

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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USNRC

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD **82 OCT 5 10:36**

In the Matter of)
METROPOLITAN EDISON COMPANY)
(Three Mile Island Nuclear)
Station, Unit No. 1))

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(Restart)

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UNION OF CONCERNED SCIENTIST' BRIEF ON
EXCEPTIONS TO PARTIAL INITIAL DECISION
(REOPENED PROCEEDING)

September 30, 1982

Ellyn R. Weiss
HARMON & WEISS
1725 Eye St. N.W.
Suite 506
Washington, D.C. 20006

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Introduction

The Union of Concerned Scientists' (UCS) posture in this appeal is different from that of other parties; UCS did not directly participate in the Reopened Proceeding flowing from the discovery of cheating by TMI operators on NRC qualification examinations. However, because of the strong inter-relationship between the design and operational safety issues pursued actively by UCS in earlier stages of the proceeding and the issues of operator and management competence and integrity covered in the Reopened Proceeding, UCS filed Comments on the Special Master's Report and exceptions to the ASLB's decision of July 27, 1982.

The UCS Comments on the Report of the Special Master, May 18, 1982 were transmitted to the Appeal Board as an attachment to the UCS Exceptions to the Partial Initial Decision (Reopened Proceeding), July 27, 1982, filed on August 20, 1982. We wish those comments to be incorporated herein and we will not reiterate them in detail.

The issues referred to the Special Master as a result of the revelations of cheating were broad ones. (Report of the Special Master, LBP-82-34B, 15 NRC 918, 924-925 (1981) (hereinafter "RSM"). While issuing its decisions on management competence and design and operational safety issues in advance of the resolution of these questions, the ASLB expressly reserved jurisdiction over these questions, observing:

The issues of Licensee's management, integrity, the quality of its operating personnel, its ability to staff the facility adequately, its training and testing program and the NRC process by which the operators would be tested and licensed, are all important issues considered in this partial decision.

I.D. 14 NRC 1211, 1708, ¶2012.

As the Appeal Board is well aware, UCS has urged the adoption of changes to the design of TMI-1, in addition to new training and procedures. Our evidence and arguments were deemed unpersuasive by the ASLB. A common thread ran throughout much of the ASLB's decision: design changes are unnecessary because post-accident improved training and procedures can be ruled upon to ensure that operators properly diagnose and mitigate accidents even in the absence of highly reliable instrumentation and equipment. Specific examples of this reasoning as it was used to form the basis of findings against UCS are given at pages 11-19 of the UCS Comments on the Report of the Special Master. UCS, on the other hand argued that the demands on

operators should be minimized, particularly in the midst of an accident and that safety-grade equipment should be provided so that the operators could rely on it when needed. See, e.g., UCS Brief on Exceptions to the Partial Initial Decision of December 14, 1981, Exception 16, p. 18-19; Exceptions 39 and 40, p. 44

A paradigm of the ASLB's reasoning can be found in its treatment of UCS Contentions 1 and 2, which assert generally that a reliable means of forced cooling to remove decay heat should be required for TMI-1. Because natural circulation will be interrupted for most small break LOCA's (and, in addition, that natural circulation depends upon emergency feedwater) much of the evidence centered on the efficacy of the so-called "bleed-and-feed" mode of cooling. In ruling against UCS, the Board found:

We do not disagree with the UCS claim (Proposed finding ¶35) that extensive training and well-conceived procedures are required when the feed-and-bleed cooling mode is relied upon to dissipate the heat from the core, but the complete record as it stands today supports the conclusion that these procedures and training can be provided. However, we have reopened the record in the proceeding to inquire into the significance of the test cheating disclosures on the effectiveness of operator training.

Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit No. 1), LBP-81-59, 14 NRC 1211, 1231 ¶625 (1981), (Hereinafter "I.D.") The above is a clear illustration of the degree of the ASLB's reliance on highly effective operator training and procedures.

Indeed the Board noted the pervasive significance of its reliance on operator training and the means to verify the effectiveness of that training: :

In Part II above we have made many determinations favoring restart upon improvements in the TMI-1 machinery. However, it can be readily observed that our determinations also depend very heavily upon correct operator procedures essential to safety. Operators whose competence has been ensured by appropriate training which has been verified by NRC and company-administered examinations are an indispensable element of nuclear safety despite the many improvements in plant design.

As examples, in the event of a SBLOCA, although no mitigating actions are required within ten minutes, the operator must decide, on the basis of the control room instrumentation, that coolant is being lost. See ¶927. He must distinguish between an SBLOCA and an overcooling event on the basis of procedures and training. ¶658. In order to maintain cooling in the presence of voids, procedures call for the operator to raise the level of water in the steam generator and provide for a sump switchover. ¶931. The operator must take whatever actions are necessary to assure that a subcooling margin of at least 50° F exist. ¶929. Although procedures permit operator override of protection systems (¶747), and the criteria for such action have been incorporated in the procedures; knowledge of those criteria is an important part of operator training. Section C of Part II addressed the adequacy of the operating procedures for dealing with transients beyond the design basis. In that section we perceived inadequacies that must be corrected in the long term

I.D., 14 NRC 1211, 1709-1710, ¶¶2017, 2018, emphasis added.

