. I do believe, it's my recollection
17 that things were improved.

18 I'm fairly clear and explicit in what the problems
19 are in this memo. I think in one or two cases, I recommended
20 that licenses be permitted to lapse, and I believe that was
21 done, because -- I don't remember who the individuals were,
22 but I remember making a recommendation that since there was no
23 requirement for an individual to have a license, that if the
24 individual could not maintain the license, then we should
25 permit the license to lapse.

1 Q Because they hadn't been able to keep up with
2 training and --

3 A That's correct, keep up with the requirements.

4 Q While in this position, did you ever come across a
5 problem that you felt should have been reported to the NRC in
6 the area of training, of not meeting training requirements?

7 A I don't think so.

8 Q What prompts the question is your statement in the
9 second paragraph there, that "We are required by federal law
10 to meet certain requirements for licensed individuals, and in
11 several cases, we do not meet them."

12 A Yes, I understand what the words say. I would have
13 to go back and look at 10 CFR 55, because those requirements
14 for biennial recall, as I recall them, were to be accomplished
15 over a one or two year period.

16 And you have to meet certain requirements over that
17 time span. Now, if it says you have to meet -- and I don't
18 remember the exact numbers -- so many hours of control room
19 time, in other words standing a particular watch, you would
20 pro-rate that internally, so many hours per month.

21 If an individual wasn't standing those watches, he
22 would start accumulating in our own system a deficit toward
23 meeting that overall requirement of, let's say 48 hours in a
24 year or two year period.

25 Now, I don't recall whether my comment there is

1 that these individuals are getting so far behind that I don't
2 consider that we're meeting the requirement from a routine,
3 standing the watch every month standpoint.

4 I don't believe that -- and I'd have to go back and
5 look -- but based on the audit results of our training
6 programs -- that we were ever in a violation.

7 We were never cited for anything during my tenure
8 as a supervisor of training, during any of our audits. I
9 don't believe that we were.

10 So, I can't really recollect whether by that
11 statement I was saying that we were in violation of 10 CFR 55
12 or whether I just didn't feel we were meeting the intent of
13 our own internal program.

14 Q While you were involved in the training program,
15 were you aware of any instances of what I might term paper
16 attendance at training, where the person is listed as
17 attending but actually did not?

18 A No.

19 Q No falsification of records or attendance or --

20 A No.

21 Q Is there anything you'd like to add regarding this
22 memorandum?

23 A Not really.

24 Q Let's go back to the report, then. We had just
25 finished talking about the subsection B-3, the change which

SWORN TESTIMONY OF ALEXIS TSAGGARIS/DATED MARCH 5, 1984

Exhibit (5)

1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION
3

4 -----X
5 In the matter of: :
6 :
7 Investigative Interview of :
8 ALEXIS TSAGGARIS :
9 -----X

8 Schneider Consulting Engineers
9 98 Vanadian Road
10 Bridgeville, Pennsylvania

11 Monday, March 5, 1984

12 The above-entitled interview commenced
13 at 11:20 a.m., pursuant to notice.

14 BEFORE:

15 KEITH CHRISTOPHER, Investigator
16 LEO NORTON, Investigator
17 U. S. Nuclear Regulatory Commission
18 Region 1
19 631 Park Avenue
20 King of Prussia, Pennsylvania 19406
21
22
23
24
25

P R O C E E D I N G S

1
2 MR. CHRISTOPHER: Today is March 5, 1984. We are
3 in the offices of Schneider Consultants ---

4 MR. TSAGGARIS: Consulting Engineers.

5 MR. CHRISTOPHER: --- (continuing) --- consulting
6 engineers in ---

7 MR. TSAGGARIS: Bridgeville.

8 MR. CHRISTOPHER: --- (continuing) --- Bridgeville,
9 Pennsylvania. We are here for the purpose of interviewing
10 Mr. Alexis Tsaggaris, concerning matters related to the TMI 1
11 Restart proceedings.

12 My name is Keith Christopher. I am Director of
13 the Office of Investigations, with the Nuclear Regulatory
14 Commission's Region 1 Office. And present, also, in the room,
15 is Mr. Leo Norton, an Investigator from that Office.

16 Mr. Tsaggaris, would you please state your full
17 name, your business address and current position?

18 MR. TSAGGARIS: My name is Alexis Tsaggaris. I
19 am the Vice-President and General Manager of Schneider
20 Consulting Engineers, located at 98 Vanadian Road, Bridgeville
21 Pennsylvania.

22 MR. CHRISTOPHER: And your current position title
23 with Schneider?

24 MR. TSAGGARIS: The Vice-President and General
25 Manager.

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MR. CHRISTOPHER: Okay. Thank you.

Mr. Tsaggaris, prior to asking these questions (indicating), it will be necessary for me to place you under oath. So, if you will stand, I will do that right now. Raise your right hand.

(Witness Sworn).

Whereupon,

ALEXIS TSAGGARIS

was called for examination and, having been first duly sworn, was examined and testified as follows:

E X A M I N A T I O N

BY MR. CHRISTOPHER:

Q Mr. Tsaggaris, the questions today are combinations to a certain degree, a redirect of some of the questions that Mr. Norton asked you, in the previous investigative interview and an expounding of that, into a portion of the Keaten Investigation, a specific area, as you will recall.

Could you tell us, for the record, exactly, to the best of your recollection, when you were employed with General Public Utilities Nuclear and in what capacity?

A I was employed with the Metropolitan Edison Company --- I'm not sure when I became a GPU Nuclear employee or even if I did. I --- I don't remember the exact dates when that Corporation was formed. But I joined Metropolitan Edison Company, in January of 1976 and I left, in January of 1980.

1 Q What positions did you hold with Met Ed, at that
2 time?

3 A I was initially hired as a Supervisor of Training,
4 at the Three Mile Island Nuclear Station. Subsequent to that,
5 I was transferred to the home Office in Reading, as Assistant
6 Director of Training, for Metropolitan Edison Company. I then
7 became Director of Training. Following that, I became Maintenance
8 Supervisor, at the Titus, that's T-I-T-U-S Station, which is
9 a 3-unit, coal fired Station, in Reading, Pennsylvania and was
10 recalled to the Three Mile Island site, after the accident,
11 to aid in emergency response and was then appointed, in charge
12 of emergency planning and was involved in reformulating the
13 utility's plans.

14 Q Okay. Can you recall, generally --- I know that
15 that's a long time ago, from now --- when you actually left the
16 site, to transfer into Reading?

17 A I left the site, I would say, in the spring of
18 1977.

19 Q During the time that you were on site, can you
20 recall who you directly reported to, as a supervisor?

21 A Yes. I reported to --- it changed once, I believe.
22 At one point, I was reporting directly to Jack Herbein and then
23 I was reporting to both Joe Colitz and Gary Miller. And at that
24 time, they were the Superintendents of the respective Units.

25 Q And could you just generally describe what your

1 responsibilities were, for the Training Department, on site?

2 A The responsibilities were to --- you were in charge
3 of all of the training programs required for the nuclear site.
4 That included operator and nonoperator training, to make sure
5 that the Requirements of the various Regulations were met.

6 Q Can you recall who you took that position over from?

7 A Jim Seelinger.

8 Q Jim Seelinger?

9 A Yes.

10 Q And he became the Station Superintendent, in some
11 fashion, something --- Unit 1 Superintendent, I believe?

12 A No, I don't think that's correct. I think he became
13 the Superintendent of Technical Support, for one of the Units.
14 He was not the Unit Superintendent.

15 Q There were several different changes, over that
16 period of time?

17 A Yes.

18 Q During --- when you took over this position, as
19 Supervisor of Training, did you perform, in taking over, your
20 own type of, I'll call it an audit --- I don't know if that's
21 the right word --- to determine, just what the status of
22 licensed operator training was, what types of things you needed
23 to do, to maintain the Program, improve it?

24 A I don't know if I conducted a formal audit, but I
25 certainly made myself familiar with the various requirements,

1 Regulations, Requal Program and the status of the training,
2 at that time. So, if you want to call it an audit, I guess that
3 that would probably be a good way to phrase it.

4 Q Okay. And I know that you have seen this memorandum
5 (indicating) before. But for the record, it is an April 27,
6 1976 memorandum, signed by yourself, to Mr. Herbein, Mr. Colitz
7 and Mr. Miller. The subject is the Requalification Program. Let
8 me give it to you, to refer to.

9 (Document handed to the witness).

10 - - -
11 BY MR. CHRISTOPHER:

12 Q I understand that you have seen that (indicating)
13 once before.

14 - - -
15 (Witness examines document).

16 BY MR. CHRISTOPHER:

17 Q And you can just keep that (indicating), for
18 reference, if you need it, as you go.

19 A Okay.

20 Q Can you recall what --- by what means you identi-
21 fied these various weaknesses, that you noted, in this particula
22 memorandum (indicating)? How did you go about identifying those
23 weaknesses?

24 A I'm going to try and answer. Obviously, 5 years or
25 really, 8 years, is ---

Q Quite a long time ago.

A But I think what I had done, was established, as

1 I mentioned here (indicating), an audit system, a quarterly
2 audit system, which looked at things like number of hours in
3 the control rooms, standing a watch for nonshift personnel. That
4 was obviously not a problem for operators, but for people who
5 had no license, in supervisory positions and were not on shift.
6 I had developed a system, to monitor, on a quarterly basis,
7 to my recollection, whether they were logging the number of hours
8 in the control room. We could obviously look at the lesson
9 attendance and see who was attending and who was just doing
10 the lessons, via the makeup package route, which was an accept-
11 able way to do it. So, I would have to say, you know, from the
12 --- from the audit system and looking at the lesson attendance,
13 schedules, that I was able to identify this.

14 Q Okay. When you refer to off or nonshift licensed
15 personnel, who are you referring to?

16 A Okay. I would be referring there, to anyone holding
17 a license, that is not a member of an operating shift. And an
18 operating shift, would be the Shift Supervisor, the Shift
19 Foreman and the Control Room Operators. So, if there was a
20 Supervisor of Operations or a Unit Superintendent or, let's say,
21 an Engineer, in the Operations Group, who had licenses, they
22 are not part of the normal operating crew. Those would be the
23 "nonshift personnel," that we would be looking at.

24 Q Can you recall --- again, realizing the length of
25 time that this has evolved over --- but can you recall

1 specifically, by name, any of the particular individuals that we
2 are talking about, in this category?

3 A Gary Miller, Joe Colitz, Jim Seelinger, Jim Floyd.

4 Q Would George Kunder be ---

5 A Yes, George Kunder. Those are some who come to mind.

6 Q Okay. And when we refer to the comments in your
7 memorandum, that category, not necessarily including all of those
8 individuals, is it within that category of individuals, that we
9 are talking, when we refer to the "nonshift personnel" meeting
10 Federal Requirements?

11 A Yes. It --- if your question is again, the people
12 who do not --- who are not part of the operating crews, that
13 hold a license, the answer to that is yes.

14 Q Okay. I realize that that does not mean all of
15 those individuals were not meeting their license, but within
16 that category, there were possibly some who were.

17 A That is correct.

18 Q Okay. Fine.

19 Again, your statements here, is that "We are required
20 by Federal law, to meet certain Requirements for licensed
21 individuals and in several cases, we do not meet them."

22 A Yes.

23 Q Can you, at this point, recall which particular
24 Requirements for the nonshift licensed personnel, that you
25 referred to? And to assist you, I brought a copy of the

1 10 C.F.R. And I opened it up to 55 --- part 55, Appendix A.
2 From reading your memorandum, I thought that maybe that (indica-
3 ting) is the part that you were talking about.

4 A What year is this (indicating)?

5 Q Okay. This (indicating) happens to be today's.
6 And what I am not so concerned about, is the specific data in
7 the Requal. The Requal Program, in terms of the 2-year criteria
8 have not changed that significantly. But generally, the Program
9 is proper.

10 A I would rather answer the question from my recollec-
11 tion, rather than looking at a document, which is not ---
12 doesn't reflect what perhaps was in the Requirement, at that
13 time.

14 Q Okay.

15 A I am pretty sure that I remember what --- why I
16 ---

17 Q Well, that (indicating) was just a means, to help
18 you out.

19 A Yes. Okay. Well, there are 2 things that have
20 to be clarified: one is the Federal Requirement 10 C.F.R.55
21 document and the other would be the internal Program Requirement
22 that we would have in place, to meet the overall Regulation.
23 What I believe I was referring to, in this particular memo
24 (indicating), was --- was the Requirement to log in so many
25 hours of control room time. I don't recall what that number

1 of hours was, in the Regulation. The Regulation, if I recall,
2 said that over a 2-year period, you had to have X number of
3 hours in the control room. That might have been 48. For the
4 purposes of this discussion, let's just say that it was 48.
5 What we would then do, is take that 48 and break it down into
6 an internal program and say 4 per month or 6 per month, so that
7 we did not get into the situation, where a year had elapsed and
8 an individual did not have any hours in the control room and
9 was, in my opinion, behind.

10 Q They would not, in effect, have to get them all at
11 once then?

12 A That is correct.

13 Q In order to maintain his license.

14 A Right. And what I believe that I was addressing
15 in this memorandum (indicating), is the fact that several people
16 were doing just that. They were not logging in, based upon our
17 internal Program, the number of hours required, on a monthly
18 basis. And that is what I believe that I am referring to,
19 when I say "We are required by Federal law, to meet certain
20 Requirements for licensed individuals and in several cases, we
21 do not meet them." I do not believe that we were ever in
22 violation of the 10 C.F.R.55 Requirement, to have so many hours,
23 in a 2-year period. What I believe that I am referring to there
24 is that we were not meeting our own internal Program Requirement
25

Q Okay. So then, you would say that you are not aware

1 --- that this memorandum (indicating), was not based on any
2 actual rule, instances where you were not --- well, not you but
3 the Company was in noncompliance?

4 A I honestly --- I don't --- I don't believe so, no.

5 Q Do you recall, during that period, in relation to
6 time, whether or not any of the NRC inspections, at that time,
7 resulted in citations of noncompliance, for that particular
8 topic and item, at that time?

9 A I believe, as I testified previously, the last time,
10 when Mr. Norton was here, that I don't believe that we were ever
11 cited for anything like that, no.

12 Q Okay. Can you recall any of the particular
13 individuals that fell into this category, of not meeting their
14 operator time, control room time, such as Mr. Floyd, Mr. Colitz,
15 any of the individuals who were involved in the Program?

16 A As far as this particular Requirement, it could have
17 been any or all of them. You know, I would have to go back and
18 look at the actual --- I am sure that the documents are there.
19 You know, I just don't recall.

20 Q Okay. There was no particular --- in other words,
21 it was not based specifically upon, let's say, let's take the
22 Jim Floyd attendance records, attendance to and presence in the
23 control room, but it was just a general, overall problem, within
24 your organization?

25 A I would say that there was a problem in the

1 organization and you would have to go back and look at it. We
2 did have a particular problem with Jim Floyd, in attendance.
3 I do remember that. But I am sure that there were other indi-
4 viduals, also. You know, to --- to single him out ---

5 Q Would Mr. Floyd be, more or less, a key individual,
6 in Unit 2, at that time? Could he have been somewhat the key
7 focus behind the purpose of this memorandum (indicating)? I
8 don't know if you can remember that far back specifically or not

9 A I can't remember that, for this particular memorandum
10 (indicating), no.

11 Q Except to recall that he was one of those that you
12 were having problems with, in getting this control room time
13 logged?

14 A That is correct.

15 Q Now, that --- this Program, that included both
16 Units, in training?

17 A Well, the Requalification Program would not have
18 been in effect, in 1976, for Unit 2. So, I can only assume,
19 from my recollection, at the time, that this (indicating), was
20 in reference to Unit 1.

21 Q Okay. Can you recall what was the --- what actually
22 generated this particular problem, why the individuals were
23 unable to meet their internal commitments?

24 A I can't speak for the individuals. The only thing
25 that I can say, is that they were not showing up for the lecture

1 and had to do their work on makeup. The only thing that I can
2 assume it is, is that their normal, day-to-day duties were such,
3 that they could not free themselves to get there.

4 Q Were you aware of any particular management policy
5 at that time, that, if it was not directly related to the opera-
6 tion of the Station, that the individuals were not encouraged to
7 comply with the Requirements, even though they were internal,
8 Company Requirements for actual licensed Requirements?

