

865

STAFF  
March 1, 1985

DOCKETED  
USNRC

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

METROPOLITAN EDISON COMPANY, ET AL. )  
(Three Mile Island Nuclear Station, )  
Unit No. 1) )

Docket No. 50-289  
(Restart Remand  
on Management)

SP

NRC STAFF'S PROPOSED FINDINGS OF FACT  
AND CONCLUSIONS OF LAW IN THE FORM OF A  
PARTIAL INITIAL DECISION ON THE REMANDED  
ISSUE OF LICENSED OPERATOR TRAINING AT TMI-1

INTRODUCTION

The Staff has carefully reviewed Licensee's Proposed Findings of Fact and Conclusions of Law on the Issue of Licensed Operator Training at TMI-1, February 13, 1985. <sup>1/</sup> The Staff believes that, in many respects, Licensee's proposed findings of fact are supported by, and accurately reflect, the evidentiary record. Consistent with the Licensing Board's direction that the parties consider and adopt the proposed findings of

1/ The Staff also has reviewed Three Mile Island Alert's Proposed Findings of Fact and Conclusions of Law dated February 26, 1985 (TMIA's proposed findings), and the Commonwealth of Pennsylvania's Proposed Findings of Fact and Conclusions of Law dated February 22, 1985 (Commonwealth's proposed findings). The Staff believes that, as a general matter, those proposed findings are not supported by the evidence, or any reasonable inferences from the evidence. Therefore, the Staff believes that those proposed findings should not be adopted by the Licensing Board. The Staff has also reviewed the Union of Concerned Scientists' Proposed Findings of Fact and Conclusions of Law dated February 25, 1985 (UCS' proposed findings). In certain instances, there are similarities between UCS' proposed findings and the Staff's proposed findings, and, in some instances, with Licensee's proposed findings. See, e.g., Staff's proposed footnote 109 and UCS' proposed footnote 7. In general, however, the Staff believes UCS' proposed findings are not supported by the evidence and should not be adopted.

DS07

other parties with which they agree, the Staff proposes the following findings of fact. <sup>2/</sup>

FINDINGS OF FACT AND CONCLUSIONS OF LAW

1. The Staff adopts Licensee's proposed findings of fact ¶¶ 1-3.
2. The Staff adopts Licensee's proposed finding ¶ 4, with the following changes:

4. In particular, the Appeal Board was concerned about the fact that in the reopened proceeding, the Licensing Board had not heard additional testimony from the panel of experts upon whom the Board had heavily relied in the first instance in approving the TMI-1 training programs. In 1980-81, these experts, known as the OARP Review Committee,<sup>2/</sup> had reviewed

---

<sup>2/</sup> The OARP Review Committee was a select Committee made up of experts in the fields of educational psychology (Dr. Eric Gardner), engineering/human factors psychology (Dr. Julien M. Christensen), nuclear engineering education (Dr. William R. Kimel), nuclear power generation (Dr. Robert E. Uhrig), and nuclear power plant operator training (Mr. Richard J. Marzec). The OARP Review Committee issued a Report in 1980 that reviewed the Operator Accelerated Retraining Program ("OARP") conducted at TMI in 1979-1980. The OARP was a one-time intensive program designed to significantly improve licensed operator performance. See LBP-81-32, supra, 14 N.R.C. at 451-53 (¶¶ 196-201).

---

<sup>2/</sup> Where the Staff proposes a finding identical to Licensee's except for the addition of certain citations, phrases or sentences, those additions are underlined to assist the Board in identifying Staff's proposed additions. Proposed deletions are included in brackets and are crossed out. Additional footnotes proposed by the Staff are numbered with letter suffixes to designate the proper order according to Licensee's proposed findings; e.g., Staff's proposed footnote 2a would appear between Licensee's proposed footnotes 2 and 3.