In our Comments on the Reopened Proceeding, UCS pointed out to the Board the many points at which its decision on design and operational safety issues was intimately

related to the effectiveness of operator training and called for reassessment of the ASLB's findings in light of the Special Master's indictment of both the content and administration of the Licensee's training and testing program, the integrity of the TMI operations staff and members of management and the NRC staff's review and testing program. We were brushed aside in one paragraph of which the following remarkable sentence is, in our view, the most telling:

Whatever the quality of instruction methods, the intense and repeated exposure to the course material necessarily must contribute to the competence of the operators.

Partial Initial Decision (Reopened Proceeding), July 27, 1982, ¶2410, Sl. op. at 176-177. (hereinafter "July 27 P.I.D.")

In essence, the Board refused to reassess its acceptance of the effectiveness of the crucial post-TMI operator training and procedures for the same reasons that it refused to accept the Special Master's overall conclusion that the Licensee's training and testing program was "not an adequate response to the Commission's Order of August 9, 1979, CLI798, 10 NRC 141." RSM ¶338, 15 NRC 918, 1054. With some exceptions, most particularly as to the portions of the decision dealing with Michael Ross, the ASLB did not find the facts to be significantly different than as found by the Special Master. Instead, the Board excused both the individuals and the company in general by drawing distinctions between ethics and competence, (e.g., July 27 P.I.D. ¶2119, p.43 (G and H), ¶2135, p. 50 (GG), and ¶2168, p. 64 (Husted));

by finding that lying to or withholding information from the NRC and/or to the Special Master is in some cases "natural," *Id.* at ¶2142, p. 53 (Shipman)), by excusing the Licensee's purportedly impartial but wholly self-serving investigation of the endemic cheating on weekly quizzes required by the Commission's order on the grounds that it was "naive" (*Id.* ¶2250, p. 100) and in a variety of other ways.^{1/}

Perhaps the most inventive was its characterization of the Licensee's overall failure as a lack of "quality assurance" (*Id.*, ¶2400, p. 172-173). In other words, it was a failure of "procedure" that allowed the creation of rampant disrespect for the process of operator qualification, a level of ethics among many GPU employees, including prominently those in supervisory positions, that can only be characterized as shocking and a training program geared to rote memorization. What the absence of procedures has wrought, the presence of new procedures can presumably cure.

We believe that the Board has generally overlooked or given insufficient weight to three major points:

1. Ethics cannot be separated from competence.

Those responsible for the management and operation of nuclear facilities must have the highest ethics and integrity. Public health and safety depends upon this perhaps as much as it depends on competence because the regulation of nuclear plants relies very heavily on self-policing. As the Board itself stated:

^{1/}As the ASLB candidly noted in explaining the differences between its conclusions and those of Judge Milhollin, "...some of the inferences and conclusions depend upon the judgment and the ethical orientation and expectations of the fact finder." July 27 P.I.D. ¶2037, p.6.

If the Licensee does not itself exercise the requisite quality control, quality assurance and feed-back mechanisms to assure high-quality training and testing, it is beyond the power of regulators and regulations to put an appropriate program in place. July 27 P.I.D. ¶2327, p.135.

Yet the only persons to have been removed from TMI or even disciplined in a serious way were the two operators who admitted cheating, O and W. Those who obviously cheated and continued to deny it (G and H, Id. ¶¶2102-3, 2105, 2110, 2114 and VV, ¶2278-2279), those who told incredible stories to Judge Milhollin and/or NRC (Shipman, ¶2143-2144; Husted, ¶2165; U, Id. ¶2180-2181) and those who knowingly and deliberately submitted false information to NRC (Miller, ¶2287, 2296 and Herbein, ¶2306) are all a part of Licensee's organization. At the very least, this sends a clear signal to all GPU employees as well as the rest of the nuclear industry that stonewalling the NRC is a profitable policy. At the worst, it means that many people of questionable integrity remain in positions of trust where they may well be called upon to exercise judgments that affect public health and safety.

2. Many of the persons directly involved in deception are GPU management. New procedures implemented by this management will not ensure against future deception.

3. Judge Milhollin found extremely disturbing and widespread deficiencies in the content of both the Licensee's training and testing program, RSM ¶251, 15 NRC 918, 1020, and the NRC testing program, Id. ¶285287, 15 NRC 918, 1034. In particular, he found that the Licensee's training and testing program relied greatly on rote memorization (RSM, ¶245, p. 1016, 251, p. 1020) repeated the same questions over and over again on makeup quizzes required for the many operators who failed to make the required grade on the original TMI lessonslearned test (RSM, ¶246, p. 1017), crammed the operators with the precise information covered by the exam for 3 1/2 hours directly before the penultimate makeup exam (RSM, ¶249, p. 1019) and asked many questions unrelated to the real skills required by an operator. (RSM ¶251, p. 1020) As Judge Millhollin observed, the Licensee's sessions were effective in having the candidates pass a test, but "it is doubtful" that they could produce "true understanding" in these areas which were particularly required by the Commission's order. (Id.)