9 A Absolutely not.

10 Q Do you recall discussing this particular memo
11 (indicating) --- I understand that it is written to these 3
12 individuals (indicating), Herbein, Colitz and Miller --- do you
13 recall discussing this particular issue (indicating), with them,
14 either prior to the formulation of the memo or just after the
15 memo was sent to them?

16 A I'm sure that I discussed it with them. Whether it
17 was before or after the memo, that, I don't recall.

18 Q Are you in a position to recall what type of response
19 for corrective actions were set forth, as a result of your
20 bringing the problem to light?

21 A I don't remember. The only thing that I --- that
22 I do remember and I believe that I testified to that previously,
23 was that in --- in one or more cases, we made the decision to
24 let the licenses of certain people expire or lapse, because
25 they did not feel that they could maintain the Requirements of

1 the new Requalification Program.

2 Q And would you today, be able to recall who any of
3 those individuals were, who actually had their licenses lapsed?

4 A You would have to go back and check with the records,
5 but I believe that in Joe Colitz's case, we made a conscious
6 decision, to do that.

7 Q Okay. And to reiterate, so that I understand, this
8 was primarily based upon their inability to obtain all of their
9 hours required for control room --- for actually being in the
10 control room?

11 A Well, I think that the decision was a decision that
12 --- and again, I'm going to give --- I'm going to give you what
13 I think, is that number 1, there was no Requirement for them
14 to hold the license, at that time and that the press of their
15 other managerial duties, it was decided that they would let
16 that particular license lapse.

17 Q Okay. And again, to the best of your recollection,
18 you were concerned, in the case of these individuals, with
19 meeting the internal Program Requirements, to maintain your
20 --- to maintain the license goal, the training Requirements,
21 and not actual cases, where individuals were --- as a result
22 of their not being able to meet the commitments, actually
23 placing the Company in noncompliance?

24 A I believe so and I think that if you go back and
25 look at the various audits that we had, on a yearly basis,

1 that that will bear that out.

2 Q Okay. So, a somewhat redundant question of that,
3 which I will restate again, did anyone ever apprise you or
4 consider the reportability of any violations to the NRC, regarding
5 this particular area?

6 A I don't believe so, no.

7 Q I think, at this time, there were 2 other memorandums
8 and issues, that I wanted Mr. Norton to ask you about. That
9 would be the Noll, N-O-L-L and the Book Memorandums.

10 A Yes.

11 - - -

12 BY MR. NORTON:

13 Q Mr. Tsaggaris, I would like to show you a memo,
14 written by a Mr. Noll, in July of '77 and ask that you read
15 through it and see if this (indicating), is, at all familiar
16 to you?

17 (Witness examines document, handed
18 to him by Mr. Norton).

19 MR. NORTON: You may look through the cover
20 correspondence of that (indicating), as well, of the Complaint,
21 let's call it, by Mr. Noll.

22 THE WITNESS: This particular Complaint (indicating),
23 no. I am not copied on the correspondence and --- well, you
24 know, I don't recall seeing a copy of Mr. Noll's memo.

25

BY MR. NORTON:

1 Q Why did you ask me "this particular Complaint?"
2 Were there other Complaints, by Mr. Noll, that you are familiar
3 with?

4 A None of the Complaints by Mr. Noll, but, you know,
5 the concept of having onshift supervisors conduct some of the
6 training classes, was --- was a controversial issue, from the
7 standpoint of what should the Training Department do and what
8 should the Training Department not do.

9 Q Were problems of this nature of Complaints of this
10 nature, ever resolved?

11 A I'm not sure what you mean by "resolved."

12 Q Well, were there problems, as far as you saw them,
13 when you were in charge of training, at the Island?

14 A Certainly, those were problems. You have certain
15 Requirements that have to be met. And the Training Manager
16 and the Station Management has to make the determination on
17 who is best qualified and what is the best environment to conduct
18 those training Requirements.

19 Q Okay.

20 A And I --- it is certainly realistic to expect that
21 individuals who now have additional jobs to do, such as
22 Shift Supervisors or Shift Foremen, that are now required to
23 conduct training classes, along with their other duties, may
24 have a difference of opinion, you know, as to whether it should
25 be them or whether the Training Department should do that.

1 Q Is this related to your earlier memorandum of 1976?
2 Is this the same type of problem?

3 A I don't believe it is.

4 Q Okay. This is not symptomatic of why attendance
5 training was poor or anything of that nature?

6 A No, I don't believe it is. I don't believe the
7 2 are related.

8 Q Okay.

9 A One is addressing a totally different --- a totally
10 different area.

11 Q Okay. I did see in some earlier correspondence of
12 yours or some correspondence, generated by you, in 1977, regardi
13 filling a vacant nuclear training position, that you evidently
14 had some concerns about getting full-time people for training.
15 Is that correct?

16 (Witness reads document).

17 BY MR. NORTON:

18 Q It appears, from reading the memo, written by you,
19 in July of '77, that there was some problem with receiving ---
20 with getting full-time training professionals in the Department

21 A I don't know if you can draw that conclusion. I
22 think the conclusion that you can draw was that we needed one
23 individual immediately, to my recollection, to fill a slot that
24 was vacated by an individual named Derks, who had left the
25 Company. And I also make the recommendation, that we rotate

1 Shift Supervisors and Shift Foremen into training, on some sort
2 of a rotating basis.

3 Q But you were not in favor of that, as a resolution
4 to the vacant position?

5 A No. I felt that we needed --- from my memo, that
6 we needed one full-time individual, as a minimum and that we
7 needed --- and that we should look at rotating operations
8 people, in training.

9 Q Okay.

10 A One of the things that I don't have, are the 2
11 memos, that are referred to here (indicating), as attached. And
12 so, I don't --- I really don't know what was in those. I don't
13 recall. Do you have those with you?

14 Q No, I do not. No, I do not.

15 Was part of the problem, with the Requalification
16 Program or with other parts of the Training Program, having
17 insufficient resources in the Training Department?

18 A You are going to have to define for me what the
19 problem was in the Requalification.

20 Q The problem that you, yourself identified, in
21 the 1976 memorandum, the problem identified by Mr. Noll or at
22 least claimed by Mr. Noll, in his memorandum and the problem
23 which I will be showing you in a few minutes, that Mr. Book
24 raises, in his memorandum, appears, to an outsider again, that
25 it might possibly be related to a lack of resources.

1 A Well, let's address them, one at a time.

2 Q Yes.

3 A Let's first address the memo, which I wrote on the
4 Requalification Program, dated April 27, 1976.

5 Q Okay.

6 A I do not believe that any problems associated with
7 the Requalification Program here, were due to a lack of staff
8 in the Training Department.

9 Q Okay.

10 A Okay. Because I don't think that that was an issue
11 in this memo (indicating), at all. Whether we had 5 or 10 or
12 15 instructors, would not have been the solution to this particular
13 problem.

14 Q Okay.

15 A With respect to Mr. Noll's memo, all I can say is
16 based upon the constraints that I had and the instructors that
17 I had to work with --- and I'm going back to look, going back
18 in my mind --- that we perhaps could have done that, you know,
19 in the Training Department, in the classroom session, but I
20 think, based upon the number of instructors that we had and what
21 we wanted to accomplish with the Shift Supervisors and the Shift
22 Foremen, that we felt that the review of procedures, if done
23 on shift, with the crew in its entirety, with the lesson run
24 and given by a Supervisor of that shift, it would be more
25 beneficial. And I believe that the reason that we felt that it

1 would be more beneficial, is that that Supervisor coordinates
2 the actions of that operating crew, on a day-to-day basis and
3 the implementation of those procedures, is done by that Operatin
4 Supervisor. And so, I thought that it would be more beneficial,
5 to have that Supervisor review the procedures, with his people,
6 rather than have a training instructor do it, in a classroom
7 environment. We felt doing it on shift and responding to the
8 individual who would actually be giving the directives, during
9 the actual implementation of the procedure, was the better thing
10 to do.

11 Q Were these training sessions, again, your use of
12 the word, "audited," by the --- by anybody from the Training
13 Department, to make sure that they took place or were carried
14 out in a proper manner?

15 A I honestly --- I don't remember that. But it would
16 seem to me, that if we had a system set up to review certain
17 procedures, on a shift basis, remembering the way I ran things,
18 that I would have had something in place, that I would have
19 been able to check, that that actually, in fact, had been done.

20 Q Okay. Okay. That somebody would attend the
21 training or was it just kind of a sign-in sheet?

22 A No. I --- I believe that since much of this
23 training was done on the back shift, it was the responsibility
24 of the Shift Supervisor or the Shift Foreman, to make sure that
25 the training was done and documented.

1 Q I'd like to show you one other memorandum. This
2 one (indicating) is written by Mr. Theodore Book, in June of
3 '77. This, I guess, is just shortly after you left the Island?

4 A That's probably true.

5 Q Okay.

6 MR. CHRISTOPHER: I believe that this (indicating)
7 is addressed to Mr. Jim O'Hanlon, who was a Unit 1 Superintendent

8 BY MR. NORTON:

9 Q You will notice, at the bottom, you did receive a
10 courtesy copy of this memo (indicating).

11 A Yes.

12 (Witness examines the document).

13 BY MR. NORTON:

14 Q Do you recall if any action was taken, as a result
15 of Mr. Book's memorandum?

16 A No. No, I don't recall. I do not recall, no.

17 Q Were Complaints of this nature (indicating) frequent

18 A Well, you have shown me 2.

19 Q Yes. Well, I was wondering if there were any more,
20 that I have not seen?

21 A Well, you know, I don't know if you could characteri:
22 them as "frequent," but I would say that it would be correct
23 to say that the Operations people certainly did have a lot of
24 things to do and the fact that they were being asked to conduct
25 some training on the back shift, perhaps was not something

1 that they felt was their responsibility. I think that that
2 would be correct.

3 Q Was it ever changed, having them conduct the
4 training on the back shift?

5 A I don't know if it was ever changed. I know that
6 the size of the training staff was increased, but whether that
7 Requirement was taken from --- from onshift, into the Training
8 Department, I don't recall.

9 Q When was it increased, the size?

10 A Well, it was continually being increased. And
11 when I got there, it was like 3 or 4 people. You know, there
12 were continually people being added. The Training Department
13 size continually increased.

14 I find it interesting, that Mr. Book took the
15 exam in February and it is now June and he had not attended
16 a training lecture.

17 Q Yes. Whose responsibility is that?

18 A That is Mr. Book's responsibility, to go to the
19 training lectures, when they are scheduled.

20 - - -

21 BY MR. CHRISTOPHER:

22 Q Was that not somewhat indicative of the entire
23 problem, as you have set forth in your memorandum, the lack of
24 attendance, not that they are directly connected, in that
25 one resulted in the other, but that --- I --- I guess ---

1 well, I guess I'll ask it another way.

2 A Yes.

3 Q We reference Mr. Book's memorandum, which, in a
4 nutshell, addresses not meeting Requirements for training
5 lectures. We've got Mr. Noll's memorandum, who began, in a
6 nutshell, addressing actually not performing plant evolutions,
7 neither actual nor simulated and then, we have your memorandum,
8 which deals with a general lack of attendance and attendance
9 to the internal Program Training Requirements. A pattern had
10 started to emerge, to that time. And the bottom line is, should
11 we be looking at --- well, number 1, did you, personally feel,
12 putting yourself in that period of time then, that the Training
13 Program for Operations personnel, licensed personnel was and
14 I'll quote myself here "in trouble?"

15 A No, I would not draw that conclusion. I would draw
16 some specific conclusions, that I think that --- well, you know,
17 I think that you tied together some conclusions, that may or
18 may not be related. However, I will say that there was a
19 problem getting nonshift people, who held licenses, to training
20 courses and to make --- and to meet their internal Requirements.
21 That, I will say. And my memo backs that up. Whether or not
22 the attendance of shift people in the training classes, was
23 a problem or not, I don't honestly recall. I would have to
24 look at the training lessons. I mean, we have one, isolated
25 incident here (indicating), where Mr. Noll or excuse me, where

1 Mr. Book indicates that he had not been to a training lecture,
2 for a period of 5 or 6 months. Whether you can extrapolate
3 that to the rest of the operators, I just don't honestly
4 remember. And whether you want to draw the conclusion, based
5 upon 2 shift people, who are giving their opinion, that they
6 don't feel that it is the responsibility of the Shift Supervisor
7 and Shift Foremen to conduct a certain portion of the training,
8 which is procedure reviews, I'm not sure you can characterize
9 that as a problem. It is a difference in opinion. I would say
10 that.

11 Q Okay. You said you really don't recall what kind of
12 responses you got from Mr. Herbein, Mr. Miller and Mr. Colitz,
13 in reference to your specific memorandum. Do you recall if
14 there was written, follow-up documentation or correspondence,
15 to your memorandum of concern or whether there was a verbal-type
16 action? Do you have any recollection? In other words, if I
17 wanted to go to the site and follow up on any response to your
18 memorandum, would I be able to do that?

19 A If there was a response, it would be in the file.

20 Q Okay.

21 A That is all that I can say. I don't remember a
22 written response to that memo. That's a long time ago.

23 Q Okay. Okay.

24 - - -

25 BY MR. NORTON:

1 Q Were the problems that you address in your memo
2 here (indicating) satisfactorily resolved?

3 A The fact that I don't believe that we ever violated
4 the 10 C.F.R. 55 Requirement, to my recollection, indicates to
5 me that we got it more under control. Whether it was the
6 perfect way that we would want to run an internal Program, I
7 --- you know, I can't say. I'd have to go back and look at it.
8 I think it's reasonable to assume, that you are always going to
9 have people that fall behind and have to catch up, in any
10 program that you have. That's why you have a quarterly audit
11 system, to be able to catch up with those things and get them
12 back on track. I did testify, that, in one or more cases,
13 we made the decision, to let that license expire. And I think
14 that that is an indication that we were serious enough about
15 it and that we wanted to take some action. And that is the
16 action that we did take.

17 - - -

18 BY MR. CHRISTOPHER:

19 Q Okay. After you prepared your memorandum and at
20 any subsequent times after that, did Mr. Herbain or Mr. Miller
21 or Mr. Seelinger, people in a more senior Management position,
22 at any time, were you approached, in some fashion, where it
23 was suggested, that you --- to you, that you do not publicly
24 or formally identify problems within your area of expertise,
25 in this case, training? Was it ever suggested to you, that you

1 not bring to light, particular problems?

2 A No.

3 Q Okay. Did you feel that you had an open license,
4 so to speak, to identify and set forth any problems that you had
5 without any fears of being --- a recrimination coming back to
6 you from senior Management?

7 A Yes.

8 Q Can you recall --- can you recall being aware of
9 any specific licensed operator Requirements, that were not
10 being met, and if so, can you recall ever an attempt being
11 made, by licensing Management, to cover up that fact and not
12 report it to the NRC?

13 A No.

14 Q I want to go into a slightly different area, in
15 relation to the Keaten Investigation, the GPU Task Force
16 Investigation. This will take only a short period of time.

17 A All right.

18 Q Can you redefine for me, just a short version,
19 what exactly your responsibilities were, within the Keaten
20 Task Force?

21 A My responsibilities on the Keaten Task Force, were
22 as the primary contributor, in the area of emergency planning,
23 to emergency planning.

24 Q Okay. Now, did you --- and there is some confusion
25 apparently, on our part.

1 what I do recall was --- I have a recollection that I was not
2 involved in the training area, because I had a previous involve-
3 ment with training and they felt that because of that, I may
4 not be able to provide the most objective critique of that area.
5 And so, I have to be honest with you, when I tell you that this
6 (indicating) does surprise me. I don't recall doing this
7 (indicating).

8 Q Okay. Do you have any recollection, as to who had
9 the primary responsibility, in the area of training? And Mr.
10 Norton may be able to give you some names, who were involved
11 in the Keaten Investigation.

12 A The name that comes to mind is Bob Long. Bob Long was
13 involved in the training area. But --- but again, I honestly
14 don't remember, you know. Let me ask you, did you have a docu-
15 ment, that I had prepared, that indicates this, because I
16 honestly don't remember it?