Licensee's training program and, while recommendations for improvement were made, the experts strongly endorsed the program. See ALAB-772 at 1210-11. In ALAB-772, the Appeal board made clear that the "principal difficulty" of the Licensing Board's decision was "the Licensing Board's failure to reconsider, as promised and in a meaningful way, its earlier finding that licensee's training program was 'comprehensive and acceptable.'" ALAB-772, supra, 19 N.R.C. at 1233. Instead, the Licensing Board had relied on the post-cheating testimony of only Licensee and Staff. In this remanded proceeding, the Board therefore is charged with a particular responsibility to ensure an extremely thorough record, independent of the like responsibilities conferred on it by the Commission in its original institution of this proceeding. See CLI-79-8, 10 N.R.C. 141, 147-49 (1979). In view of the significance of the testimony of the OARP Review Committee to the initial management decision, the Appeal Board found the absence of further testimony from these experts during the reopened hearings on cheating to constitute "a significant gap in the record." ALAB-772, supra, 19 NRC [Id.] at 1234, 1237. Accordingly, the Appeal Board remanded "that part of this proceeding devoted to training, for further hearing on the views of Licensee's outside consultants (including the OARP Review Committee), in light of both the weaknesses demonstrated in Licensee's training and testing program and the subsequent changes therein." Id. at 1239.

[the issue of the adequacy of the TMI-1 licensed operator training program in order to obtain the views of the OARP Review Committee on this subject, given the occurrence of cheating at TMI since the experts' earlier favorable testimony.]

3. The Staff adopts Licensee's proposed finding ¶ 5, and adds the following footnote following Licensee's proposed finding ¶ 5:

2a/ In calling for the Committee's views, the Appeal Board stated that it was not a matter of bringing a "stale" record in a closed proceeding up to date; rather, it is "akin to recalling a crucial witness for further testimony after new developments came to light during a lengthy trial" (i.e., the discovery of cheating). ALAB-772, supra, 19 NRC at 1237 n. 58. That "crucial witness" is the Committee.

4. The Staff adopts Licensee's proposed findings of fact ¶¶ 6-9.

5. The Staff adopts Licensee's proposed finding ¶ 10, with the following changes:

10. The focus of the Appeal Board's remand of training is on the post-cheating views of the OARP Review Committee and on factoring those views into the Licensing Board's earlier decision on training. [However,] In Section III.C of ALAB-772, the Appeal Board raises numerous questions and issues about Licensee's training program, and the Committee endeavored, in both its Special Report and its prefiled testimony, to address each of those questions and issues.



10a. The questions and issues raised by ALAB-772<sup>7a/</sup> can be grouped into three major categories: Management/Communications/Attitudes; Training Systems/Programs; and GPUN Examinations.

10b. For Management/Communications/Attitudes, the following questions and issues are raised:

- Do instructors and operators take the training courses and examination process seriously (ALAB-772, 19 N.R.C. at 1233)?
- What is the degree of pride and enthusiasm of GPUN employees in the training program (Id. at 1234)?
- What is the degree of professionalism of the instructors (Id. at 1234)?
- Do post-cheating changes in the training program adequately ameliorate the lack of communication between top management, training staff and operating crews (Id. at 1236)?

---

7a/ Through a review of ALAB-772 and the issues raised by the Appeal Board, both the Committee and the Staff determined the major issues for further review. See Special Report; See Testimony of Julius J. Persensky, Joseph J. Buzy and Dolores S. Morisseau on the Remanded Training Issue From ALAB-772 ("Staff"), ff. Tr. 33,148, at 3-5. The Committee and the Staff used a similar method of indicating questions and grouping them for response, although the groupings used were somewhat different.

- Are important personnel changes within the training department appropriate (Id. at 1236)?

10c. For the Training Systems/Programs, the following questions and issues are raised:

- Are deficiencies in operator testing, as manifested by the cheating episodes, symptomatic of more extensive failures in the overall training program (Id. at 1233)?
- Does the training program enhance operators' knowledge or simply encourage memorization for test-taking purposes (Id. at 1233)?
- Are training facilities adequate (Id. at 1235)?
- Have the instructors taken special teacher training courses (Id. at 1235)?
- The Committee should review licensee's new training instructor criteria (Id. at 1235).
- Should greater usage of simulators in training and testing be required (Id. at 1236)?

10d. For GPUN Examinations, the following questions and issues are raised:

- Is the Licensee's examination an effective way to measure an operator's ability to run the plant (Id. at 1233)?

- Do the format and content of written examinations encourage cheating (Id. at 1233)?
- Should simulator testing be required of all operators (Id. at 1236)?