The NRC exams also encouraged rote memorization and relied heavily on licensees to provide the answers. (RSM ¶¶285-287). In addition, the NRC exams did not test the operator's ability to solve either a structured problem or an unforeseen set of events. (Id., ¶287) As Judge Milhollin stated: "The examination may not in fact measure their ability to operate the reactor safely." (Id.)

The ASLB did not significantly contest these facts, although it demurred with respect to the extent of its jurisdiction and noted that the Reopened Proceeding was not permitted to directly litigate the substance of the NRC exams. July 27 P.I.D., ¶2363, p. 155. The ASLB recognized that the relevant question is as follows: "Is the instruction adequate to prepare the operators to operate the plant safely?" July 27 P.I.D., ¶2343, p. 144. And, said the Board, "[t]o answer this affirmatively, as _____ required by the Commission's original order in this case, we find it necessary to impose remedies to provide the requisite "Quality assurance"..." (Id., ¶2344, p. 145) However, the remedies, including an independent audit and new procedures (Id. ¶2347, p. 141) will at the most be effective some time in the unspecified future while TMI is to go into operation now. We are at a loss to understand how the Board's proposed "remedies" can be said to provide any assurance that the operators (and management) entrusted to operate the plant have been adequately prepared at this time to perform the task.

Because UCS did not participate in making the record in the Reopened Proceeding, we must leave to other parties the detailed discussion of the evidence at points where Judge Milhollin and the ASLB are in disagreement over the facts. For the most part, our arguments go to the conclusions which should be drawn from the facts which have not been

disputed by the ASLB.^{2/} Our failure to take exception to the Board's resolution of other issues, particularly its exoneration of Michael Ross, should not be construed as agreement but are a consequence of UCS's unusual posture vis-a-vis the Reopened Proceeding. The discussion of particular exceptions follows.

Exceptions

1. The Board erred in finding that these are no safety consequences resulting from the cheating episodes.

P.I.D. ¶2045.

9. The Board erred in failing to find that the TMI operations staff was deeply compromised by the cheating.

6. The Board erred in finding that the cheating episodes are not a reflection on upper level management competence, good intentions and efforts. P.I.D. ¶2400.

Paragraph 2045 in its entirety is as follows:

2045. We see no safety consequences resulting from the cheating episodes. The results of the October 1981 NRC licensing reexamination have not been received into evidence although they were served upon the Board and parties. It appears that enough candidates to staff the plant have survived, but we have not, for want of information, analyzed all aspects of present staffing plans. It is sufficient that Licensee's management has reconfirmed its commitment to abide by License condition 9.... We expect that condition to be enforced, and if it is, there will be no adverse operating safety consequence flowing from the actions of those candidates who cheated on the examinations.

^{2/}Because we do not raise factual differences with the ASLB decision, we do not cite transcript pages but cite instead to the decision. Under these circumstances, we do not believe that 10 CFR §2.762(a) can be construed as requiring transcript references.

There is a fundamental flaw in this reasoning; it overlooks the clear and important relationship between the integrity of a nuclear plant's staff (and management) and the public health and safety. As stated above, ethics cannot be isolated from competence in this context. The success of the NRC's regulatory program, and the extent to which it protects public health and safety depends heavily upon self-policing by the nuclear utilities. NRC is able to audit only a very small fraction of the activities of its Licensees. It depends upon those Licensees to honestly and timely identify and report safety problems, to accurately describe those problems, to perform objective analyses, to propose solutions, and to provide a great deal of data necessary for NRC to review safety issues. Indeed, the ASLB noted that regulations are not themselves sufficient to ensure public safety. July 27 P.I.D. ¶2327, p. 135. Licensees are the first and last line of defense; NRC must be able to rely implicitly upon the word of its Licensees.

In recognition of this, the failure of a utility to show the requisite character can form an independent and sufficient basis for denial of a license application pursuant to 42 USC §2232a. Houston Lighting and Power Co. (South Texas Project, Units 1 and 2), CLI-80-32, 12 NRC 281, 291 (1980). This finding can be based either on the

utility's own actions or omissions or on its failure to properly supervise or have sufficient knowledge of the actions of those it employs. Id. The Commission "has clearly and forcefully stated its need for truthful and accurate information in order to discharge its responsibilities for the public health and safety: 'nothing less than candor is sufficient.'" Virginia Electric and Power Co. (North Anna Power Station, Units 1 and 2), LBP-75-54, 2 NRC 498, 508 (1975). See also, Hamlin Testing Laboratories v. A.E.C., 357 F.2d 632 (1966).

Other agencies whose activities touch far less on the public health and safety have revoked licenses on the basis of lack of candor. In upholding the FCC's revocation of a license on such grounds, the court observed that because effective regulation is premised upon the agency's ability to depend upon the representations made to it by its licensees, the fact of concealment is more significant than the facts concealed. LeFlore Broadcasting Co. v. FCC, 636 F.2d 454, 461 (D.C. Cir., 1980), citing FCC v. WOKO, Inc., 329 U.S. 223, 227, 67 S. Ct. 213, 215 (1946).

The Court continued:

Indeed, the FCC would be derelict if it did not hold broadcasters to 'high standards of punctilio,' given the special status of licensees as trustees of a scarce public resource." Id. at 461.