17 Q No. As I say, we are unclear, on our own part,
18 as to what the involvement was, in light of your earlier testi-
19 mony and this memorandum (indicating) and the interpretations
20 taken by some of our staff members at headquarters, as a result
21 of the review of documents and the GPU and BW trial. And so,
22 you know, we are merely trying to clarify whose role it was.

23 A This (indicating) may have been an early memo,
24 when this thing was just getting kicked off. And, you know,
25 what may have occurred later, was that we had a discussion and

1 that is when it was decided that we probably --- that I
2 probably should not be involved in the training area, because
3 that was my own area of management, in the past.

4 Q Okay. Now, you have testified that you were not
5 involved in the Training Program. However, from you being
6 involved in the Keaten Investigation, can you recall if, at
7 any time, your particular memorandum, addressing training
8 problems, was ever addressed, as part of the Keaten Investiga-
9 tion and its findings?

10 A I don't think it was. I don't remember that.

11 Q Okay. Would you have any --- well, again, I'm
12 asking for somewhat of a qualified opinion here. But would
13 you have any reason to believe, that the contents of this
14 memorandum (indicating), would have been an appropriate document
15 for consideration, during that investigation?

16 A I don't know that I can comment on that. And I
17 wrote a lot of letters, when I was the Training Supervisor.
18 You know, that is one particular memo.

19 Q Okay. So, you are not in a position to state one
20 way or the other, whether or not this document (indicating)
21 was considered, during the course of the Keaten Investigation
22 or whether it had any impact on the written findings of the
23 Task Force?

24 A I do not remember.

25 Q Okay. That may be a question more appropriately

1 addressed to some other members.

2 - - -

3 BY MR. NORTON:

4 Q I would like to show you a copy of some handwritten
5 notes, which are very, very difficult to read. The first
6 question that I would like to ask you, Mr. Tsaggaris, is, do
7 you know whose handwriting that that would be (indicating)?

8 (Witness examines document).

9 THE WITNESS: I ---

10 MR. CHRISTOPHER: We were hoping that it would be
11 yours.

12 THE WITNESS: No, it is not mine.

13 BY MR. NORTON:

14 Q Are you familiar, at all, with Mr. Keaten's hand-
15 writing?

16 A No.

17 MR. CHRISTOPHER: We thought that it may have been
18 his.

19 THE WITNESS: No, I am not familiar enough with his,
20 to be able to recognize it. And certainly, it (indicating)
21 is not familiar enough, to be able to recognize this (indicating)

22 BY MR. NORTON:

23 Q Okay. I guess what we would like to do, is to go
24 through some of the material mentioned in here (indicating) and
25 maybe we can give you a hand with reading it and ask if these

1 (indicating) were problems that you faced, when you were in
2 charge of training at the Island.

3 MR. CHRISTOPHER: We spent some time deciphering
4 the memorandum. And so, I think that we can read certain of
5 the major portions to it.

6 - - -

7 BY MR. CHRISTOPHER:

8 Q One of the first questions that we would ask is,
9 given your experience with the Keaten Task Force, you noticed
10 that there are 4 names listed to the right and 3 names listed
11 to the left, at the head of the memo. Would that indicate to
12 you, that those were the individuals that were all present:
13 one group being the interview group and one group being the
14 interviewee group?

15 A I don't know.

16 Q You don't know?

17 A No.

18 Q Okay. Would there be any --- based upon looking
19 at the memo, itself, would there be any way of determining
20 whether or not you would have been present, at a meeting of
21 this nature (indicating)?

22 Q What is the heading?

23 MR. NORTON: October 18th of '79, I believe.

24 THE WITNESS: And what is the --- it says "Investi-
25 gation Task --"

1 MR. NORTON: "Task Force Interview."

2 THE WITNESS: I guess you could conclude from that
3 (indicating), that those --- that the people on the right,
4 since they are all members of the Task Force and the people
5 on the left are members of the Training Department. And that
6 is basically what occurred.

7 BY MR. CHRISTOPHER:

8 Q The absence of your name, though, would indicate
9 that you probably were not in attendance?

10 A That is correct.

11 MR. CHRISTOPHER: You may want to go through a
12 couple of the points of the memo, to ask questions.

13 MR. NORTON: Yes.

14 BY MR. NORTON:

15 Q For example, Tsaggaris, the first --- the first
16 statement borders on what we were discussing before. "Greatest
17 burden seen by the Training Department ---" I don't know what
18 that word is. It's either "Organization" or ---

19 A "Managers."

20 Q --- (continuing) --- "managers has been the limit
21 on the size of the Training Department staff."

22 A Yes.

23 Q Does that (indicating) relate to anything that
24 you encountered, when you were in charge of training?

25 A I'll bet that you if you go back and examine some

1 of my memos, I was constantly asking for people. You know, I
2 am sure that that would be consistent with my own, personal
3 feeling, when I was there.

4 Q Yet, it does or it does not relate to the problems
5 that we discussed earlier this morning?

6 A Well, I think that I answered that.

7 Q Yes.

8 A And you can go back to the record and see how I
9 answered that.

10 Q Okay.

11 A You asked me that specific question.

12 Q Okay. Yes.

13 A Yes.

14 Q Okay. Continuing, it says "While the size of
15 the overall staff is going up, the number of instructors
16 available, has been limited. There are currently only 5."

17 A Yes.

18 Q Who was your successor, as far as training goes?

19 A I believe that it was Dick Zechman.

20 Q Okay. And he is one of the interviewees here
21 (indicating)?

22 A Yes.

23 Q "The extended staff is larger, therefore, handling
24 the paper burden, which has become very high and this is good.
25 Attendance at training sessions has been very poor and

1 declining."

2 A Yes.

3 Q Again, was this one of your experiences, when you
4 were in charge of training? Was attendance constantly on the
5 decline?

6 A I don't recall that. What time frame is this
7 statement (indicating) being made?

8 Q Well, the interview is October of '79.

9 MR. CHRISTOPHER: Pre-accident.

10 MR. NORTON: Pre-accident, yes. Clearly, yes.

11 THE WITNESS: It says, for example, "In 1978, the
12 attendance record was above --- " I can't tell if that
13 (indicating) is a "30" or a ---

14 MR. NORTON: It is "30" or "36%."

15 THE WITNESS: Yes. And I would have to go back
16 and see, in 1976 and 1977, when I was involved with the
17 training, what the attendance record shows.

18 BY MR. CHRISTOPHER:

19 Q I guess generally, what we are interested in,
20 in this memorandum (indicating), Mr. Tsaggaris, is the text
21 of the memorandum, if you were able to sit down for an hour
22 or 2 and struggle through, trying to decipher it, it essentially
23 reiterates and it expounds upon the problem that you
24 identified in your memorandum and to varying degrees, identifies
25 related portions to the other memorandums that we have

1 shown you, in regard to Mr. Noll and Mr. Book. It seems to be,
2 basically, a very accurate reflection of what your recollection
3 and other recollections were, of problems and deficiencies with
4 the Training Department.

5 Now, the specific question with this (indicating)
6 is, and again, for the record, do you have any knowledge or
7 awareness, as to whether or not this particular finding
8 (indicating), was addressed in the Keaten Investigation Report,
9 itself?

10 A I don't recall. We can certainly look at the
11 Report and see if it was.

12 - - -

13 BY MR. NORTON:

14 Q I have got the relevant pages of the final version
15 of the Keaten Report, which would be 12-15-80. And of course,
16 as always, you are free to read the whole thing. But the last
17 2 paragraphs, I think, do discuss some of the problems encoun-
18 tered.

19 (Witness examines document).

20 BY MR. NORTON:

21 Q The problems described in the last paragraph, were
22 they (indicating) symptomatic of the Program, when you were in
23 charge of it?

24 A Well, with respect to the statement that the
25 Training Department had shrunk ---

1 Q Yes.

2 A --- (continuing) --- I think that from the time
3 that I was the Training Supervisor, until the time that I left,
4 the size of the Training Program had, in fact, increased. You
5 have to go back and look at that.

6 The second statement, which indicates that atten-
7 dance had dropped below 50%, I cannot recall what the attendance
8 percentage was, when I was in charge of that. You have to go
9 back and look at that and, you know, I just don't recall what
10 that specific percentage was.

11 When it discusses Training Department preparing a
12 large number of makeup lesson packages, yes, in fact, that was
13 occurring, when I was the Supervisor of Training. And evidently,
14 it continued.

15 The statement regarding the progressive formal
16 certification of auxillary operators, had been dropped. I
17 started that Program. And to my knowledge, when I left ---
18 when I left, it was still in place. And so, with respect to
19 that particular issue, that must have occurred, after I had
20 left the training area.

21 And then, there are some general statements,
22 discussing further investigations needed.

23 Q Right.

24 A So, does that address your questions?

25 Q Yes. Yes, it does.

1 Q Now, let me ask you, why did the Department shrink,
2 after you left the Island?

3 A I don't recall.

4 Q Because I guess that you were still in charge of
5 overall training, for Met Ed?

6 A Right. Right. You would have to look and see, you
7 know, when the numbers did shrink. Was it while I was in
8 Reading or --- well, you know, I do not remember. I don't recall
9 that.

10 Q Okay. To press the point again and maybe you
11 don't remember, but were there budgetary considerations, at
12 all?

13 A I don't recall that. You know, I do recall that,
14 you know, to get additional people authorized, you had to go
15 through a process of authorizing a slot and having it approved
16 by Operations Analysis, in Reading. And I --- I don't remember
17 if that was a constraint, in that case or not.

18 - - -
19 BY MR. CHRISTOPHER:

20 Q Let me just summarize, Mr. Tsaggaris, recap, so
21 that we make sure that we come up with the proper understanding
22 here.

23 A Yes.

24 Q With respect to your particular memo, of April
25 27th, 1976, to the best of your recollection, at this time

1 (indicating), you were not aware of, nor were you specifically
2 referring to actual conditions of noncompliance with nonshift
3 licensed personnel, in terms of meeting the Requirements;
4 violations of NRC Requirements?

5 A I believe that that is what I said, yes.

6 Q Okay. It is your recollection that you were
7 referring to internal Program Requirements, to be sure that you
8 met the NRC license Requirements?

9 A That's right.

10 Q But you never reached a point, where the individuals
11 actually got into noncompliance and in fact, several individuals
12 licenses were allowed to lapse?

13 A That is correct.

14 Q There was never, at any time, any pressure exerted
15 on you, by Mr. Herbein or Mr. Miller or other individuals in
16 senior Management, to, in any way disregard, ignore or so-called
17 "sweep under the rug" items of noncompliance, within the
18 Training Department or other weaknesses, within the Program,
19 that you --- the various Programs, under your responsibility?

20 A That is correct.

21 Q And you are not specifically aware of any items of
22 noncompliance, with which Management chose to not report that
23 to the NRC?

24 A That is correct.

25 Q And finally, the nonshift licensed personnel,

1 referred to in your document, are those individuals possibly
2 from an Operations Department, mostly, it could be Department
3 heads, such as Mr. Floyd, Mr. Colitz, who were not actually
4 working shifts in the control room, but still maintained
5 licenses?

6 A That is correct.

7 Q Okay. I have no further questions. Is there any-
8 thing else that you would like to add, at this time?

9 A No.

10 Q Okay. I'd like to thank you for your time with us
11 and your candor. I think that you have answered all of our
12 questions. And we appreciate it.

13 A Thank you.

14 - - -

15 (Whereupon, at 12:21 P.M., the interview was concluded).

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CERTIFICATE OF PROCEEDINGS

This is to certify that the attached proceedings before the
NRC COMMISSION

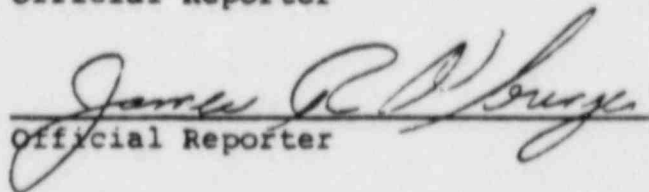
In the Matter of: Investigative Interview of
Alexis Tsaggaris

Date of Proceeding: Monday, March 5, 1984

Place of Proceeding: 98 Vanadian Road, Schneider
Consulting Engineers,
Bridgeville, Pennsylvania

were held as herein appears, and that this is the original
transcript for the file of the Commission.

James R. Obringer
Official Reporter


Official Reporter

PAGES 50-59 OF THE SWORN TESTIMONY OF ROBERT C. ARNOLD

Exhibit (6)

1 UNITED STATES OF AMERICA
2 NUCLEAR REGULATORY COMMISSION
3

4 - - - - -X
5 In the Matter of: :
6 Investigative Interview of :
7 ROBERT C. ARNOLD :
8 - - - - -X

9 Hearthstone Inn Motor Lodge
10 U. S. 46 & 202
11 Parsippany, New Jersey 07054
12 Wednesday, February 29, 1984
13

14
15 The Investigative Interview of Mr. Robert C. Arnold
16 commenced at 9:15 a.m., the witness having been first duly
17 sworn by Richard A. Matakas, Investigator, United States
18 Nuclear Regulatory Commission.
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1 that I feel particularly desirous to comment upon.

2 Q What my question is: In the context of what we
3 are discussing, I want to give you every opportunity to
4 mention any concerns or anything I may have overlooked.

5 A I appreciate that opportunity. I guess I would only
6 ask that we try to be sure of the context of those kinds of
7 questions.

8 Q All right.

9 The next section I'd like to discuss is Sub-section
10 B3 of Part 2, entitled, "Operator Training".

11 A It would be easier if you gave me a page if you
12 have it.

13 Q I don't have it in all circumstances.

14 A I have it, starting on page nine.

15 Q Up until the final report, or excuse me, you'll
16 have to refer also to the May 12, 1980 version of the
17 report.

18 MR. MATAKAS: It's going to be confusing talking about
19 this particular section, because as the report evolved during
20 this time period, the numbering of the paragraphs changed quite
21 a bit, so you really have to sort of find it.

22 THE WITNESS: I'm looking at page nine of the
23 November 28 version and page 14 of the May 12, 1980 version.

24 BY MR. NORTON:

25 Q Both sections are entitled, "Operator Training"?

1 A Yes, sir.

2 Q Okay. Let me ask my question, and then I'll give
3 you an opportunity to read as much of the section as you would
4 like before answering.

5 In the May 12, 1980 draft of the report, the
6 following sentence is added at the conclusion of this sub-
7 section: "This investigation was deemed to fall outside the
8 scope of the task force activities and is being pursued by
9 others (e.g. Ref. 19)".

10 Reference 19 turns out to be referring to the
11 Roddis Committee.

12 Who made the decision that the investigation into
13 the adequacy of training resources and special training needs
14 fell outside the scope of the task force activities?

15 A I'd now like to take time to read the paragraph.

16 Q Please do.

17 (Witness is perusing document.)

18 MR. MATAKAS: The time is now 11:05. Why don't we
19 take a couple-minute break.

20 (Recess.)

21 MR. NORTON: It's 11:14 a.m.

22 BY MR. NORTON:

23 Q Mr. Arnold, we have just given you the opportunity
24 to read the section on "Operator Training" and the two dif-
25 ferent versions of the report.

1 My question dealt with the May 12, 1980 edition
2 to the report which states the final sentence of the sub-
3 section: "This investigation was deemed to fall outside the
4 scope of the task force activities and is being pursued by
5 others (e.g. Ref. 19)".

6 Reference 19 turns out to be the Roddis Committee
7 Report, and my question is: Who made the decision that this
8 area of training fell outside the scope of the task force
9 activities?

10 A I don't know the answer to that question, but in
11 terms of my commissioning of the task force, certainly what
12 is referred to as this investigation, that is further
13 investigation to address the adequacy of training resources,
14 the need to expand the program to cover more of the plant
15 staff and special needs for other members of the organization,
16 which is a forward-looking issue. And probably investigation was
17 a wrong word in my opinion, because it really was an evaluation
18 assessment was the purpose of the Roddis Group.

19 And a great deal of effort went into that. Mr.
20 Broughton, who I thought was an original member of this group--

21 Q I think he is listed as a general participant.

22 A I see. Okay. He was not.

23 Mr. Broughton was secretary to the Roddis Committee,
24 as I recall, and Mr. Broughton was very much involved with
25 training issues as we looked forward to the operation of TMI-1.

1 So the two sentences taken together are very
2 consistent with my sense of the assignment of both the Roddis
3 Committee and the assignment of the task force.