10e. Because of the importance of the issue of training, see ALAB-772, supra, 19 N.R.C. at 1279, and our independent responsibility to ensure that the record in this proceeding is complete, [8/] the Board was reluctant to interpret narrowly the Appeal Board's directive remanding the issue of training. Moreover, while the Appeal Board [~~may-have~~] remanded the training issue solely to hear the views of Licensee's consultants, the right of other parties to confront those views necessarily broadened the scope of the hearing. See Memorandum & Order Following Prehearing Conference, July 9, 1984 at 3. However, ALAB-772 specified several limitations on the scope of this proceeding and, by applying those limitations, the Board essentially provided a framework within which the evidentiary proceeding ensued.

---

8/ [omit]

6. The Staff adopts Licensee's proposed findings of fact ¶¶ 11-12.

7. The Staff adopts Licensee's proposed finding ¶ 13, with the following changes:

13. In addition, ALAB-772 clearly remanded the issue of training in order for the Board to receive the Committee's views on [assess] the implications of the cheating incidents on the adequacy of the operator training program currently in existence at TMI-1. ALAB-772, supra, 19 N.R.C. at 1235; see generally id. at 1232-37 (issue is whether past deficiencies "still exist," and current status of program and personnel.) It is equally clear that ALAB-772 did not require that the Staff and Licensee be recalled to "update" their prior testimony, which had taken into account the cheating episodes. See Staff's proposed finding ¶ 4, and footnote 2a thereto, supra. [However,] The Board was reluctant to deny parties the right to pursue a particular past problem insofar as that problem could shed some light on the adequacy of the current program. See ALAB-774, 19 N.R.C. 1350, 1356 (1984) ("This proceeding was not instituted to provide a forum in which to litigate directly all possible errors of the past; past training deficiencies are part of the reopened proceeding only insofar as they shed 'new light on the adequacy of licensee's existing training program.'"); see also, e.g., Tr. 32,220-31 (TMIA cross-examination of Dr. Long about 1979 timeframe).

8. The Staff adopts Licensee's proposed finding ¶ 14.

9. The Staff adopts Licensee's proposed finding ¶ 15, with the following changes:

15. [~~Not-surprisingly,~~] The parties' interpretation of the scope of the remanded training issue varied, and this fact was reflected in their respective cases-in-chief. The NRC Staff, citing to specific language in the remand (see Staff's proposed finding ¶ 4 and footnote 2a.), considered the remand to be limited to the views of the OARP Review Committee about licensed operator training at TMI-1, taking into consideration the cheating and subsequent changes to the program. The Staff did not address the actual content of the training program in its testimony because the Staff's view of the program, which was reaffirmed after the cheating incidents were discovered, is not the subject of the Appeal Board's remand.<sup>8a/</sup> The Staff testimony therefore addressed the issue of whether the "methodology" used by the Committee was adequate to support the Committee's conclusions.  
~~[proposed-a-methodology-by-which-the-Committee-could-make such-an-assessment-and-compared-the-proposed-methodology-with the-approach-used-by-the-Committee.]~~ See Testimony of Julius J. Persensky, Joseph J. Buzy and Dolores S. [E+] Morisseau on

---

8a/ By letter of November 26, 1984 to this Board, counsel for Licensee expressed dismay that the Staff's testimony did not address the actual content of the TMI-1 training program, and suggested that the Board might wish to call Staff members as its own witnesses on the subject. After a telephone conference with the parties, the Board orally informed the parties that it had no current intention to call the Staff for testimony on that subject. Indeed, during the course of the hearing the Board did not call on the Staff to present such testimony.

the Remanded Training Issue from ALAB-772 ("Staff"), ff. Tr. 33,148, at 2. UIC similarly presented an expert witness, Dr. James J. Regan, who offered his recommended methodology for analyzing training at TMI-1. Testimony of Dr. James J. Regan ("Regan"), ff. Tr. 33,532; see also Surrebuttal Testimony of Dr. James J. Regan ("Regan Surrebuttal"), ff. Tr. 32,693. The Licensee presented the panel of five experts who made up the Reconstituted OARP Review Committee.<sup>9/</sup> See Testimony of the Reconstituted OARP Committee (Dr. Julien Christensen, Dr. Eric Gardner, Mr. Frank Kelly, Dr. William Kimmel and Dr. Robert Uhrig) on the TMI-1 Licensed Operator Training Program ("Committee"), ff. Tr. 31,749; Rebuttal Testimony of the Reconstituted OARP Committee ("Committee Rebuttal"), ff. Tr. 33,320. [~~While the Staff offered no testimony on the actual content of the current TMI-1 licensed operator training program,~~] In addition, Licensee presented three panels of company witnesses who described the program in detail. This testimony also specifically addressed questions contained in Section III.C of ALAB-772 about post-cheating management actions related to training. See Licensee's Testimony of Dr. Robert L. Long and Dr. Richard P.