The FCC has thus held that principals are liable for the deceptive acts of their subordinates. Continental Broadcasting Inc. v. FCC, 439 F.2d 580 (D.C. Cir., 1971). In WADECO, Inc. v. FCC, 628 F.2d 122, 128 (D.C. Cir., 1980),

the company president was held accountable for misrepresentations of Counsel where he could have avoided them had he exercised better control.^{3/}

Under the Federal Alcohol Administration Act, wholesale permits will be revoked or withheld if misrepresentations reflect on the character of a licensee or applicant. Henry County Beverage Co. v. Sec'y of Treasury, 454 F.2d 413 (7th Cir., 1972).

It can scarcely be disputed that the consequences to the public of permitting operation of a nuclear plant by a company lacking in character and/or technical competence could be far greater than permitting such a company to hold a broadcast license or a wholesale liquor permit. "We can imagine no area requiring stricter adherence to rules and regulations than that dealing with radioactive materials, from the viewpoint of both public health and national security." Hamlin Testing Laboratories v. A.E.C. 357 F.2d 632, 638 (6th Cir., 1966). NRC must surely be more diligent in guaranteeing the integrity of its licensees than other agencies, not less so.

^{3/}This presents an interesting parallel with the circumstances of Mr. John Wilson's investigation of the cheating on weekly quizzes. Even the ASLB concludes that "Licensee was culpable in its uncritical acceptance of Mr. Wilson's work when there are so many indications of its inadequacy." July 27 P.I.D. ¶2266, p. 106.

Against this backdrop, we examine the findings of the ASLB. (If instead, the findings and conclusions of Judge Milhollin are accepted, there seems to UCS to be little room for argument that the restart of TMI-1 cannot be authorized).

O & W, shift supervisors characterized as the "cream of the crop" RSM ¶10, 15 NRC 928, cheated repeatedly and extensively. July 27 P.I.D. ¶2090-2092, p. 30-31. G & H, both control room operators, cheated on company-administered weekly quizzes required as a result of the TMI accident. Id. at ¶2096-2097, p. 33. The Licensee continues to maintain despite clear evidence to the contrary that G & H did not cheat. Id. at ¶2117, p. 42.

GG, a control room shift foreman, cheated on a weekly quiz. Id. at ¶2133-2134, p. 49-50. MM, a shift technical advisor, did not himself "cooperate" but failed to provide a "convincing" explanation for the similarity in answers provided by him, GG and W. Id. at ¶2127, p. 51.

Mr. Shipman, TMI-1 operating engineer and principal assistant to Mr. Ross, the TMI-1 manager of operations (Id. at ¶2139, p. 52) was approached during the NRC exams in April, 1981 and asked a question related to the exam. He "spontaneously" provided the answer. After the cheating investigation began, when he was questioned by Mr. Hukill, he reported the incident but refuses until today to name the

questioner to his employer, NRC investigators or Judge Milhollin. Id. at ¶2139-2141, p. 52-53. The ASLB concludes that Mr. Shipman is "probably" lying when he says he cannot remember his questioner. Id. at ¶2144, p. 54

Mr. Husted is a licensed instructor for the TMI operators. He refused to cooperate with the NRC investigators and his testimony before Judge Milhollin was "incredible" (i.e. untruthful). Id. at ¶2165, p. 62. His ability and even willingness to "impart a sense of seriousness and responsibility to the TMI-1 Operators" is highly questionable. Id. at ¶2167, p. 63.

U is a control room shift foreman. U lied to Judge Millhollin in connection with his phone call to KK during the NRC exams in April, 1981., Id. at 2179-2181.

WW, a shift technical advisor, was inadvertently involved in cheating during a company-administered exam. He did not come forward to report it during his interview with NRC. Id. at ¶¶2188-2189, p. 72-73.

VV was Supervisor of Operations at TMI-2, then was assigned to the investigation of the TMI-2 accident and is now liaison with outside organizations in research and development. Id. at ¶2281, p. 113. In July 1979, VV submitted work written by a subordinate in fulfillment of his (VV's) requirements for an operator's license. Id. at 2272-2274, p. 109-110. VV does not regard this as cheating. Id. at ¶ 2278, p. 112. Mr. Arnold, President of GPU

Nuclear, also does not regard this as cheating, Id. at ¶2281, p. 113, nor does Gary Miller. Id. at ¶2298, p. 121.

Gary Miller was TMI Station Manager and is now GPU Nuclear's start-up and test director. Id. at ¶2272, p. 109. He knowingly, deliberately and falsely certified to the NRC that VV had fulfilled the requirements for renewal of his operator's license. Id. at ¶2296, p. 120.

John Herbein, then Met Ed Vice President, subsequently GPU V.P. for Nuclear Assurance and still within GPU upper management, knew of and assented to Miller's false certification of VV to the NRC. Id. at ¶2306, p. 124.

The Licensee took the position during the Reopened Proceeding that it cannot be faulted for the cheating episodes because it never tried to establish procedures to prevent cheating. Id. at 2325, p. 133-134.