4 Q Did you have anything to do with the chartering
5 of the Roddis Committee?

6 A I think the answer to that has to be yes. Those
7 kinds of efforts didn't go forward without me participating
8 in discussions on it.

9 My recollection of the way in which it came about
10 though was that Mr. Diekamp identified the need to have a
11 group very experienced in training of people for technical
12 kinds of activities look at the scope of our training
13 program and the strategy of training, approach to training,
14 and evaluate our plans for the training program that we were
15 setting up on TMI-1 and see whether they agreed that it had
16 everything in it that it needed, such as the reference here in
17 the next to the last sentence of this section that we are
18 looking at, the resources, the scope of the plant staff,
19 and who else besides plant staff may need formalized training,
20 and whether or not we were providing that adequately.

21 We had another -- and just to kind of complete this
22 area -- group set up which I think was chaired by a Penn State
23 professor, or at least Penn State people were involved with it,
24 to come and look at the training program from an educator's
25 standpoint, were we putting together for TMI-1 for the training

1 program that was being developed, a program that was
2 acceptable from an educator's viewpoint, how we taught the
3 classes, the type of training materials that were utilized,
4 how they were utilized, the qualification levels of the
5 instructors, those sorts of issues which is really a
6 different viewpoint from that that the Roddis Committee was
7 looking at.

8 Q They were looking at the mechanics of teaching or
9 something like that?

10 A Yes, I'm sure that would not be very complimentary
11 to what the group effort was, but that, to us laymen, I guess,
12 would be a reasonable way to describe it.

13 Q So that is why the term is used, "(e.g. Ref. 19)"
14 rather than just, see Roddis Committee Report, or something
15 like that?

16 A I can't answer that in terms of -- I don't know how
17 the sentence got added.

18 Q Still on the subject of training but getting away
19 just for a second from the task force report, I'd like to show
20 you a memo dated April 27, 1975 at which time I believe you
21 were vice president of GPUSC Generation?

22 A No.

23 Q What was your position at that time?

24 A I was vice president of Generation at Metropolitan
25 Edison.

1 Q Met. Ed.

2 This is a memo from a Lex Tsaggaris, Supervisor
3 of Training Nuclear at the time, to Mr. Herbein and Mr.
4 Collidge and Mr. Miller, regarding certain aspects of
5 training.

6 I'd like to give you an opportunity to read it first,
7 and then I will ask you a couple questions about it.

8 (Witness is perusing document.)

9 THE WITNESS: I have read the memorandum.

10 BY MR. NORTON:

11 Q Mr. Arnold, did you ever see the memorandum before?

12 A I have no recollection of having seen the memorandum
13 before today.

14 Q At the time did you have any responsibility for
15 training within Metropolitan Edison organization?

16 A As the vice president of Generation of Metropolitan
17 Edison Company, I had overall responsibility for TMI-1
18 activities as the executive in that area of the company's
19 operations.

20 So the training department of TMI reported up through
21 a management chain that came to me.

22 Q How involved were you, in fact, in the training
23 area?

24 A I would describe my participation in the training
25 area as being satisfied the company had established a training

1 program that met the NRC requirements and our own require-
2 ments as we understood them, that the mechanisms were in place
3 to assure compliance with training program requirements and
4 that if problems were identified to me to be satisfied, that
5 something was being done by the organization to address them.

6 Q The problems that Mr. Tsacgaris mentions in the
7 memo, poor lesson attendance, not scheduling sufficient time in
8 the control room, the complaints he makes, is that familiar
9 with you at all, problems of that nature?

10 MR. KIRSCHBAUM: I'd just like to state here that there
11 were a good number of documents, a large number, in the B & W
12 lawsuit that related to this overall group of questions; and
13 Mr. Arnold also, if I am not mistaken, gave some testimony
14 which related to training. But in preparation for this
15 session I don't believe Mr. Arnold has spent any time reviewing
16 documents relating to that subject or his testimony relating
17 to those subjects because he didn't understand, I don't think,
18 that that was necessary to be the focus of today's session.

19 So, he is probably not testifying. It should just
20 be noted that he is not testifying based on a thorough review
21 of the many materials in the B & W lawsuit in this area.

22 MR. NORTON: I understand.

23 THE WITNESS: I would even go beyond that and
24 say it's based upon not having looked at any of those things for
25 many, many months, including even a transcript of testimony

1 that I gave at the B & W trial.

2 MR. KIRSCHBAUM: Do you have the question in mind?

3 THE WITNESS: Yes.

4 First of all, I would like to note on here that
5 the memo addressed non-shift personnel. It does not attribute
6 these kinds of problems to the people that are on shift.

7 BY MR. NORTON:

8 Q Correct.

9 A Second, I would note that I recognize that the
10 intensity of efforts at TMI-1 were very great. I would not
11 restrict it to TMI-1. It should be TMI-1 and TMI-2.

12 The difficulty with the plant non-shift personnel
13 who had licenses being able to allocate the time as described
14 here by Mr. Tsaggaris was inherent in the situation because of
15 the intensity of the efforts. It's because of the difficulty
16 with reflecting properly all the various priorities that we
17 had someone of the experience and capability of Tsaggaris
18 in charge of TMI training to provide the kind of pressure that
19 this type of memo would provide to be sure that the non-shift
20 people were meeting their minimum training requirements and
21 preferably doing even more than that as that would obviously
22 be desirable.

23 Q One of our major concerns, and I'm sure that you can
24 understand, is that second paragraph there where Mr. Tsaggaris
25 says that in certain instances, we, meaning Met. Ed., are not

1 meeting NRC qualification requirements.

2 Do you know what he is referring to there?

3 A Only what he says that they are required by federal
4 law to meet certain requirements, and in several cases we
5 do not meet them.

6 Q Yes?

7 A My presumption is, my expectation at the time, that
8 if people fell behind, fell below the minimum requirements,
9 they would not be utilized as licensed operators and the
10 requalification program described how to reinstate their
11 qualification.

12 So that seeing this, and even with all the effort that
13 I had gone into relative to the B & W lawsuit and since then,
14 I would expect that this does not mean that we were utilizing
15 these people's licenses when they were deficient in meeting the
16 requirements.

17 The mechanisms, I think, were in place to flag when
18 a person didn't fulfill the requirements, such that he could
19 not be used for a license and then what had to be done in order
20 to restore the effectiveness of his license. That was all
21 part of the program.

22 And I think it's the need to do that and getting into
23 that situation that I expect Mr. Tsaggaris is flagging here, not
24 a situation where we have people utilizing a license who have
25 not fulfilled the prescribed training requirements.

1 Q Mr. Tsaggaris did mention, when we spoke with him,
2 that, I think as a result of this memorandum, some licenses
3 were 'polled' is the term he used.

4 Is that familiar to you at all?

5 A Well, I don't have a recollection of that, but I
6 certainly would not be surprised. I guess the only way I
7 would be surprised is perhaps if it didn't occur sooner
8 depending upon what the specific history was with the people.

9 Q I realize it's been a long time ago, but do you know
10 the name of the non-shift personnel to whom he is referring
11 there?

12 A I'm sure I could name a number of people who were
13 part of TMI-1's organization at that time who had licenses,
14 but I don't have any specific recollection.

15 Q That they were the ones involved in not making
16 training?

17 A I have no knowledge of this specific individual
18 that this memorandum is referring to. At least, I have no
19 recollection of any knowledge of it.

20 MR. NORTON: Anything in this area?

21 MR. MATAKAS: No.

22 BY MR. NORTON:

23 Q All right. Let's go back to the report, if I may.

24 The next section we'll be discussing is entitled,
25 "Knowledge of Relevant Previous Events".

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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In the matter of :
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Investigative Interview of :
 :
ROBERT WINN KEATEN :
-----X

General Public Utilities Cor-
poration
99/199 Cherry Hill Road
Conference Room 2239
Parsippany, New Jersey

Thursday, March 8, 1984

The Investigative Interview of ROBERT WINN
KEATEN commenced at 12:58 p.m., the witness having first
been duly sworn by Leo J. Norton, Investigator, U.S.
Nuclear Regulatory Commission.

APPEARANCES:

On Behalf of the NRC:

Leo J. Norton
Investigator
U.S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

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P R O C E E D I N G S

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2 MR. NORTON: Today is March 8th, 1984, and the
3 time is 12:58 p.m.

4 I am Leo Norton, Investigator, U.S. Nuclear
5 Regulatory Commission. I am about to interview Mr. Robert
6 W. Keaten.

7 Mr. Keaten, do you have any objection to provid-
8 ing your testimony under oath?

9 MR. KEATEN: No, I do not.

10 MR. NORTON: Would you raise your right hand,
11 please?

12 Whereupon,

13 ROBERT WINN KEATEN

14 is called as a witness and, having first been duly sworn,
15 was examined and testified as follows:

16 DIRECT EXAMINATION

17 BY MR. NORTON:

18 Q Mr. Keaten, for the record, would you please
19 state your full name and address?

20 A Robert Winn, W-i-n-n, Keaten, K-e-a-t-e-n, 45
21 Longridge Road, Parsippany, New Jersey.

22 I should mention that the mailing address is
23 Dover.

24 Q Okay. Mr. Keaten, what is your current posi-
25 tion?

1 A I am Director of Engineering Projects for
2 GPU Nuclear Corporation.

3 Q Mr. Keaten, did anyone on the Task Force have
4 primary responsibility for the operator training section
5 of the report?

6 A As I believe we've discussed previously, the
7 training aspects, as they were relevant to the cause of
8 the accident, were of great interest to several members of
9 the Task Force. I do not remember that we assigned one
10 particular member to specialize in training.

11 Q You mentioned several members of the Task Force.
12 Do you recall who they would be?

13 A Myself, for one; Dr. Robert Long; and I believe
14 Mr. Ron Williams was interested in the training aspects;
15 and, one of the persons who assisted in the Task Force,
16 Mr. Gary Broughton, as I recall, was very interested in
17 training.

18 Q Mr. Keaten, Mr. Lex Tsaggaris was in training
19 within the GPU organization. Was he -- did he take a
20 particular interest in the training aspect of the report,
21 or was he kept off that aspect?

22 A He certainly was not kept off of it. And, thank
23 you for reminding me. Yes, Lex was interested in the
24 training aspects because of his background.

25 The reason I overlooked him in the earlier list

1 was that he was particularly specializing in the area of
2 the emergency response to the accident. And so while
3 during periods when we were discussing training, he was
4 a very active participant. But his activities outside of
5 the meeting tended to be more concentrated in the emergency
6 response area.

7 Q Would it be fair to say that the investigative
8 activities of the Task Force, he was more interested in the --
9 he was specializing in emergency response and did not
10 really participate in the investigative aspects of train-
11 ing?

12 A I think that is probably correct. I recall
13 also that at a point in time I don't exactly remember,
14 Lex left Metropolitan Edison and went to work for a con-
15 sultant. This also limited the amount of time that he
16 was on-site.

17 And my memory is that his responsibilities were
18 extensive enough in the emergency response area, that that's
19 where he spent most of his time except during the Task
20 Force meetings.

21 Q One point I would like to clarify is a July 26th,
22 1979 memorandum bearing your signature. I just have a
23 part of it here. And the subject is Investigative Task
24 Force Plan of Action, and it had attached to it approxi-
25 mately nine or ten sheets, one of which I have with me,

1 bearing on training. And, please read it over.

2 (The witness is handed the document by Mr.
3 Norton and peruses the document.)

4 A Yes.

5 Q The attachment indicates that one of the persons
6 that specialized in the training area -- I think his name
7 is in parentheses there after that -- would be Mr.
8 Tsaggaris.

9 Was this memorandum superseded? How can you
10 explain that?

11 A I did not remember this assignment until you
12 handed me the memo. And, frankly I'm having a hard time
13 making my memory go back that early in the investigation.

14 Q This was approximately three weeks after it was
15 formally organized.

16 A Yes. I think that's right. The way you des-
17 cribe this is correct. There is a series of action items
18 associated with training aspects, and Mr. Tsaggaris' name
19 is shown by these, which would mean that we had mutually
20 agreed that he would pursue these activities.

21 My memory is that to a large degree that was
22 delegated to someone else. And your questions are helping
23 my memory. And the very early work that was done in putting
24 together information on particularly operator training was
25 done by Mr. Lance Kittelson.

1 Q Could you spell his name?

2 A I believe it's spelled K-i-t-t-l-e-s-o-n.

3 Q Is he mentioned?

4 A He is on the list of participants in that Task
5 Force report.

6 Looking at the October 29th, 1979 version of the
7 report, and looking at the page following the title page
8 of the report, there is a list of participants. The top
9 category is called General Participants, and the second
10 name on that list is Mr. L. Kittleson. And let me cor-
11 rect the spelling. K-i-t-t-e-l-s-o-n.

12 And he is shown as an employee of Metropolitan
13 Edison.

14 Q Now, could you go through again what Mr.
15 Kittelson's participation in the drawing together of the
16 operator training material would have been?

17 A As with all of the work that originated as a
18 result of the memo that you are referring to, the indivi-
19 dual involved went off and tried to accumulate information
20 that provided answers or partial answers to the questions
21 that were asked in the memo. And, then at the following
22 meeting of the Task Force, these individuals, whether they
23 were members of the Task Force or whether they were part
24 of the supporting staff, reported back to the Task Force
25 on the information that they had been able to put together.

1 In some cases, I think there was actually
2 written material that had been prepared; in other cases,
3 I believe it was just a verbal report. In the particular
4 case that you are asking for related to operator training,
5 my memory is frankly very fuzzy.

6 But I believe that some of Mr. Kittelson's early
7 results were associated with the attendance at training
8 classes, the types of training programs that were underway.
9 That's about the depth of my memory on that subject.

10 They were the types of things that we later
11 pursued in additional detail and in many cases I think
12 found their way into the Task Force report.

13 Q Did Mr. Kittelson remain active in this area
14 of training throughout?

15 A To the best of my memory, his activity sort of
16 tapered off. It was, I think, the highest very early in
17 the investigation and dropped off at a later time.

18 Q Highest shortly after this July 26th memo?

19 A Yes.

20 Q You mentioned that some of the material would
21 be presented in a written fashion, some of it would be
22 presented in an oral fashion.

23 Do you recall what was the case with Mr.
24 Kittelson?

25 A I don't really recall specifically.

1 Q Let me ask you, then, Mr. Keaten, if Mr.
2 Kittelson had provided written reports, would they have
3 been in your Task Force files?

4 A I would have thought so.

5 Q And they have not come to light during any of
6 the litigation or any of your research of the files?

7 A I don't recall having seen them at all during
8 that period in question.

9 Q You are fairly confident that they are not in
10 your files?

11 A To the best of my memory, no one has brought
12 them to my attention. I haven't noticed them in going
13 through the files. I haven't specifically gone through
14 the file looking for them.

15 Q Would you be willing to do so? Or, have someone
16 do so?

17 A Let me ask if this would satisfy your needs?
18 There is a -- what is supposed to be a very complete index
19 of what is in those files. It is a computerized index. It
20 would be relatively straightforward to go through that in-
21 dex and see if they are referred to.

22 Q That would be -- I would be more than happy with
23 that, sure.

24 A I would be glad to do that for you.

25 Q Very good. Thank you. Who was -- let's take a

1 break.

2 (The witness, Mr. Keaten, left the room and
3 thereafter shortly returned.)

4 BY MR. NORTON: (Continuing)

5 Q What was Mr. Kittelson's position at the time,
6 in July 1979?

7 I note that he was an employee of -- I think it
8 was Metropolitan Edison Company?

9 A He was an employee of Metropolitan Edison, I
10 believe stationed at Three Mile Island. I'm not sure what
11 his position was.

12 Q Where is he today? Is he still with General
13 Public Utilities?

14 A I don't know.

15 Q Okay. Who wrote the first draft of the operator
16 training section in the report?

17 A To the best of my memory, I did.

18 Q At any point, did another author take over that
19 section of the report?

20 A Not to my memory. To the best of my memory,
21 that was -- let me be careful. The sections of the report
22 that dealt with training -- and there is really more than
23 one of those -- were sections that tended to be worked on
24 by the Task Force as a whole, as part of the meetings that
25 we discussed earlier. And I don't recall that there was

1 ever a time when a particular individual was told to go
2 and rework that section.