---

<sup>9/</sup> In May 1984, the OARP Review Committee was reconstituted. The membership remained the same with the exception of Mr. Marzec, who was unavailable. He was replaced with Mr. Frank Kelly, an expert on licensed operator testing, who previously testified in this proceeding. See ¶ 224, infra; compare n.2, supra; see LBP-81-32, supra, 14 N.R.C. at 460-61 (¶¶ 226-29).



Coe on the Issue of Licensed Operator Training at TMI-1 ("Long & Coe"), ff. Tr. 32,202; Licensee's Testimony of Mr. Samuel L. Newton, Mr. Bruce P. Leonard and Mr. Michael J. Ross on the Issue of Licensed Operator Training at TMI-1 ("Newton et al."), ff. Tr. 32,409; Rebuttal Testimony of Dr. Ronald A. Knief and Mr. Bruce P. Leonard ("Knief & Leonard"), ff. Tr. 33,364. UCS and TMIA challenged the substantive adequacy of the licensed operator training program, both through cross-examination of Licensee's witnesses and through the introduction of exhibits offered for the purpose of establishing inadequacies in the program. See UCS Training Exhs. 1-34; TMIA Training Exhs. 1-11.

10. The Staff proposes, in lieu of Licensee's proposed findings ¶ 16-223, the following:

16. The Board is in agreement with the Staff that the Staff's view of the adequacy of Licensee's training program was not the subject of the Appeal Board's remand. The Staff's favorable testimony on the adequacy of Licensee's training program, which was presented prior to the discovery of the cheating incidents, was reaffirmed by the Staff after the cheating incidents were discovered. Tr. 31,744-45 (Wagner). Accordingly, there was no need to hear additional testimony

from the Staff on this subject. <sup>3/</sup> At the same time, we acknowledge that Licensee's view of the scope of the remand necessitated recalling as witnesses some of its own personnel who had testified during the cheating proceeding. Indeed, the testimony presented at the remanded hearing by GPU personnel presents the current GPU program, procedures and personnel in considerable detail. Intervenors, as well, examined various aspects of the current training program, in an attempt to discredit the OARP conclusions by showing that the current program is not as the OARP has concluded. In their proposed findings of fact, both Licensee and UCS proposed comprehensive findings on the current GPU program, procedures and personnel. See Licensee's proposed findings ¶¶ 17-223; UCS' proposed findings ¶¶ 165-296. In so doing, Licensee and intervenors may have gone further into the details of training at TMI-1 than the Appeal Board had intended, since the Appeal Board did not vacate our earlier decisions on training, but rather found a "significant gap" in the record that needed to be

---

<sup>3/</sup> No negative inference concerning the Staff's view of the adequacy of the training program should be drawn from the fact that the Staff did not present further testimony on this subject. See Tr. 33,261-66. The Board is mindful that, as Staff counsel noted at the hearing, the Staff has very clear obligations if its position on a matter before the Board should change. Tr. 33,266. The Board is also mindful of the fact that the Staff reviews GPUN training on an ongoing basis, and that in discharging its obligations to this Board and the Commission, Inspection Reports are reviewed by the Staff with regard to whether a Board Notification is needed and, ultimately, whether its prior position on the adequacy of licensed operator training at TMI-1 has changed.

filled. See Staff's proposed footnote 2a, supra. As noted above (see Staff's proposed finding ¶ 15), the Staff did not present testimony on the adequacy of the current training program, nor do we consider such testimony necessary given the scope of the remanded proceeding. As a result, it would not be appropriate for this Board to issue an opinion which comprehensively discusses the current program, procedures and personnel and then passes on the totality of the program. Accordingly, we shall proceed to answer the questions raised by ALAB-772; we shall not attempt to make comprehensive findings on the totality of the current status of licensed operator training at TMI-1, since we view that as beyond the scope of this remanded proceeding. 9a/

---

9a/ We note, however, that the Staff has indicated in its proposed findings that, with regard to Licensee's proposed findings ¶¶ 17-223, the findings contain nothing that is at odds in any material way with prior Staff conclusions on the adequacy of the licensed operator training program at TMI-1. Staff proposed finding ¶ 9, footnote 9a. Nevertheless, the Staff declines to adopt those proposed findings as part of a remanded opinion arising from ALAB-772, both because the Staff views the remanded issues as more limited and because such findings do not take into account the Staff's own analysis of the adequacy of the current licensed operator training program. While the Staff would reach the same overall conclusions regarding adequacy of the current program as Licensee proposes, in several instances it would rely on different factors (not in evidence) in reaching those conclusions.