During the Reopened Proceeding, Licensee presented Mr. John Wilson as an impartial investigator. Mr. Wilson presented considerable information which tended to show the absence of cheating and none that showed the presence of cheating. Id. at ¶2252, p. 101. He simply accepted the oral denials of the operators suspected of cheating on the weekly quizzes, Id. at ¶2262, p. 105, and found by the ASLB to have cheated. He sought no technical help to understand the explanations given him. Id. at ¶2263. The

Licensee was "uncritical" in its acceptance of Wilson's work " when there were so many indications of its inadequacy." Id. at ¶2266, p. 106.^{4/}

Licensee was culpably negligent in failing to instill in its operating staff a sense of respect for the training and testing program for qualification of reactor operators. Id. at ¶2063, p. 20.

This took place after the TMI-2 accident had graphically highlighted the urgent need for improved operator training and, in recognition of this, the Commission had directed requalification of all TMI operators with particular attention to the lessons learned from the accident. If the accident and its aftermath had not sufficiently attracted the attention of GPU to the training of its staff it is hard to imagine what could. A \$100,000 fine is insignificant by comparison. The Board notes that a "dazzling" array of experts were garnered by GPU to testify favorably to the merit of its training program. Id. at ¶2397, p. 171. One can only conclude that they were not aware of the manner in which it was actually executed.

Seen in the aggregate, the above p^ortrays an operations staff and management which is deeply compromised, which

^{4/}One wonders whether it would have been so uncritical in its acceptance if the report had concluded that cheating took place.

is, in fact riddled through with people of dubious integrity. They form GPU--the organization is, after all, only a composite of its employees--and GPU allowed them to assume positions where they are responsible for the health and safety of a great many members of the public. This state of affairs is, contrary to the Board's statement, a reflection on upper level management's competence, at the very least. We believe that the Appeal Board must conclude that this Licensee lacks the technical and character competence to safely operate TMI1.

Even if the Appeal Board does not reach this conclusion, UCS submits that this compels reassessment of the ASLB's heavy reliance on the judgment and skill of the TMI operators as detailed in the UCS Comments on the Report of the Special Master.

2. The Board erred in finding that the evidence has not brought the adequacy of the quality of the Licensee's training program into question. P.I.D. ¶2061

7. The Board erred in failing to find that Licensee's training program was an inadequate response to the Commission's Order of August 9, 1979. P.I.D. ¶2347.

8. The Board erred in failing to find that the Licensee's training program is weak in content and ineffective in its method of instruction. P.I.D. ¶2334.

The ASLB states at ¶2061, p. 19, that the evidence in the reopened proceeding has not brought the "adequacy of the Licensee's training program," into question. This cannot be squared with even the ASLB's interpretation of the record. The ASLB specifically agrees at paragraph 2334 with paragraphs 242-251 of Judge Milhollin's Report. Judge Milhollin finds therein, inter alia, that the training program relied simply upon memorization and did not attempt to actually teach operators materials in areas where they had demonstrated weakness. RSM ¶¶245, 251, 15 NRC 918, 1016, 1020. The same questions were repeated on makeup exams verbatim from week to week. Id. at ¶246, p. 1017. Some makeups were ta'ehomes. "From this pattern one must conclude that the training department did not take seriously the Licensee's obligation to teach the subjects required by the Commission's order, and that the operators did not take seriously their obligation to learn it." Id.

Judge Milhollin also found in these paragraphs adopted by the ASLB that "[o]perators were taught words without being taught what the words meant." Id. at ¶251, p. 1020. Finally, he found that many of the questions were "unrelated to the candidates' ability to operate the reactor." Id.

Faced with all of this evidence which it does not dispute, the ASLB adopts a semantic strategem for avoiding the conclusion that the adequacy of the Licensee's training program is called into question. That is, at paragraph 2061 it defines "adequacy of the training program" as "course content" and proceeds at paragraph 2334 to distinguish "content" from what it calls "the quality of instruction

(including delivery of instructional material, composition of examinations, and grading)." (emphasis in original) Thus, the Board has defined the problem away or at least confined it to something sounding relatively innocuous that can be cured by improved "quality assurance."

This badly misses the mark. Whether attributed to deficiencies in the "quality of instruction" or to deficiencies in "course content," the salient facts are that the training program taught and tested for rote memorization and that operators who successfully completed that program demonstrated that they could memorize, not that they could safely operate a plant. Unless the Commission intended that its Order of August 9, 1979 could be fulfilled by a course of rote memorization marginally related to the operators' skills, there can be no question but that the evidence in the Reopened Proceeding showed that the Licensee's training program was inadequate and that it failed to meet the Commission's Order.

For the same reasons, the Appeal Board should find that this program was weak in content and ineffective in its method of instruction.

3. The Board erred in leaving undisturbed its conclusions in the August 27, 1981, P.I.D. regarding the role of NRC examinations in assuring operator competency. P.I.D. ¶2073-2074.

4. The Board erred in ruling that the substantive quality of the NRC examination is beyond its jurisdiction.
P.I.D. ¶2366.

5. The Board erred in ruling that it lacked jurisdiction in the question of the adequacy of NRC's licensed operator testing. P.I.D. ¶2362.