3 Q If I understand what you are saying, there would
4 be a round table or whatever discussion and the report would
5 be changed based upon that where necessary?

6 A That's right. I don't want to rule out the
7 possibility that someone may have gone off and drafted a
8 paragraph and brought it back for consideration by the
9 group as a whole. I don't remember one way or another.

10 I don't remember that we ever assigned a write-
11 up on training to any particular individual.

12 Q I would like to show you a couple of memorandums
13 now, Mr. Keaten. We will start with this memorandum dated
14 April 27, 1976, bearing the signature of Alexis Tsaggaris,
15 the subject is Requalification Program.

16 Why don't you take a minute and read it, and I'm
17 particularly interested in the second paragraph?

18 A (The witness peruses a document handed to him
19 by Mr. Norton.)

20 All right.

21 Q Mr. Keaten, did this memorandum come to light
22 during the Task Force investigation?

23 A I don't remember this particular memorandum one
24 way or another. I certainly remember our discussing some
25 of the topics that are discussed in this memorandum. But,

1 whether it was based on this particular memo, I just don't
2 remember.

3 Q For example, which topics?

4 A Well, for example, Item 1(A), Poor Lesson
5 Attendance, was one of the topics. I don't remember the
6 numbers, but I remember being told that because of the
7 relatively poor attendance that the instructors were spend-
8 ing a large fraction of their time preparing makeup lesson
9 packages to be given to the people who missed.

10 . And, as best I can remember the discussion, it
11 was a complaint on the part of the instructors that they
12 felt it was taking more of their time than it should and
13 perhaps was interfering with some of the other things that
14 they would have preferred them be doing.

15 Q Now, was this, that particular comment right
16 there regarding poor lesson attendance, your explanation of
17 it, is that on the training program in general; or, if
18 you notice, the subject of this memo is the Requalifica-
19 tion Program?

20 Do you understand what I'm asking you?

21 A Yes, sir. I do. My memory is not that specific,
22 but I believe I remember it sort of in the general context --

23 Q Across the board.

24 A -- although it was probably different for dif-
25 ferent parts of the training.

1 Q Is there anything else about this memorandum
2 which rings a bell? Any other subject matter?

3 You already mentioned an inordinate amount of
4 time before makeup material is returned, I think.

5 A In Item 2, I notice that Mr. Tsaggaris indicates
6 that he has written many memos pointing out these problem
7 areas, and that's consistent with the memory I have of the
8 discussion we had with some of the training people, which
9 said that they had repeatedly, in fact, tried to get some
10 attention to what they felt was a problem in this regard.

11 Q Did you find that during your Task Force in-
12 vestigation if any response was made to these memos?

13 A My memory is a little fuzzy. I remember being
14 told that Metropolitan Edison had taken some organizational
15 steps. And I don't remember the details. They had to do
16 with where the Training Department reported in to the
17 organization.

18 And the sense of the discussions, as I remember
19 them, was that the reporting relationship of the Training
20 Department had been changed in order to try to help promote
21 the training activities.

22 That's the only specific response that I remem-
23 ber.

24 Q What were the nature of the complaints in the
25 memos?

1 A I'm not sure the extent to which I can remem-
2 ber the individual memos. I actually remember some of
3 the discussions a little better than I remember the memos.

4 Q Sure.

5 A The complaints were one -- the one we just
6 discussed about what the instructors felt was unreasonably
7 poor attendance records, and the consequent demands on
8 them to prepare makeup packages.

9 I remember comments about what the instructors
10 perceived as lack of attention in the classroom by the
11 students.

12 I remember specifically a comment that the
13 students were interested in being presented material only
14 if they felt it would be, or might be, on the NRC licens-
15 ing exam, and that the students were uninterested in
16 things which were, they perceived, outside the scope of
17 the licensing exam.

18 I remember fairly extensive discussion on the
19 part of the Training Department staff that they felt over-
20 worked, and that they felt additional people were really
21 appropriate to do the job.

22 I remember some discussions having to do with
23 the amount of basic theory that was covered in the licensed
24 operator training as contrasted to training on specific
25 equipment and systems, and the struggle to understand what

1 was the right ratio of theory to practical training, and
2 concerns as to whether that was really achieved or not.

3 Q You mentioned Training staff. Do you recall
4 any specific individual?

5 A The person that I remember making the arrange-
6 ments for the discussion with was Mr. Dick Zeckman.

7 And I believe that also Mr. Marshal Beers was
8 in on the discussion.

9 I don't think that was everybody, but I don't
10 remember who else.

11 Q At this point, Mr. Keaten, I would like to show
12 you four pages of handwritten notes. In advance, I would
13 like to apologize for the poor quality of the copy and
14 also for the great difficulty in reading the handwriting,
15 which is not the NRC's fault.

16 In October of '79 -- I can't even make out the
17 date -- but I do notice that it mentions that Mr. Zeckman,
18 a Mr. Beers, and a Mr. McCormick as, if you will, part of
19 the Training Department. And yourself, Mr. Wallace, Mr.
20 Long and Mr. Williams as, I guess, the interviewers.

21 From what, probably very little that you can
22 make out of it, does it ring a bell with you?

23 A (The witness peruses a document handed to him
24 by Mr. Norton.)

25 As best I can read it, it appears to be notes

1 taken during a meeting that I believe was held between
2 members of the Task Force and representatives from the
3 Training Department. And this is, I believe, the meeting
4 that I was referring to.

5 Q Do you know whose handwriting that is?

6 A I can't be absolutely certain, but I think it is
7 very likely that it is Mr. Ron Williams.

8 Q All right.

9 A And I will comment that not only the handwriting
10 but the general style of note taking is consistent with
11 what I believe Mr. Williams' normally did in the way of
12 note taking.

13 Q It seems to be very full, the note taking, if
14 you will.

15 A Yes. I have always been amazed at his ability
16 to get notes that were complete sentences and they flowed.
17 I think this very likely was one of his products.

18 Q Going through the memo, and myself and another
19 investigator sat down for some time trying to read it, some
20 of the complaints that came to light, from reading these
21 notes, are poor attendance, very poor attendance, the
22 inability of the Training Department, did not have enough
23 clout to force people to improve, different priorities for
24 licensing purposes, and that they had to prepare numerous,
25 what they called care packages, which I assume are those

1 makeup lesson plans.

2 A Yes.

3 Q And that's an example of the issues that were
4 discussed. Does that jive with your recollection of the
5 meeting?

6 A Yes, it does. And some of those items I had
7 already mentioned. And now that you remind me of another
8 one, I do specifically remember the discussion about the,
9 as you put it, lack of clout on the part of the Training
10 Department, and particular the fact that they didn't have,
11 or at least didn't perceive that they had, the authority to
12 force improved attendance at the training sessions.

13 Q Did your findings, in your opinion at least,
14 the findings that grew out of this meeting, did they make
15 it into the report?

16 And while I'm asking you that, I would like to
17 show you the final version of the report, the section on
18 operator training, and give you a few minutes to read it
19 before you respond.

20 A (The witness peruses document handed to him by
21 Mr. Norton.)

22 I believe this section that you gave me, which
23 is Section II-B-3, if my memory serves me, and I would say
24 that, yes, in general, I think most of the items from that
25 meeting did appear in this section. And I would say further

1 that they also appeared, I think, very specifically in
2 the Recommendations section which addressed the immediate
3 upgrading of the Training Department.

4 Q Fine. If we could just spend a minute more on
5 this issue, could you, just taking this paragraph, point
6 out the items?

7 A The paragraph really deals with more than one
8 type of thing. It first addresses the technical nature of
9 the training program and the deficiencies that we perceived
10 in the technical material that was covered and the method
11 by which it was covered. For example, it talks about an
12 event-oriented approach to casualty events rather than a
13 symptom-oriented event.

14 It then talked about the lack of training on
15 taking the reactor solid, the lack of training on the
16 transition to natural circulation, and the lack of training
17 when they were presented with a situation that fell outside
18 of their specific procedures and training program.

19 It then addresses the issue that the training
20 was geared primarily toward the NRC licensing examination.
21 And we believed, and I think still do, that it was a com-
22 mon perception at that time that if an operator was able
23 to pass the licensing examination that he had assimilated
24 the material that he needed to support safe operation.

25 In retrospect, when we went back and looked at

1 it, we challenged that assumption.

2 Then, finally we talked about some of the
3 specific programmatic type problems that we discussed, such
4 as the attendance at the training session, the large numbers
5 of makeup packages, the decrease in formality in the
6 equipment operator training program which had occurred
7 over the years, and by implication whether the resources
8 were adequate or not.

9 Q While we are speaking about licensing renewals,
10 on the subject of the April '76 memorandum, you will notice
11 that addresses the requalification program; did the Task
12 Force come across problems with, let's say, Mr. Colitz,
13 Mr. Herbein or Mr. Miller, keeping their licenses up,
14 their senior operators licenses up?

15 A I don't remember any specific problems by name.
16 I do have a vague memory that some of the problems that
17 the training people were concerned about were perhaps even
18 more significant with respect to people who did not nor-
19 mally stand shift than were those who normally did stand
20 shift.

21 E And this also seems to be referred to in the
22 memorandum from Mr. Tsaggaris.

23 Q Yes, very much so. He mentions, as Mr. Tsaggaris
24 calls it, non-shift personnel.

25 A Right.

1 Q But no specific names came to light?

2 A There are no specific names that I can remember
3 today. Whether they came to light then, I just don't
4 know.

5 Q Do you recall whether there was any resolution
6 of the problem back during that time frame, '76, '77?

7 A Again, I have a vague memory that there may
8 have been some steps taken that may have occurred in this
9 time frame, although I don't remember what they were.

10 But I also remember, at least from my perspective,
11 having been left with the definite perception that these
12 problems had continued to exist, at least at some level,
13 up to the time of the accident.

14 Q I would like to move on to two other memorandums,
15 one -- I'm calling them memorandums, but actually they
16 are letters of complaint, if you will.

17 The first one is one written by Mr. Larry Noll,
18 that's N-o-l-l, who worked at Three Mile Island at the time,
19 and it is dated -- I don't have a date on this one, but
20 it would be around June of '77.

21 So, if you would, take a moment to read that,
22 please.

23 A (The witness reads a document handed to him
24 by Mr. Norton.)

25 All right.

1 Q First off, did this specific memo come to
2 light during the Keaten Task Force investigation?

3 A I don't recall that I have ever seen this
4 before.

5 Q The subject matter of complaints by the Shift
6 Supervisors and Shift Foremen having to give training,
7 does that ring a bell?

8 A Yes, it does, to a degree, ring a bell. It
9 relates to the item I mentioned earlier about the fall
10 off in the formality of the training program for the
11 auxiliary operators. And now that I see this memo, it
12 does trigger a vague memory that there were complaints by
13 the Shift Supervisors and Shift Foremen that they really
14 didn't have the time to do this training on shift in the
15 way that apparently it had been done at one time.

16 Q And that, to some degree, is reflected in the
17 report where it speaks about certain aspects of the
18 training of auxiliary operators?

19 A Right.

20 Q But you don't believe that you've ever seen
21 that specific complaint, letter-complaint or memorandum,
22 before?

23 A I don't recall it. And there is one phrase in
24 here that makes me think I would probably remember it.

25 Q Which is?

1 A Where the author says "and I'm not going to
2 fake it anymore like other shifts do."

3 Q Yeah. Explain yourself there, if you would,
4 how that would attract your attention.

5 A I would have been personally very disturbed at
6 the implication that people were faking anything as
7 important as training. And, to be honest, I will have to
8 say that during this period, of time we were finding a
9 lot of things that we didn't like very well. And I think
10 you only have to read the Task Force report to see that.

11 I would be surprised if I had become aware of
12 this and had not remembered it.

13 Q At any time during the Task Force investiga-
14 tion, did you come across any information concerning will-
15 ful violations of Federal requirements in the training
16 area?

17 A As part of the Task Force investigations, I
18 don't recall any such items. It's a little difficult for
19 me because of things that happened since then.

20 For example, I became aware of the situation
21 with the Unit 2 Operation Supervisor who submitted some
22 take-home test results that later turned out he had not
23 prepared. That did not come out as part of the Task Force
24 investigation, but we became aware of it.

25 Q All right. Excluding -- let me exclude from

1 my question those items which are known to have been
2 caused investigations, those items that have not come to
3 light thus far.

4 A I do not remember that we ever came across any-
5 thing that has not come to light. And, as I said, in
6 general, we found out about them after the fact, because
7 that wasn't the focus of our investigation.

8 Q Let me have you read a memorandum or complaint
9 letter, which could be called either, prepared June 17,
10 1977 by Mr. Theodore Book, who was also a Shift Supervisor,
11 at Three Mile Island.

12 Take a couple of minutes there.

13 A All right.

14 Q It's three pages long. You may read the cover
15 sheet, if you wish, too.

16 A (The witness reads a document handed to him
17 by Mr. Norton.)

18 All right.

19 Q Mr. Keaten, I would like to direct your atten-
20 tion to the last sentence of the second full paragraph on
21 the second page, which reads as follows: Many times more
22 hours are documented than were actually used for training.

23 Did the Task Force come across any instances
24 of falsified paper work in the training area?

25 A Not that I recall, nor do I recall that we ever

1 actually went in and looked at individual records of the
2 number of hours somebody spent on something.

3 We were looking at training in a somewhat larger
4 perspective than that. We did cover some of the items in
5 this memo, particularly the fact that the refresher train-
6 ing in the emergency procedures really consisted of read-
7 ing through the procedures. And in the Task Force report,
8 we complained about this as not being a very satisfactory
9 method, in our opinion, to accomplish the refresher train-
10 ing.

11 But on the subject of the exact number of
12 hours that someone did or did not spend on it, no. I
13 don't think we ever investigated that.

14 Q So, your investigation was more along the lines
15 of interviews with people who were responsible for train-
16 ing?

17 A That's correct, plus the time that we spent
18 interviewing the Operations Staff themselves and talking
19 about their perception of the training.

20 Q It wasn't -- let's use the term audit -- it
21 wasn't an audit of the Training Department's records and
22 files?

23 A It absolutely was not an audit. That's an
24 excellent way of putting it, as a matter of fact.

25 Recall that the charter of the Task Force was

1 not to go do a general investigation of training. We got
2 into our interest in training because of our charter to
3 understand the factors that led the operators to take the
4 correct -- incorrect actions on the morning of March the
5 28th.

6 So, we were interested in whether training might
7 have been technically deficient or deficient programmatical-
8 ly in the sense that had the training been better in these
9 regards it might have prevented the accident.

10 We were not interested in getting in and audit-
11 ing the training program and generally worrying about
12 whether it met some defined set of requirements.

13 Q Somewhat perhaps redundant, but let me ask it
14 again anyway. Did the Task Force develop any information
15 which you would have considered reportable to the NRC?

16 Reportable in the sense of being an item of
17 noncompliance or a violation?

18 A We, to my memory, never came across anything
19 that we discussed as being reportable. As we talked about,
20 during the earlier interviews, the reportability wasn't the
21 focus of our investigation. We were really investigating
22 from the perception of how we felt we ought to do business.

23 Certainly, if we had come across something and
24 had been aware that it was reportable, I believe we would
25 have responded. I think there were several people on the

1 Task Force that would have known the importance of respond-
2 ing to that.

3 I don't recall that any such item ever arose.

4 Q In summary then, did you uncover any information
5 that there was a failure to meet training requirements and
6 that fact not being reported to the NRC?

7 A Other than the one or two cases we discussed
8 earlier that later became public knowledge --

9 Q Which were not really developed by the Task
10 Force.

11 A -- which were not developed by the Task Force,
12 that's correct. I don't remember that that was what we
13 came to understand.

14 The understanding that I remember gaining out
15 of all of the discussions was rather that the training
16 program was meeting the requirements, and that the opera-
17 tors were passing the NRC exams and still had been left
18 in a situation where they were really unprepared to
19 respond to the accident.

20 Q Because they were being trained to pass the
21 exam?

22 A And because the exams themselves were deficient
23 in the knowledge that they required the operators to have.

24 Q Did you come across any violations of internal
25 training procedures such that they would have constituted

1 items of noncompliance?

2 A I'm not sure that we ever asked the question, or
3 received an answer, that was in that format. For example,
4 I don't know what internal requirements there might have
5 been regarding what was an acceptable level of attendance
6 at training sessions.