11. The Staff adopts Licensee's proposed finding ¶ 224.

12. The Staff adopts Licensee proposed finding ¶ 225, with the

following changes:

225. Our satisfaction with the qualifications of the members of the Reconstituted OARP Review Committee notwithstanding, a discussion of the methodology employed by the Committee in reviewing the TMI-1 licensed operator training program and the remanded training issues is warranted to address the numerous concerns raised by the NRC Staff and UCS. In Section III.C of ALAB-772, the Appeal Board indicated that the Licensing Board should have sought further testimony from the Committee concerning its view of the training program in light of the cheating incidents and related program deficiencies. See ALAB-772, supra, 19 N.R.C. at 1233-36. The Committee interpreted the mandate of the Appeal board as calling for it to conduct a review of the training program sufficient to allow it to knowledgeably address the remanded training issues. The Committee did not believe that, in seeking its opinion, the Appeal Board intended for the Committee to "validate" or perform a quality assurance check on the licensed operator training program. See Committee Rebuttal, ff. Tr. 33,320, at 9. [~~Nonetheless, the Committee's testimony indicates that it did perform a comprehensive review of the current training program that rivals the level of review an accreditation team would perform, -- Tr. 32, 109 - (Kime) --~~]

13. The Staff adopts Licensee's proposed finding ¶ 226, with the following changes:

226. We agree with the Committee's assessment of the Appeal Board's intent. We do not believe that the Appeal Board intended for the Committee to undertake an accreditation-type review of the training program in order to address the remanded issues.<sup>78/</sup> See Tr. 33,249-51 (Staff view that Committee members' credentials are more akin to credentials of INPO accreditation board members than to the team which reviews the program onsite. [~~greatly exceed those of INPO staff workers who conduct accreditation-type review.~~] Rather, we are confident that the Appeal Board intended the Committee's review to have been fashioned

---

<sup>78/</sup> Our review of the testimony revealed that neither the Staff nor [and] UCS believes that the Committee should have performed an accreditation-type review of the training program. The Staff did not believe the Appeal Board in ALAB-772 asked for an accreditation type review nor did the Staff suggest that OARP should have performed such a review. 33,249, 33,273-74 (Persensky). While the Staff noted [argued] that [the] an appropriate methodology [should] could be structured like that performed by Data-Design Laboratories in preparation of the DDL Report (a multi-volume report on [accreditation-of] the TMI-1 training program exceeding 300 pages in length), it also pointed to the INPO methodology as appropriate. Staff, ff. Tr. 33,148 at 36; Tr. 33,246-48 (Persensky, Buzy). [~~The UGS methodology is also on-par with an accreditation-type review in terms of the depth and breadth of the review as evidenced by~~] While Dr. Regan[is-statement] stated that it would take a team of five qualified people three months to complete his recommended review, Regan, ff. Tr. 33,532 at 22, there is nothing in the record to show that this would equate with an accreditation type review. [~~Hence, notwithstanding the testimony of Dr. Persensky that neither the DDL approach nor the Staff's methodology are technically accreditation methodologies, our review of the methodologies presented by the Staff and UGS indicates that they clearly suggest that the Committee should have conducted an accreditation-type review to appropriately address the remanded issues. -- See Tr. 33,249, 33,273-74 (Persensky).~~]

such that the Committee could provide us with knowledgeable and competent testimony regarding its opinion of the adequacy of the training program in light of the remanded issues. Hence, the threshold question is whether the Committee's method of review was sufficient to allow it to knowledgeably address the remanded issues.