While the Board "could not help but note problems with [the] substantive content" of the NRC examination questions reviewed by Judge Milhollin, P.I.D. of July 27, ¶2074, p. 24, it skirted the issue by holding that its jurisdiction had passed and in fact refused to either adopt Judge Milhollin's conclusions or make its own with regard to the "substantive adequacy" of the operator licensing exams. Id. Instead, it left undisturbed its earlier conclusions that "the NRC examinations are the basic assurance of operator competency." Id. at ¶2073 Neither did it disturb the conclusions which are the crucial logical underpinning of both the management and design P.I.D.'s that the NRC exams operate in fact to provide the necessary assurance of operator competence.

In paragraphs 2363-2370, the ASLB briefly summarizes Judge Milhollin's findings to the effect that the NRC exams were structured to conform to the Licensee's training program rather than to the actual plant design, that the answers sometimes reflected inaccurate or incomplete information and that, as with the Licensee's tests, the questions called for rote memorization. The ASLB does not

dispute these findings. Judge Milhollin concluded that "[t]he examination may not in fact measure [the operators'] ability to operate the reactor safely." RSM ¶287, 15 NRC 918, 1034. What, then, was the ASLB's appropriate course of action and, more importantly, what should be the Appeal Board's course of action?

It is probably an unnecessary diversion at this point to argue over whether the ASLB had jurisdiction over this question although we believe that, at least so long as the case was before it, it had jurisdiction to correct rulings called into question by new evidence.

As far as the Appeal Board is concerned, it has long been established that the NRC's adjudicatory panels do not sit as umpires calling balls and strikes for adversaries appearing before it. E.g., Cleveland Electric Illuminating Co. (Perry Nuclear Power Plant, Units 1 and 2), ALAB-443, 6 NRC 741 (1977). NRC has a solemn obligation to the public interest that transcends the umpire's role. Whether matters are placed before it by the parties or come to it from any source, the Appeal Board has "the burden of sufficiently scrutinizing the record to satisfy [itself] that no serious safety or environmental matters have been overlooked." Northern States Power Co. (Monticello Nuclear Generating Plant, Unit 1), ALAB-611 (1980) 12 NRC 301, 309.

The adequacy of NRC's operator qualification examinations is central to the resolution of this case. The evidence strongly suggests, that the NRC tests are not a reliable indicator of the operators' competence under operating or accident conditions; under these circumstances the Appeal Board cannot conscientiously rule either that the August 9, 1982 Order is met, or that there is the requisite assurance that the plant can be safely operated. Moreover, a very high level of operator competence is assumed as the basis for resolving many issues raised by UCS as discussed in the UCS comments on the Report of the Special Master.

While the ASLB allowed only indirect inquiry into the substance of the NRC exams, incompleteness in the record hardly justifies allowing operation in the face of such serious questions. This is not a construction permit case, where such uncertainties might be reserved for later resolution without posing a risk to public health and safety. Operation of TMI-1 cannot be allowed on the basis of the record now.

10. The Board erred in failing to reconsider its PID of December 14, 1981, in light of the heavy reliance on post-TMI procedures and operation training and competence to assure public health and safety. P.I.D. #2408-2410, UCS Comments on Report of the Special Master, May 18, 1982.

11. The Board erred in failing to withdraw authorization for restart in light of the relationship between the record of the reopened proceeding and the design and

operational safety issues covered by the P.I.D. of December 14, 1981. P.I.D. ¶2408-2410, UCS comments, May 18, 1982.

UCS, in our Comments on the Report of the Special Master, May 18, 1982, which are incorporated by reference herein, has provided many examples of the points at which the P.I.D. of December 14, 1981, covering design and operational safety issues, is grounded upon the proposition that the TMI operators have been effectively trained, particularly in the areas generally encompassed by the phrase "lessons learned" from the TMI-2 accident and can therefore be relied upon to exercise critical judgments and to perform difficult maneuvers necessary to protect public health and safety under accident or abnormal conditions. In some cases, the Board's decision in these issues was made explicitly subject to reconsideration in light of the cheating revelations and the record of the Reopened Proceeding. The following is a prime example:

We do not disagree with the UCS claim (proposed finding ¶ 35) that extensive training and well-conceived procedures are required when the feed-and-bleed cooling mode is relied upon to dissipate the heat from the core, but the complete record as it stands today supports the conclusion that these procedures and training can be provided. However, we have reopened the record in this proceeding to inquire into the significance of the test cheating disclosures on the effectiveness of operator training. I.D., 14 NRC 1211, 1231, ¶625, (emphasis added).

The ASLB refused to reconsider its finding with respect to the "extensive training and well-conceived procedures"

necessary for bleed-and-feed, a cooling mode which has assumed key importance in this proceeding.^{5/} It refused, in fact, to reconsider any of its rulings, rejecting UCS's arguments summarily at ¶2410.

It is useful at this point to briefly review what has been discussed earlier. As a direct result of the TMI-2 accident, the Commission found that it did not have reasonable assurance that TMI-1 could be safely operated and directed inter alia, that prior to operation of TMI-1, all TMI operators be retrained, including training in the areas of particular weakness highlighted by the accident, that Licensee test all operators in these areas and that NRC administer complete exams to verify the qualification of all licensed personnel. In addition, the Licensee was ordered to show that it possesses management and technical capability and that that demonstration include training of the operations staff. CLI-79-8, 10 NRC 141, 144-145. Items (1)(e) and (6).