7 We didn't ask the question, because from the
8 perception of the Task Force, thirty or forty percent was
9 clearly not acceptable. So, again, we didn't really try
10 to audit it against requirements, but were rather trying
11 to evaluate it against what we thought was technically
12 adequate.

13 Q Was the Task Force at any time prevented from
14 looking in any area of training that it wanted to look
15 at?

16 A No, not at all. In fact, where we wanted to
17 explore something, we were always given complete coopera-
18 tion.

19 Q In the previous interview, you already explained
20 how reference to the Roddis Committee as not being a curtail-
21 ment of the Task Force activity; am I correct?

22 A Yes, that's absolutely correct. In some cases,
23 those two activities overlapped a little bit. But the
24 Roddis Committee was going much more deeply into certain
25 aspects of training than the Task Force felt that it was

1 necessary to fulfill our charter. And we were happy to
2 let the Roddis Committee do that.

3 Also, as we talked about last time, during this
4 period there were also other investigations of training
5 that were going on, which we were aware of. And, so we
6 went into the training only to the extent that we felt it
7 fell within our charter of trying to understand of why the
8 accident occurred.

9 Q That answers the questions that I wanted to ask
10 you. Is there anything you wish to add in this area of
11 training today?

12 Would you like a couple of minutes to consider --

13 A I don't think I have very much to add. I do
14 recall at the time that we had the meeting with Mr. Zeckman,
15 et al, which we discussed a few minutes ago, the point was
16 made that the training staff size was already being in-
17 creased at that point in time. And I remember that I, at
18 least, felt that that was a step in the right direction.

19 And certainly in the recommendations that were
20 developed by the Task Force, there were several of them
21 that are very directly related toward training, both in
22 terms of resources, in terms of the structure of the train-
23 ing program, in terms of the needs of the training program,
24 to have technical information fed into it, to provide the
25 basis for the training, and for the training program to

1 audit itself to make sure that it was really accomplish-
2 ing what it was supposed to accomplish.

3 Q Mr. Keaten, did you appear here today volun-
4 tarily?

5 A Yes, I did.

6 Q Did you appear here without counsel on your
7 own decision?

8 A Yes, I did.

9 MR. NORTON: Mr. Keaten, thank you very much
10 for your time. This concludes the interview.

11 MR. KEATEN: You are very welcome.

12 (Whereupon, the interview is concluded at
13 1:47 p.m., this same day.)
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CERTIFICATE OF PROCEEDINGS

This is to certify that the attached proceedings before the
NRC COMMISSION

In the matter of: Investigative Interview of ROBERT WINN
KEATEN

Date of Proceeding: March 8, 1984

Place of Proceeding: General Public Utilities Corporation
Parsippany, New Jersey

were held as herein appears, and that this is the original
transcript for the file of the Commission.

Garrett J. Walsh, Jr.
Official Reporter - Typed

Garrett J. Walsh Jr.
Official Reporter - Signature

PAGES 12-13 AND 38-39 OF THE "GPU ACCIDENT REVIEW
TASK FORCE FINAL SUMMARY REPORT"

Exhibit (8)

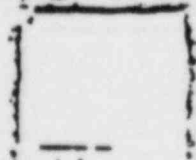
CPU ACCIDENT REVIEW TASK FORCE
FINAL SUMMARY REPORT

- R. W. BLAIR R. W. Blair
- R. L. LONG R. L. Long
- A. THAGGERS A. Thaggers
- Z. L. VAN VLIET Z. L. Van Vliet

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December 15, 1980

CPT 18



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3. Operator Training

Inadequate operator training was clearly one of the most important factors which contributed to the accident. The training program included classroom work, hands-on simulator training, and in-plant reviews and drills. The program covered both normal operations and casualty response. This training was inadequate, however, to enable the operators to handle the situation they faced on the morning of March 28.

The fundamental concept of the training program was to focus on single, separable situations. Training in casualty response required that the operator recognize the symptoms associated with predefined single casualty events, and relate these symptoms to a specific emergency procedure which would govern the response. There was no consideration of multiple failures with a potential for conflicting or distracting symptoms. The events on March 28 resulted in a unique set of symptoms which did not correspond to any single set in the training program. In addition, as discussed above, the training program had emphasized the type of LOCA which results in loss of both reactor coolant system pressure and pressurizer level, with pressure dropping to a few hundred psi. In fact, the symptoms from the accident were that reactor coolant system pressure dropped only to the saturation pressure (about 1400 psi initially) and pressurizer level rose rather than continuing to fall.

Other aspects of the training also contributed to the problem. The B&W reactor operating philosophy is never to take the plant solid except for hydrostatic test. Although there are advantages to this approach, it resulted in lack of experience in taking the plant solid. Training included no discussion of conditions under which solid operation might be desirable or necessary. In fact, taking the plant solid would have been a violation of the technical specifications as well as several operating procedures. The situation was compounded by the incapability of the B&W simulator to simulate solid plant operations and in fact, the simulator computer program became unstable when the pressurizer went solid. The net effect was certainly to condition the operators against solid plant operation.

The training program also placed little emphasis on the transition to natural circulation. So far as the task force has found, there was no simulator training in natural circulation, and the only mention of it was in review of emergency procedures. There appears to have been no experience in operating the plant in this mode.

Finally, the operators had not been trained in how to respond to a situation which fall outside the specific casualties they had studied. In particular, there was no training which stressed the importance of focusing on preselected key plant parameters in such a case in order to determine the basic condition of the plant.

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Given this lack of training, the absence of the symptoms the operator had been trained to recognize as indicating a LOCA, and the perception by the operators that the reactor coolant system water inventory was increasing coupled with a conscious or subconscious orientation against solid plant operation, the failure to maintain full EPI flow is understandable.

A more basic issue is that training was geared primarily to insure the operators would attain and maintain an operating license. This was based on the assumption that the licensing process reflected the knowledge required for safe operation. The basic training documents were the plant procedures, with much less emphasis on technical information such as contained in the FMA. Classroom training in emergency procedures, for example, consisted of the instructor reading the procedure to the class and elaborating on the areas he believed important. On-the-job review likewise consisted of the operator reading an assigned set of procedures and taking a classroom examination on them. This was consistent with the emphasis on the licensing process, since examiners focused on procedural compliance and verbatim knowledge of immediate action statements. In retrospect, this approach did not ensure a thorough understanding of basic plant response under a wide variety of conditions.

The general review of the training program revealed other weaknesses. The staff in the training department had shrunk in recent years. Attendance at training classes had dropped below 50%, which triggered memos from the training department to the operations department. It also required the training department to prepare large numbers of makeup lesson packages. This resulted in the instructors spending significant amounts of time on paperwork and less time on lesson preparation. Certain aspects of training which had been utilized previously, such as progressive formal certification of auxiliary operators, had been dropped. Further investigation is needed to address the required training resources, the need to expand the program to cover more of the plant and support staff, and special training needs for other members of the organization. This investigation was deemed to fall outside the scope of the Task Force activities, and is being pursued by others (e.g. Ref. 6).

4. Knowledge of Relevant Previous Events

The nuclear industry has placed inadequate emphasis on insuring that information from significant safety occurrences at a particular nuclear station are understood and widely disseminated to improve the operation at all nuclear stations. The prior event most relevant to the TMI transient was a similar transient which occurred at Davis-Besse, in which a stuck open PORV resulted in similar symptoms to those observed at TMI and went unrecognized by the operator as indications of a small break LOCA for over 20 minutes. According to published testimony (Ref. 7) the technical

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IV. RECOMMENDATIONS

A. General Recommendations

The overall recommendation is for an upgraded standard of performance for all aspects of the nuclear related operation. This requires two significant changes.

1. Increased resources are required at the working level to support specific changes discussed below. This may be accomplished at least in part by improving the efficiency of the total operation, but may also require added resources. This change in resource requirements and allocation should be regarded as a continuing need.
2. New standards of personal performance are required at all levels in the plant organization. This requires that fair and realistic but strict standards be set, communicated and enforced on a continuing basis.

The responsibilities for the safe and reliable operation of the unit must be communicated to and understood by each individual associated with the unit. Everyone must understand that management will do its part in making sure that adequate resources are available at the working level, and that each member of the organization is expected to do his or her part in ensuring that these resources are effectively and efficiently utilized.

B. Specific Recommendations

1. A comprehensive study of training needs should be conducted covering all areas of the organization including operations, maintenance, health physics, quality assurance, and plant staff, and all levels of personnel including technicians, engineers, supervisors and management. The result of this study should be used to modify the training program.

The revised program should be structured to the groups that it will train. Operators should be trained to recognize abnormal plant response, to identify accident causes from the diverse data sources available to them, and then to apply their plant knowledge and use procedures effectively to correct the condition. Supervisors should be trained to evaluate information and to make the decisions that result in proper action during casualty situations. They must also be trained in methods of administering the plant to insure that operators are always aware of system and equipment status and are prepared to respond to abnormal situations. The plant engineering staff must be trained in plant operations so that they are better equipped to apply their knowledge to support the operations staff in areas of (a) procedure writing, review and implementation; (b) operations review; and (c) evaluating and advising during abnormal plant conditions.

The operator training program should be carefully reviewed to ensure that all operations which might be required under emergency conditions are covered in the program, both in classroom training and at the simulator. Specific operations which must be added to those previously covered in the training program include conditions under which the plant should be taken solid, methods for operating the plant when solid, transition to natural circulation and operation under natural circulation. In addition, the training program should specifically instruct the operator in how to respond to a plant condition which does not appear to be covered by the predefined events emphasized in the training program. It should include: techniques for diagnosing the problem or problems; which plant parameters to focus on to insure basic safety; methods to be used to bring additional technical resources to bear on the problem; and the authority and responsibility of the operating staff to deviate from previous directions when required to respond to unforeseen situations.

A general review of the upgraded training program should be performed by an independent group to ensure that the entire spectrum of training needs is being addressed. Reviews of the upgraded training program which are completed include (1) the Ad-Hoc Advisory Committee on Personnel Selection & Training and Man-Machine Interface & Communications, (2) the Penn State Pedagogical Review Committee and (3) the DMI-1 Operator Training Review Committee. In addition, plant management should require independent periodic assessments to evaluate training effectiveness in satisfying the established needs of the program.

2. Watch standing and shift turnover practices should be upgraded. Watch station responsibilities should be clearly defined. Formal procedures to assure operator awareness of the plant status should be critically reviewed and revised to provide an efficient integrated and manageable method for obtaining and controlling plant status. Evaluation of operator awareness by such techniques as random, unannounced checks (alertness drills) would also be useful. Watch standing communications should be formalized and utilized uniformly.
3. The emergency operating procedures should be completely revised. The basic approach should be hierarchical response to all casualty conditions, to ensure that the basic nuclear safety needs are satisfied before addressing equipment protection and recovery activities. A general diagnostic procedure should be developed to facilitate identification of applicable emergency procedures and to assist in dealing with multiple casualties. Specific procedures covering particular accident conditions would then be used for longer term recovery.

The intent of the actions required by a procedure should be clearly understandable to the user and the technical basis should be thoroughly emphasized in the training program. A procedure should

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REPORT OF INTERVIEW OF RICHARD ZECHMAN

Exhibit (9)

REPORT OF INTERVIEW OF RICHARD ZECHMAN

REPORT OF INTERVIEW

On March 9, 1984 at 1:00 p.m., Mr. Richard ZECHMAN was interviewed by OI:RI Investigator R. Keith Christopher. The interview took place at the Three Mile Island Nuclear Generating Station Training Facility in Middletown, PA.

Mr. ZECHMAN stated that he is currently the Technician Training Manager for Three Mile Island and has responsibility in the areas of maintenance training, chemistry technician training and also has subordinate responsibilities for the rad wast training. He clarified that he has no responsibilities in the area of licensed operator training. ZECHMAN continued that he has held the above position since August 1980. He said that prior to holding this position, he was the Supervisor of Training at TMI but during that time period, was more actively involved in undergoing license training rather than actually filling the position. He said that he replaced Alexis TSAGGARIS in this position in approximately November 1977.

ZECHMAN was allowed to review a memorandum dated April 27, 1976, from A. TSAGGARIS to Jack HERBEIN, Joe COLITZ and Gary MILLER on the subject of the "Requalification Program." ZECHMAN stated that he had no personal knowledge as to the contents of the memorandum and no knowledge as to the actual basis for TSAGGARIS putting the identified weaknesses in writing. He said it was his recollection that there was generally a problem with the non-shift licensed personnel in their attendance of training, but he could be no more specific than that. He stated that it was his recollection that some of the non-shift licensed personnel included Charlie HARTMAN, Joe COLITZ, Gary MILLER and Jack HERBEIN. He was unclear as to whether or not this list also included Jim FLOYD and Mike ROSS, the Unit Operations Supervisors at the time. ZECHMAN also stated that, to the best of his recollection, the non-shift licensed personnel gave up or were in the process of giving up their licenses around the time period of this memorandum because of the difficulties that were being encountered in getting the requalification training time in.

ZECHMAN continued that he did not know what specific requirements TSAGGARIS was referring to in his memorandum and said he did not know which individuals

were supposedly not meeting their training requirements. Additionally, ZECHMAN stated that he was not aware of what management response was made to this memorandum; however, during the course of the interview, he had his files reviewed and provided this investigator with a document that may have been in response to the TSAGGARIS memorandum. This memorandum dated July 16, 1976, from Joe COLITZ and Gary MILLER to all licensed operators addresses attendance to training sessions by non-shift licensed personnel. ZECHMAN also continued that he saw no relation between this memorandum from TSAGGARIS and the so-called (NOLL) and (BOOK) memorandums. Further, he said that he recalled no discussions on a management level regarding these particular weaknesses or as to what should be done to correct them.

ZECHMAN specifically stated that he had no knowledge of any actual non-compliances in the area of training and was aware of no instance in which a non-compliance was identified and management made a decision to conceal the non-compliance from the NRC. He further stated that since his time of employment with the company, management has never attempted to discourage him from identifying and reporting deficiencies and/or non-compliances.

With regard to the KEATON investigation, ZECHMAN stated that he was not a member of that task force but was interviewed by the task force regarding the training department and problems identified within the training department. He said that at the time he was interviewed by the KEATON task force, he does not recall being aware of non-compliances that were identified to the KEATON task force that were not reported to the NRC. He said his discussions with the KEATON task force generally discussed the deficiencies in the training department that have been identified in numerous other investigations since that time. He further stated that he did not have any knowledge as to the impact or lack thereof of the subject memorandum from TSAGGARIS on the actual preparation of the training portion of the KEATON investigation report.

He concluded that he was not aware of any willful violations of training requirements during this time period nor was he aware of any management individual who was involved in the concealment of such violations.

This interview terminated at 2:15 p.m. and was formally recorded at 4:00 p.m.
on March 9, 1984.

Reported by: R. Keith Christopher 3/13/84
R. Keith Christopher, Director
Office of Investigations
Field Office, Region I

METROPOLITAN EDISON COMPANY MEMORANDUM DATED JUNE 10, 1976
FROM J. J. COLITZ AND G. P. MILLER TO LICENSED OPERATORS

Exhibit (10)

METROPOLITAN EDISON COMPANY Member of General Electric Company

Subject: THE OPERATOR REQUALIFICATION PROGRAM

Location: THE Nuclear Station
Middletown, Pa.

Date: June 25, 1976 - 6/10/76

Re: LICENSED OPERATORS

*Revised
July 9, 1976*

1. It is anticipated that beginning in 1977, each shift will be going to the simulator for requalification training (1 week) every other year. At present, Shift 1 personnel are not requalified for this training until 1978.
2. In the past, non-shift personnel have volunteered for the 20 hours of simulator training to help them meet the annually required 40 hours.
3. Effective July 12, 1976:
 - a. Each non-shift licensed individual will be required to schedule and stand a four (4) hour watch as Shift Foreman or Central Room Operator (depending on level of qualification) once per cycle.
 - b. These operational periods should be appropriately documented by the individual in his or her JOB TRAINING records.
 - c. The Training Department quarterly SUT Audit will ensure that this is being done.
4. Also effective July 12, 1976:
 - a. An individual who misses a Requalification lecture which requires written material will be issued an assignment at the end of that six week cycle.
 - b. He will complete and return the assignment by the end of the next six week cycle.