These new requirements flowed from the fact that all of the investigations of the TMI accident had reached conclusions similar to those of the Kemeny Commission, which were paraphrased by Judge Milhollin as follows:

^{5/}Even before the Reopened Proceeding, UCS took exception to the Board's rulings both that the record shows that the necessary "extensive training and well conceived procedures" can be provided and that, even if they "can," they certainly have not yet been on this record. The possibility that training can in the future be provided is no basis for allowing operation now.

The Kemeny Commission found that operator training was greatly deficient; that the depth of understanding was far too shallow. It also found that the branch of NRC that monitored operator training was "weak and understaffed" and that NRC limited itself to "giving routine exams." It concluded that no quantity of "fixes" would cure the basic problem, which it found to be the attitude of the people who were involved. SMR ¶282, 15 NRC 918, 1032.

There are just two ways in which operator competence and integrity, both necessities for safe operation, can be instilled and verified. One is the company's training and testing program. The other is the NRC examination process. Both must be independently reliable; the evidence in this case showed that neither has been.

The Board's rationales for refusing to reassess its rulings on UCS contentions were weak, indeed. First, the ASLB said that it has not found the TMI operators to be incompetent, noting that they have taken tests, done additional studying and "their training has included the best possible course content." July 27 P.I.D. ¶2410, p. 176. There is no dispute, of course, that the operators have gone through Licensee's training and testing program. If that by itself were sufficient, there would have been no need for this proceeding at all. The issue is whether that program was effective. As the Board noted, the relevant

fn. cont./See UCS Brief on Exceptions to the Partial Initial Decision of December 14, 1981, exceptions 9 and 10, pp. 10-12, March 12, 1982. These findings were unjustifiable on the basis of the original record; at this point they can be characterized as little more than faith.

question is whether "the instruction [was] adequate to prepare the operators to operate the plant safely." Id. at ¶ 2343, p. 144.

We are frankly at a loss to understand what the Board could mean by "the best possible course content." Surely a course that drums rote words into the operators and fails to teach them concepts even after they have shown a lack of understanding hardly qualifies as the "best possible." It appears that the Board is once again drawing a distinction between "quality of instruction" and "course content." While it is conceivable that such a distinction may have a pedagogical meaning of which we are unaware, it does not serve a meaningful purpose in this context. As noted above, whether attributable to low quality instruction or poor course content, the fact is that exercises in memorization do not assure or verify the high level of operator skill and judgment necessary.

The Board goes on: "Whatever the quality of instruction methods, the intense and repeated exposure to the course material necessarily must contribute to the competence of the operators." Id., p. 177. This remarkable sentence attests strikingly to the weakness of the reed upon which the ASLB--and the public health and safety--stands. In fact, it is far from self-evident that memorization exercises "contribute to...competence." They will certainly contribute to short-term retention of words and phrases. They will not necessarily contribute to competence, or even to retention

of the memorized material after a short period of time.^{5/} They will certainly not assure the high level of judgment and competence required, for example, for bleed-and-feed (14 NRC 1211, 1231, ¶625) or to assure that the "core will never be uncovered" (Id. at 1229-1230, ¶618) or to cool the reactor in a solid-water condition using HPI for pressure control (Id. at 1269, ¶755, See UCS Comments on Special Master's Report at 15-16) or in general to diagnose and deal with unusual events.

Nor can the Appeal Board find the requisite assurance in the fact that operators passed the NRC exam. See discussion supra, pp. 20-23 and July 27 P.I.D. ¶2376-2377, p. 160-161. Nor does the ASLB's observation tha the defects in the staff examinations and procedures may be "generic" (Id. at ¶2377) make the slightest difference. Neither the ASLB nor the Appeal Board may allow a plant to operate simply because the questions about its safety are shared by one other plant or many other plants. As this Board ruled in Virginia Electric and Power Co. (North Anna Nuclear Power Station, Units 1 and 2), ALAB-491, 8 NRC 245, 248 (1978):

^{6/}In this connection, paragraph 242 of Judge Milhollin's Report is extremely instructive. The ASLB cited this paragraph in its decision with agreement. (July 27 P.I.D. ¶2334, p. 139). It follows:

Because memorization was an issue with respect to cheating, there was considerable evidence on the method of instruction used in the training program. The most detailed testimony was given by G and H. Their evidence

Of course, these unresolved issues cannot be disregarded in individual licensing proceedings simply because they also have generic applicability; rather, for an applicant to succeed, there must be some explanation why construction or operation can proceed even though an overall solution has not been found.

Upon the basis of this record and the heightened importance of operator competence in the light of TMI, the Board cannot continue to maintain that the reliance it reposed in the operators' judgment, understanding and integrity, in some cases even to compensate for the lack of reliable equipment, was warranted. Nor can it conclude that the conditions established by the Commission's Order have been met.

fn. cont./

started with the question on "natural circulation." H was asked on the witness stand to state the conditions for natural circulation. He could not; in response to specific questions, he said that it was irrelevant whether the heat sink was above the heat source or below it. See ¶31, above. H had received repeated instruction on natural circulation and the lessons learned from the TMI-2 accident. He received that instruction in the program leading up to the Kelly examination in April, 1980, and he attended at least three separate weekly training sessions at the end of which he took make-up examinations on Category T. Lic. Ex. 64. The fact that the training program failed to teach H such a simple and important concept is quite remarkable. H told Mr. John Wilson that the question "required a lot of straight memorization."

RSM, 15 NRC 918, 1015, ¶242, emphasis added.

Conclusion

For the reasons given above, UCS's exceptions to the Partial Initial Decision (Reopened Proceeding) of July 27, 1982, should be sustained.

Respectfully submitted,



Ellyn R. Weiss

Harmon & Weiss
1725 I Street N.W.
Suite 506
Washington, D.C. 20006

(202) 833-9070

Dated: September 30, 1982

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
)
METROPOLITAN EDISON COMPANY) Docket No. 50-209
) (Restart)
(Three Mile Island Nuclear)
Station, Unit No. 1))

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing UNION OF CONCERNED SCIENTIST' BRIEF ON EXCEPTIONS TO PARTIAL INITIAL DECISION (REOPENED PROCEEDING) have been delivered this 30th day of September, 1982, first-class, postage paid, to the following:

Ivan W. Smith, Chairman
Atomic Safety and Licensing
Board Panel
U. S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Dr. Walter H. Jordan
Atomic Safety and Licensing
Board Panel
Rt1 West Outer Drive
Oak Ridge, Tennessee 37830

Dr. Linda W. Little
Atomic Safety and Licensing
Board Panel
5000 Hermitage Drive
Raleigh, North Carolina 27612

Professor Gary L. Milhollin
1815 Jefferson Street
Madison, Wisconsin 53711

Judge Gary J. Edles, Chairman
Atomic Safety and Licensing
Appeal Board
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Judge John H. Buck
Atomic Safety and Licensing
Appeal Board Panel
U. S. Nuclear Regulatory
Commission
Washington D.C. 20555

Judge Christine N. Kohl
Atomic Safety and Licensing
Appeal Board Panel
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Thomas Roberts, Commission
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Luigio Palladino, Chairman
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Mrs. Marjorie Aamodt
R.D. #5
Coalsville, Pennsylvania

Robert Adler, Esq.
 Assistant Attorney General
 505 Executive House
 P.O. Box 2357
 Harrisburg, Pennsylvania 17120

Louis Bradford
 Three Mile Island Alert
 325 Pepper Street
 Harrisburg, PA 17102

David E. Cole, Esq.
 Smith & Smith, P.C.
 2931 North Front Street
 Harrisburg, PA 17110

Jordan D. Cunningham, Esq.
 Fox, Farr & Cunningham
 2320 North Second Street
 Harrisburg, PA 17110

Thomas J. Germaine, Esq.
 Deputy Attorney General
 Division of Law - Room 316
 1100 Raymond Boulevard
 Newark, New Jersey 07102

Dr. Judith H. Johnsrud
 Dr. Chauncey Kepford
 Environmental Coalition on
 Nuclear Power
 433 Orlando Avenue
 State College, PA 16801

Judge Reginald L. Gotchy
 Atomic Safety and Licensing
 Appeal Board Panel
 U.S. Nuclear Regulatory
 Commission
 Washington, D.C. 20555

John A. Levin, Esq.
 Assistant Counsel
 Pennsylvania Public Utility
 Commission
 P.O. Box 3265
 Harrisburg, Pennsylvania 17120

John Ahearne, Commissioner
 U.S. NRC
 Washington, D.C. 20555

Mr. Marvin I. Lewis
 6504 Bradford Terrace
 Philadelphia, PA 19149

Ms. Gail B. Phelps
 245 West Philadelphia Street
 York, Pennsylvania 17404

Counsel for NRC Staff
 Office of Executive Legal
 Director
 U.S. Nuclear Regulatory
 Commission
 Washington, D.C. 20555

* George F. Trowbridge, Esq.
 Shaw, Pittman, Potts &
 Trowbridge
 1800 M Street, N.W.
 Washington, D.C. 20036

Docketing and Service Section
 Office of the Secretary
 U.S. Nuclear Regulatory
 Commission
 Washington, D.C. 20555

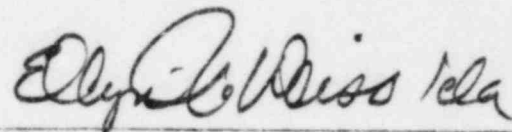
Victor Gilinsky, Commissioner
 U.S. NRC
 Washington, D.C. 20555

James Asselstine, Commissioner
 U. S. NRC
 Washington, D.C. 20555

Mr. Steve Brooks
Public Information and
Resource Center
1037 Maclay Street
Harrisburg, PA 17103

Michael F. McBride, Esq.
LeBoeuf, Lamb, Leiby & MacRae
1333 New Hampshire Avenue, N.W.
Suite 1100
Washington, D.C. 20036

Mr. Henry D. Hukill
Vice President
GPU Nuclear Corporation
P. O. Box 480
Middletown, PA 17057



Elynn R. Weiss

*Hand-delivered