JJC:SPM:AT:br
cc: J.C. Barbata
A. Tsagouris
B.D. Brown
B.L. Marks
B.W. Zachman
T.A. McCarroll
File: JJC,SPM and AT writer's file

E.J. Collier
Shift 1 Superintendent
[Signature]
Shift 2 Superintendent

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REPORT OF INTERVIEW OF JOSEPH J. COLITZ

REPORT OF INTERVIEW

On March 6, 1984, Joseph J. COLITZ, Plant Engineering Director, Three Mile Island (TMI), General Public Utilities (GPU) Nuclear Corporation, was interviewed at TMI by the reporting investigator. The interview began at approximately 10:00 a.m. and ended at approximately 10:40 a.m. Mr. COLITZ, after being duly sworn, stated substantially as follows:

COLITZ has been employed within the GPU organization since 1963 and was Superintendent of Unit 1 at TMI from early 1975 until the first quarter of 1977. COLITZ could not specifically recall the April 27, 1976 memorandum written by Alexis TSAGGARIS but did recall TSAGGARIS raising the issue of attendance by non-shift personnel in the requalification program. COLITZ had searched for but was unable to locate in his personal files any follow-up correspondence to this memorandum.

COLITZ stated that at the time this memorandum was written he was working 70 to 80 hours per week at TMI and felt that it would have been impossible to absent himself from his normal duties for one week out of every six in order to attend training sessions. COLITZ tried to keep up with the requalification program by studying the make-up lesson plans. Even this self study course, however, had to assume a lower priority than a plant superintendent's normal duties. COLITZ frequently found that he had not completed one lesson plan before the next one arrived.

Shortly after TSAGGARIS raised the issue addressed in the memorandum, COLITZ decided that he would not seek to renew his operator's license. COLITZ thought that the obtaining of a license was a good idea in order to force a person to learn the unit but saw no further purpose for him to keep the license. COLITZ felt that, even if TSAGGARIS had not raised the issue, he would probably have talked to Jack HERBEIN about not continuing to maintain the license since it would serve no further purpose. COLITZ was reasonably certain that the circumstances he had just described also applied to HERBEIN and Gary MILLER, the other addressees of the memorandum. COLITZ believes that both HERBEIN and MILLER decided not to maintain their licenses.

COLITZ was not aware of any violation of federal regulations in the requalification program. COLITZ had not previously seen either the June 17, 1977 letter written by Theodore BOOK or the July 8, 1977 letter written by Larry NOLL. COLITZ did not take part in resolving these complaints since he had already left TMI when the letters were written.

End of Results of Interview.

Reported by:

Leo J. Norton

Leo J. Norton, Investigator
Office of Investigations
Field Office, Region I

REPORT OF INTERVIEW OF JOHN G. HERBEIN

REPORT OF INTERVIEW

On March 13, 1984, John G. HERBEIN was interviewed in the presence of his attorney, James B. Burns, by OLRI Investigator Leo J. Norton. The interview, which was held in the Towne Manor Motel in Johnstown, PA, began at approximately 10:15 a.m. and ended at approximately 11:30 a.m. After being duly sworn, HERBEIN stated substantially as follows:

HERBEIN is currently the Vice President, Station Operations for the Pennsylvania Electric Company, a wholly owned subsidiary of General Public Utilities Corporation (GPU). HERBEIN, who was initially employed within the GPU organization in September 1967, was Vice President-Generation for Metropolitan Edison Company from June 1977 to August 1979.

After reviewing a memorandum dated April 27, 1976 written by Alexis TSAGGARIS concerning the requalification program, HERBEIN did not recall the memorandum itself or having discussed the substance of the memorandum with TSAGGARIS. HERBEIN, who at the time of the memorandum was the station manager at Three Mile Island, held a senior reactor operator's license from approximately March 1973 until early 1977. HERBEIN did not seek to maintain the license after 1977 because of the demands of his other duties and because he no longer needed the license. HERBEIN does not remember discussions regarding a decision to allow COLITZ' license to lapse although he acknowledges the subject probably would have been discussed with him prior to such a decision.

Since he has no recollection of TSAGGARIS' memorandum, HERBEIN does not remember what, if any, corrective actions were taken in response to the memorandum. In preparation for this interview, however, BURNS discovered in HERBEIN's files a memorandum (copy attached) dated June 10, 1976 signed by COLITZ and Gary MILLER covering "The Operator Requalification Program." Although he has no specific memory that this memorandum was prepared in response to the TSAGGARIS memorandum, HERBEIN stated that the COLITZ and

MILLER memorandum addresses the points raised in the TSAGGARIS memorandum. HERBEIN thinks that the TSAGGARIS memorandum was addressed to himself, COLITZ and MILLER because of their managerial responsibilities and not because they were falling behind in the requalification program training.

HERBEIN stated that he had no involvement in resolving the issues raised in either the memorandum written by T. L. BOOK in June 1977 or the memorandum written by Larry NOLL in July 1977. HERBEIN said that he had not previously seen the NOLL memorandum and that he had only heard of the BOOK memorandum from his attorney during the GPU v. Babcock & Wilcox litigation.

HERBEIN was not aware of any willful violations of federal regulations in the training program during this time period. HERBEIN stated that there was never any pressure exerted on him to ignore training requirements but rather that there was management pressure to comply with the federal regulations on training. HERBEIN said that GPU had designed the training program to meet the requirements of 10 CFR 55 and that they had interacted with NRC representatives in order to ensure that the program met these requirements. HERBEIN stated that the overall attitude toward training was "we wanted to do it right."

This report of interview was written on March 14, 1984.

Reported by: _____
Leo J. Norton
Office of Investigations
Field Office, Region 1

METROPOLITAN EDISON COMPANY Member of General Public Utilities Group

Subject: THE OPERATOR REQUALIFICATION PROGRAM

To: LICENSED OPERATORS

Location: **300 Nuclear Station**
Washington, D.C.

Date: **June 18, 1976**

*Approved
July 8 1976*

1. It is understood that beginning in 1977, each shift will be going to the classroom for requalification training (1 week) every other year. At present, Shift 1 personnel are not recommended for this training until 1980.
2. In the past, non-shift personnel have volunteered on the 20 hours of classroom training to help them meet the annually required 48 hours.
3. Effective July 12, 1976:
 4. Each non-shift licensed individual will be required to schedule and attend a four (4) hour week on shift forward or Control Room Operator (depending on level of qualification) once per year.
 5. These operational periods should be appropriately documented by the individual in his or her JOB TRAINING records.
 6. The Training Department quarterly R/T Audit will ensure that this is being done.
4. Also effective July 12, 1976:
 7. An individual who misses a Requalification lecture which requires makeup material will be issued an assignment at the end of that six week cycle.
 8. He will complete and return the assignment by the end of the next six week cycle.

JJC:DPH:BT:MP

cc: J.G. Herbert
A. Tangorra
R.D. Brown
R.J. Davis
R.U. Jackson
T.A. McCarroll

File: JJC,DPH and all writer's file

J.J. Collins
Shift 1 Superintendent
[Signature]
Shift 2 Superintendent

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REPORT OF INTERVIEW OF GARY P. MILLER

REPORT OF INTERVIEW

On March 20, 1984, Gary Paul MILLER was interviewed in the presence of his attorney, Michael W. MAUPIN, by OI:RI Investigators Barry R. LETTS and Leo J. NOFTON. The interview, which was held in the offices of the Metropolitan Edison Company in Reading, PA, began at approximately 9:00 a.m. and ended at approximately 9:50 a.m. After being duly sworn, MILLER stated substantially as follows:

MILLER is currently the Director of Operations-Generation for Metropolitan Edison. In April 1976, MILLER was the Superintendent of Unit 2 at Three Mile Island (TMI).

After reviewing a memorandum dated April 27, 1976 written by Alexis TSAGGARIS concerning the requalification program, MILLER had a general recollection of the subject matter of the memorandum. At the time of the memorandum, no one was licensed on Unit 2, but MILLER stated that a few Unit 2 employees were licensed on Unit 1. MILLER mentioned FLOYD, SEELINGER and possibly George KUNDER as individuals assigned to Unit 2 who had Unit 1 licenses. MILLER stated that he had obtained a Unit 1 operator's license probably in January 1976 but that he had never exercised the license. MILLER explained that, at the time, there was an internal administrative requirement for a unit superintendent to obtain an operating license. MILLER said that approximately 6 months after he had obtained the license, Jack HERBEIN, the station manager at TMI, wrote a memorandum to the effect that MILLER should no longer consider his license valid. According to MILLER, HERBEIN did not want MILLER taking the time from his normal duties which would have been required to maintain the license. MILLER believed that the TSAGGARIS memorandum had been primarily directed at Unit 1 licensed individuals and did recall some discussion of allowing certain licenses to lapse but believed that these discussions did not involve Unit 2 employees. Miller did not recall the names of the individuals whose licenses were being discussed.

Although he had no specific recollection of all the steps taken in response to the TSAGGARIS memorandum, MILLER said it was most likely that HERBEIN would have directed MILLER and Joe COLITZ, the Unit 1 Superintendent, to get together with TSAGGARIS to determine what was necessary to correct the problems identified in the memorandum. MILLER reviewed a memorandum dated June 10, 1976 signed by himself and COLITZ on the subject of the requalification program. MILLER stated that this memorandum was written in response to the TSAGGARIS memorandum and that there was probably some response to the TSAGGARIS memorandum prior to June 10, 1976. MILLER pointed out that the initials in the authorship portion of the June 1976 memorandum indicated that TSAGGARIS had assisted MILLER and COLITZ in drafting this memorandum. MILLER speculated that the June memorandum was reissued on July 9, 1976 in order to reemphasize the importance of meeting training requirements.

To the best of MILLER'S knowledge, TSAGGARIS was not referring to any actual violations of NRC requirements but rather was warning individuals that they were in danger of falling behind the annual internal training requirements. MILLER said that, since TSAGGARIS had the authority to do so, TSAGGARIS would have issued suspensions of licenses for actual failure to meet training requirements rather than just sending a warning memorandum.

MILLER stated that he had no involvement in resolving the issues raised in either the memorandum written by Theodore L. BOOK in June 1977 or the memorandum written by Larry NOLL in July 1977. MILLER stated that he had never seen the NOLL memorandum prior to preparing for this interview and that he probably didn't become involved in the BOOK matter because the Station Manager, Jim O'HANLON, was handling it. Other than the matter involving James FLOYD, MILLER was not aware of any willful violations of training requirements or any failure to report such violations to the NRC. MILLER was not questioned concerning the FLOYD matter.

This report of interview was written on March 21, 1984.

Reported by:

L. J. Morton

L. J. Morton, Investigator
Office of Investigations
Field Office, Region I

Witnessed by:

B. R. Letts

B. R. Letts, Investigator
Office of Investigations
Field Office, Region I

REPORT OF INTERVIEW OF RONALD L. WILLIAMS

REPORT OF INTERVIEW

On March 20, 1984, Ronald L. WILLIAMS was interviewed by OI:RI Investigators Barry R. LETTS and Leo J. NORTON in the offices of EBASCO Incorporated, World Trade Center, New York City, NY. The interview began at approximately 2:00 p.m. and ended at approximately 2:45 p.m. After being duly sworn, WILLIAMS stated substantially as follows:

WILLIAMS was a Senior Consultant for General Public Utilities (GPU) during the time he was assigned to the KEATEN task force. WILLIAMS left GPU at the end of February 1980. WILLIAMS' primary assignments on the task force were to review the effectiveness of operating procedures in dealing with the accident on March 28, 1979 and determining the paths of radiation leaks following the accident.

After reviewing a memorandum dated April 27, 1976 written by Alexis TSAGGARIS concerning the requalification program, WILLIAMS did not recall the memorandum itself or the subject matter of the memorandum having been discussed at task force meetings. WILLIAMS had not seen either the memorandum written by T. L. BOOK in June 1977 or the memorandum written by Larry NOLL in July 1977.

WILLIAMS explained that he did not have much involvement in the training aspects of the KEATEN investigation and, in fact, his involvement may have been limited to attending the one interview with members of the training department staff on October 18, 1979. WILLIAMS thought that Robert KEATEN was the principal person on the task force involved in looking at the training area.

During the interview, WILLIAMS reviewed his four pages of handwritten notes of the October 18, 1979 meeting and compared the contents of the notes with the "Operator Training" and "Recommendations" sections of the final KEATEN task force report dated December 15, 1980. WILLIAMS said that the information contained in his notes was "reasonably" reflected in the KEATEN report.

WILLIAMS stated that the notes of the October 18, 1979 meeting reflected only

the views of the training department staff and did not take into account the operations department's views of training. As an example, WILLIAMS said that the training department was in favor of more classroom instruction, whereas, the operations department saw more value in on the job training in the area of procedural review.

WILLIAMS was not aware of the discovery of any willful violations of federal regulations in the training program during the task force investigation.

This report of interview was written on March 22, 1984.

Reported by:

Leo J. Norton
Leo J. Norton, Investigator
Office of Investigations
Field Office, Region I

Witness:

Barry R. Letts
Barry R. Letts, Investigator
Office of Investigations
Field Office, Region I

FOUR PAGES, HANDWRITTEN NOTES OF RONALD L. WILLIAMS FROM AN
INVESTIGATIVE TASK FORCE INTERVIEW ON OCTOBER 18, 1979

TMS-2 Investigation Tool Force Discussion 6705 10/18/79

0930 Training

Dick Johnson

Mark Beer

Frank Mc Cormick

Bob Keaton

Ed Wallace

Bob Long

Ken Williams

Greatest burden seen by those Training Dept Mgrs has been the limit on the size of the Training Department staff. While the size of the overall staff was going up, the number of instructors available has been limited (currently only 5). The added staff is largely there for handling the paper burden which has become very high, and this is good.

- Attendance at training sessions has been very poor and declining. For example in 1978 the attendance record was about 30%. This was attributed to the inability of the Ops Dept to release their people for the required training. Off-Shift people were the worst in attendance. Shift Supervisors were not so bad but were worse than that of the control room operators themselves and the shift operators, etc. This attendance was brought to the attention of the plant management on a number of occasions. The response to these letters was not at all apparent as attendance continued to go down. Even with the Training Dept reporting back to heading (for separation purposes, etc) they did not seem to get any about to force the Ops Dept to improve attendance. The Ops Dept attitude was not necessarily one of indifference to training, but one of priorities assessed for training necessary.

BO:9:

1301

1713

- (6)
- The lack of attendance affected the Instruction load as he then had to prepare "Case Packages" of evaluation & final material, which had to be followed to insure the operator completed them and got the part in, etc. There was a real burden in that they had to prepare and process ~2500 Case Packages in a year.
 - The course content was dictated to some extent by UIC requirements for passing exams, etc. This may have led to some lack of interest in program and some feeling of wasting time in training.
 - If the Training Staff had been given more people (prior to March 78) they would have expanded the scope of almost all training programs. This specifically was directed toward increased and improved classroom training for the various training programs. The content has been eroding down through the years. This seems to be principally the result of senior management activity as part of the union negotiations. Much of what was stripped out of the program (especially Out Op.) was the amount of class from the practical classroom or personal training (in favor of OJT) and the virtual elimination of formal classroom training in the basics (heat transfer, reactivity, math, sketching, etc.).
 - There is a perception from this discussion of a constant eroding training program, especially for Line Operator, and time as well as a continually reduced interest in the need and value of the training staff.
 - Since the accident the training program has been altered

to include TMI-2 lessons learned, sequences of event
reversal, heat transfer, multiple causation, etc. The
basic training program hasn't been altered in ¹⁹⁷⁵ ~~1974~~
but undoubtedly will be to incorporate these new areas.
The matter of staff enlargement hasn't really been
decided yet for the long haul.

The Training Dept would like to have their own simulator
and would like to have some mini-simulation as well
(Omni Data such as used at UC-3).

- Training seems to have been a hand-me-down organi-
zation as far as getting analyses, procedure revision,
drawing revisions, system descriptions, etc. They had no
way to know what changes were being made, what
new things were being made in the plant, etc. They also
had no formal documented way to get Reg Guides,
new regulatory reqs, Std Review Plans, ANSE Std,
sourcing reqs, etc.

- In some sense the Training Dept seems to have been
an orphan organization. It had the responsibility for
establishing a program (within restraint and limits
available) but virtually no authority or clout to
ensure that the overall program

- In response to a question on differences between Unit
there was a general feeling that there was a noticeable
difference between attitude and performance between
the unit operators with the Unit 1 people being de-
cidedly on top. No specific reasons could be given other
than background, approach, pride, etc. on Unit 1 people

- that never seemed to get on that 2 people.
- The accelerated retraining effort so missed by these men as adequate in its composition and scope, but are concerned that the rush to get this done by April 1, 1980 is creating some real difficulties in getting this training accomplished effectively within that time frame. They are also having problems with qualified instructors, etc. They feel that an additional two months would greatly enhance this effort (i.e., put the quality back into the effort that may be being sacrificed by the expedited schedule).
 - The more stringent anticipated ILC licensing exam and the higher required passing grade would result in failures of 25 to 40% which could seriously impede being ready on 4/1/80

*

Dary Miller

- Include different perspective on training - refer to the tape to get the details on Dary's thoughts.
- Dary's description of his duties and those of the people who worked for him are those of a superintended person with all the burden of lower tier approval requirements. It seems that the responsibility and the authority was vested in Dary (his decision and final) and virtually not pushed down to what would seem to be more appropriate levels.

COVER SHEET AND PAGES 1-7 OF IE INSPECTION REPORT
NO. 50-289/76-19/DATED AUGUST 24, 1976

Exhibit (16)

U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
REGION I

IE Inspection Report No: 50-289/76-19

Docket No: 50-289

Licensee: Metropolitan Edison Company

License No: DPR-50

P.O. Box 542

Priority: -

Reading, Pennsylvania 19603

Category: C

Location: Middletown, Pennsylvania (Three Mile Island 1)

Safeguards Group: -

Type of Licensee: PWR (B&W) 2535 Mwt

Type of Inspection: Routine, Unannounced

Dates of Inspection: August 12-13, 1976

Dates of Previous Inspection: August 3-5, 1976

Reporting Inspector: W. A. Ruhlman

W. A. Ruhlman, Reactor Inspector

8/24/76
DATE

Accompanying Inspectors: None

DATE

DATE

DATE

Other Accompanying Personnel: None

DATE

Reviewed By: R. R. Keimig

R. R. Keimig, Chief, Nuclear Support Section No. 2
Reactor Operations and Nuclear Support Branch

8/24/76
DATE

SUMMARY OF FINDINGS

Enforcement Action

Deficiencies

A. 76-19-01

Contrary to 10 CFR 20.203(b) and Health Physics Procedure 1610, a Radiation Area was incorrectly posted as a High Radiation Area. (Detail 4.b(2))

B. 76-19-02

Contrary to Technical Specification 6.8.1 and Administrative Procedure 1013, two lifted leads had been replaced without making the required log entries. Although identified by the licensee, no corrective action to prevent recurrence had been defined or taken. (Detail 4.a(3))

Licensee Action on Previously Identified Enforcement Items

Not inspected.

Design Changes

None reported.

Unusual Occurrences

None identified.

Other Significant Findings

A. Current Findings

1. Acceptable Areas

(These are items which were reviewed on a sampling basis and findings did not involve any Items of Noncompliance, Deviations or Unresolved Items.)

- a. General Training. (Detail 2)
- b. Requalification Training. (Detail 3)

2. Unresolved Items

None identified.

3. Deviations

None identified.

4. Licensee Identified Items of Noncompliance

Infraction

The licensee's QC Surveillance Report TMI 76-192 identified non-compliance with the licensee's commitment to ANSI N45.2.3 in several areas. (Detail 4.b(3))

B. Status of Previously Unresolved Items

Not inspected.

Management Interviews

A. Entrance Interview

An entrance interview was conducted at the site on August 12, 1976 with the Unit 1 Superintendent and the Training Supervisor. During this meeting the inspector described the scope, estimated duration, personnel to be contacted and records to be reviewed as part of the inspection.

The licensee identified no operational events related to plant safety or radiological health which had not been reported since the last inspection.

B. Exit Interview

An exit interview was conducted at the site on August 13, 1976 at the conclusion of the inspection with the following licensee attendees:

Metropolitan Edison Company

Mr. J. J. Colitz, Unit 1 Superintendent
Mr. W. W. Cotter, Supervisor - Quality Control
Mr. G. A. Kunder, Unit 1 Supervisor of Operations
Mr. J. P. O'Hanlon, Engineer Senior Nuclear I
Mr. L. A. Tsaggaris, Training Supervisor

The following summarizes the items discussed:

1. General Training. (Detail 2)
2. Requalification Training. (Detail 3)
3. Review of Plant Operations. (Detail 4)

The scope and objectives of the inspection were discussed and the inspection findings were presented as detailed in this Report.

DETAILS

1. Persons Contacted

Metropolitan Edison Company

Mr. T. H. Acker, Control Room Operator
Mr. K. P. Bryan, Shift Foreman
Mr. P. F. Chalecki, Control Room Operator
Mr. J. J. Colitz, Unit 1 Superintendent
Mr. W. W. Cotter, Supervisor - Quality Control
Mr. E. W. Daniels, Sr., Quality Control Specialist
Mr. F. H. Grice, Supervisor of Safety
Mr. R. S. Harbin, Engineering II - Assistant
Mr. R. R. Harper, Instrument Supervisor
Mr. R. G. Hedges, Administrative Assistant
Mr. G. R. Hitz, Sr., Shift Foreman
Ms. B. A. Hockley, Clerk-Junior
Mr. D. C. Janes, Control Room Operator
Mr. M. A. Janouski, Radiation-Chemistry Technician
Mr. R. E. Jennings, Machinist 1st Class
Mr. J. E. Keisch, Control Room Operator
Mr. K. S. Kline, Utility Foreman
Mr. G. A. Kunder, Unit 1 Supervisor of Operations
Mr. R. A. O'Donnell, Sr., Repairman 2nd Class
Mr. J. P. O'Hanlon, Engineer Senior Nuclear I
Mr. D. E. Reich, Nuclear Instrumentman 1st Class
Mr. M. J. Ross, Station Shift Supervisor
Mr. J. L. Seelinger, Engineer Senior Nuclear I
Mr. B. G. Smith, Station Shift Supervisor
Mr. J. F. Stacey, Security Specialist
Mr. P. F. Tinnes, Nuclear Instrumentman 2nd Class
Mr. L. A. Tsaggaris, Training Supervisor
Mr. H. L. Wilson, Maintenance Foreman-Instrument and Control

Delaware Valley Safeguards Incorporated

Mr. R. G. Reigel, State Certified Fire Instructor
Mr. E. P. Ritter, Sales Representative
Mr. P. E. Yoder, Manager-Fire Division

2. General Training

Previous reports (50-289/74-32 and 50-289/75-14) documented that formal training programs had been established for all new employees, temporary employees, nonlicensed operators, technicians, repairmen/mechanics, female employees and other craft personnel. The purpose of this inspection was to verify that the established programs were being implemented. The results are summarized below:

a. General Orientation Training/Retraining

The inspector verified by review of licensee records and direct interviews with two new employees and two existing employees that, as appropriate, the following training had been given: administrative controls and procedures; radiological health and safety; industrial safety; controlled access and security procedures; emergency plans; quality assurance program items; and, retraining in these areas as required by the program.

The inspector identified no discrepancies.

b. Craft Personnel Training

The inspector verified by review of licensee records and direct interviews with two mechanics and two technicians that, as applicable, the following training had been given: on-the-job training; formal technical training; vendor schools both onsite and offsite; and, other training in technical areas conducted by the plant staff.

The inspector identified no discrepancies.

c. Female Employee Instructions

The inspector reviewed the records for several female employees and selected one employee for direct interview to verify that the training specified in Appendix A of Regulatory Guide 8.13 had been given.

The inspector identified no discrepancies.

d. Fire Fighting Training

During this inspection, the licensee was conducting fire fighting training at the site. The inspector observed approximately one hour of the actual fire fighting (practical) instruction being conducted by a contract agent for 25 licensee employees. This instruction is to be repeated until given to approximately 200 site employees.

The inspector identified no discrepancies.

The licensee stated that, although fire fighting of electrical fires was covered during the lecture phase of the instructions, the practical demonstration of electrical fire fighting techniques utilizing water was still being investigated for possible incorporation in future training programs.

3. Requalification Training

The inspector verified, through review of licensee furnished records and interviews with two licensed personnel, that the requalification training is being conducted as summarized below.

a. Program

The inspector verified that the program has been established and includes: a schedule of lectures to be conducted; requirements and methods for documentation of lecture attendance, records of completed control manipulations, discussions/simulations of emergency/abnormal procedures; review of design changes, license modifications and procedures changes; and periodic evaluations.

The inspector identified no discrepancies.

b. Records

The inspector selected the records of three licensed individuals and verified that each contained: a copy of the completed requalification program examinations; documentation of completed discussions/simulation of abnormal/emergency procedures; records of control manipulations; and records of other reviews and evaluations required by the requalification program.

The inspector identified no discrepancies in the records review.

c. Performance Summary

Those individuals scoring less than 80% in a given area on the 1975 annual examination had attended the requalification lectures on the required subjects based on the licensee's records for the individuals selected for review by the inspector. The 1976 annual examination had been given and graded and a new requalification lecture series had been started.

The inspector identified no discrepancies.

4. Review of Plant Operations

a. Shift Logs and Operating Records

The inspector reviewed the records listed below, held discussions with plant staff members and inspected the Control Room on August 13, 1976.

- (1) Shift Foreman's Log, Control Room Log and Shift and Daily Check Sheet (SP-P 1301-1) for the period July 1-21, 1976 were reviewed to verify that:
 - (a) log sheets are completed properly;
 - (b) documentation involving abnormal conditions provide sufficient detail to communicate equipment status, lockout status, correction and restoration; and,
 - (c) log book reviews are being conducted by the staff.
- (2) Primary Auxiliary Operator's Log - Tour Readings: Entries for the period July 1-21, 1976 were reviewed for completeness and details adequate to communicate equipment status.
- (3) Jumper/Lifted Lead Log: All entries made subsequent to May 15, 1976 were reviewed. The inspector then selected the one jumper and six lifted leads listed below to verify that the entries, still indicated as in force, reflected actual plant status.
 - (a) Jumper #12 installed 7/12/76,
 - (b) Lifted Lead Tag #4 installed 7/02/76,
 - (c) Lifted Lead Tag #21 installed 7/26/76,

PAGES 35-37 OF THE TRANSCRIPT OF INTERVIEW
OF DR. ROBERT LEROY LONG ON JANUARY 19, 1984

Exhibit (17)

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

In the matter of:

INVESTIGATIVE INTERVIEW OF
DR. ROBERT LEROY LONG

Docket No

Location: Parsippany, N. J.

Pages: 1 - 111

Date: Thursday, January 19, 1984

TAYLOE ASSOCIATES

Court Reporters
1625 I Street, N.W. Suite 1004
Washington, D.C. 20006
(202) 293-3930

1 training. In addition to the various Kemeny and Rogovin
2 and NRC comments on training, we had many, many training
3 review activities going on.

4 Q So, the area just wasn't dropped. It was being
5 pursued by others.

6 A Oh, no, not at all.

7 Q Okay. Do you recall what the conclusions of
8 the Roddis Committee were that you addressed?

9 A I don't think I can pull any of those out of
10 my head right now. We have all of those recommendations
11 and tables looking at how we responded. We have continued
12 to follow them, but there has been so many other training
13 recommendations in the interim since 1980, I can't single
14 out which ones were Roddis.

15 MR. NORTON: Okay. Rich, did you have some-
16 thing in the training area?

17 MR. MATAKAS: Yes, I do.

18 DIRECT EXAMINATION

19 BY MR. MATAKAS:

20 Q I would like to show you B&W Exhibit 886, the
21 subject of which is "Requalification Program" and it's
22 by -- it was written by Mr. Tsaggaris. It's an inter-
23 office memorandum. And it's to Mr. Herbein, Mr. Colitz,
24 and Mr. Miller.

25 It says: It has become obvious to me that these

1 problems will continue unless more stringent guidelines
2 are established. I have written many memos pointing out
3 these problem areas to individuals concerned and am finally
4 getting assignments turned in. I feel strongly that when
5 a person obtains a license, it is his responsibility to
6 keep it current. This is not being done.

7 And the last sentence is specifically what I'm
8 interested in, and I quote this last sentence: We are
9 required by federal law to meet certain requirements for
10 licensed individuals, and in several cases we do not meet
11 that.

12 This is numerical 2. I would like you to take
13 a look at that memo.

14 A (Witness looks at document.) Yes.

15 Q Have you ever seen that memo before, or been made
16 aware of its contents? Specifically, that last sentence?

17 A I don't remember whether I have seen this one
18 before or not. The date on it is April 27th, 1976, and
19 this was a long time before I had any training responsi-
20 bilities.

21 Q What I'm wondering is, if it ever came up in
22 any of the -- Mr. Tsaggaris was associated with the Keaten
23 Task Force --

24 A Yes.

25 Q And did it ever come up as a subject in the

1 Keaten Task Force?

2 A I don't think it would have come up as a subject
3 for the Keaten Task Force, because we did not really spend
4 all that much effort on training. It wasn't a big area
5 of our responsibility.

6 MR. MATAKAS: That's all I have.

7 MR. NORTON: Okay.

8 DIRECT EXAMINATION

9 BY MR. NORTON:

10 Q Doctor, I would like to move on to several areas
11 now dealing with the PORV. One of your tasks, I think, was
12 why did the PORV fail.

13 A (Witness nodded in the affirmative.)

14 Q The first section I would like to discuss is
15 B-7 of Part 2, entitled "Use of Procedures". I think if
16 you refer to the 11/28/79 version, and possibly the 10/29/79
17 version as well --

18 A Okay.

19 Q Okay. The last paragraph of the 10/29/79 draft
20 contained the following two sentences: One symptom of a
21 leak is an indicated discharge pipe temperature above 130
22 degrees Fahrenheit. The plant had operated -- okay. Let
23 me reread that.

24 A Let's be sure I see it in the November -- but
25 I don't see it in the October.

GPU SERVICE MEMORANDUM DATED JULY 26, 1979 FROM
R. W. KEATEN TO R. C. ARNOLD WITH ONE PAGE ATTACHMENT

Exhibit (18)

Inter-Office Memorandum

July 26, 1979

GPU Service

Investigative Task Force Plan of Action

To R. C. Arnold

Location TMI

Attached is a specific plan of action which has been developed by the Investigative Task Force in response to the seven items of investigation in your memo of July 2, 1979. For each of the seven items, the task force has identified subtasks and some specific unanswered questions associated with each subtask. In most cases, we have assigned one or more members of the task force to each subtask, and in some cases have identified other individuals within GPU to aid in the investigation. The schedules shown on the attachment were developed at the task force meeting on July 20th.

If you concur, I will use this plan of action as the basis for our review of the progress of the investigation planned for August 1st.

R. W. Keaten
R. W. Keaten

RWK/cjs

- cc: H. M. Dieckamp
- J. G. Herbein
- R. W. Heward
- G. P. Miller
- R. F. Wilson

1-Herbin

This is yours

1-61 ALSO
DH agreed hd me for

1-60m

1-VZIF

2/7/31

4. Review the use of procedures during the first few hours: (Williams)
(First cut by 8/1)
- Which specific procedures were referred to? Which ones were read aloud?
 - Which ones did the operators think they were following?
 - When did they realize they were in a really different situation?
5. Define how training or lack of training contributed: (Tsaggaris)
(First cut by 8/17)
- Specifically what training in LOCA conditions had they received, did it include a LOCA from the pressurizer?
 - How was the simulator used - was there any practice in meeting unexpected situations? Were multiple parallel failures considered?
 - To what extent did training emphasize a basic understanding of the system and system behavior?
 - What training in following procedures was included?
 - What training in supervisory techniques was given to supervisory personnel?
 - What specific training was received on going solid and solid operation? What on transition to natural circulation? What on use of PORV tailpipe temperature indication?
6. Review the exercise of authority: (Keaten) (First cut by (8/10)
- Who was in command - did this change during the critical period?
 - What role did each of the management level personnel present play? Who coordinated things and made assignments?
 - How were decisions made and how communicated?
 - What was the specific chain of command in the control room? Was it used?