14. The Staff adopts Licensee's proposed findings ¶¶ 227-228.

15. The Staff adopts Licensee's proposed finding ¶ 229, with the following changes:

229. The Committee also received and reviewed [~~a great deal of~~] certain documentary material, including ALAB-772, relating to the various aspects of the training program and the remanded training issues. See Committee, ff. Tr. 31,749, Special Report, Table A-2. These documents provided the Committee with detailed descriptions of [~~the~~] various aspects of the training program, including procedures for exam construction and administration, instructor development, exam security, and operator training. Among these materials were various assessments of the training program by the NRC and independent consultants.80a/

---

80a/ However, prior to the preparation of its Special Report, the Committee did not review either the RHR Report or NUREG-0680 or any of its supplements, and the NPC Staff was critical of their failure to do so. See Staff's proposed findings ¶¶ 268 and 269, infra.

16. The Staff adopts Licensee's proposed findings ¶¶ 230-233.



17. The Staff adopts Licensee's proposed finding ¶ 234, with the following changes:

234. The Committee's May-June review of the TMI-1 licensed operator training program to address the remanded training issues [~~entailed-a-sweeping-review-of-the-licensed-operator-training-program,~~] was constrained by the fact that it was to be completed in time to contribute to an NPC meeting scheduled for June 27, 1984, at which the Commission had indicated it would formally consider the issue of TMI-1 restart. Committee, ff. Tr. 31,749, Special Report at 3. By the Committee's own admission, it was a "quick response" prepared specifically for the impending NRC meeting. Id. Because of the time limitations, it was not an in-depth study of the type undertaken by the OARP Review Committee in 1979-80. Id. Through [extensive] document review, intensive briefings by Training and Education management personnel and a limited degree of first-hand review, the Committee investigated the remanded issues within the time available. Their investigation did not include, for example, interviews with licensed operators, or observation of any classes. During that time, the following subject areas of the TMI-1 licensed operator training program were investigated by the Committee.

18. The Staff adopts Licensee's proposed findings ¶¶ 235-240.

19. The Staff adopts Licensee's proposed finding ¶ 241, with the following changes:

241. The Committee's initial review of the TMI-1 licensed operator training program was an extremely demanding [~~and-painstaking~~] process involving intensive sessions, given the time constraints imposed. The Committee devoted approximately 30-40 man-days to its initial review. Tr. 32,102 (Uhrig).

20. The Staff adopts Licensee's proposed findings ¶¶ 242-244.

21. The Staff adopts Licensee's proposed finding ¶ 245, with the following changes:

245. The Committee conducted a number of interviews of GPU Nuclear management, and Training and Operations personnel for the purpose of gaining first-hand impressions of the quality of the personnel involved in the licensed operator training program and to get their views about and attitude towards the training. See, e.g., Tr. 32,062-63 (Uhrig); Tr. 32,063 (Kimmel); Tr. 32,067 (Christensen). Dr. Gardner, Mr. Kelly and Dr. Christensen interviewed 5 licensed operator or simulator instructors,<sup>84/</sup> 4 replacement operators, and approximately 27 licensed RO's and SRO's including all six shift supervisors who are the on-the-job supervisors. Committee Rebuttal, ff. Tr. 33,320, at 4. Dr. Uhrig testified that he asked operators about such things as their

---

<sup>84/</sup> Dr. Christensen testified that he also engaged in general discussions about the program with two other licensed operator instructors. Tr. 32,155-56 (Christensen).

responsibilities, their present attitudes about the cheating and Licensee's response thereto, and their attitudes toward training. Tr. 32,062-63 (Uhrig). Dr. Kime1 added that he asked operators about their feelings regarding the quality of training instructors. Tr. 32,064-65 (Kime1). Dr. Gardner testified that he and Dr. Christensen preferred to interview operators together so that one of them would be free to pick up on weak responses thereby making it difficult for an interviewee to stand on an incomplete or evasive response. Tr. 32,067, 32,155, 33,279 (Gardner). Mr. Kelly testified that his earlier interviews of licensed operators had addressed operator attitudes toward training and areas of improvement, and that his later interviews also included a discussion of [questions-related-to] the PHR Report. Tr. 31,843-44, 31,848, 31,855 (Kelly). Mr. Kelly further testified that he had interviewed operators with respect to their opinions of the quality of the training instructors and their opinions of the instructors' attitude toward them. Tr. 32,068-69 (Kelly). Although there was no Committee structure to the conduct of interviews, Tr. 32,062 (Uhrig), the Committee's testimony indicated that it had conducted its interviews of operator instructors in similar fashion. Tr. 32,070-71 (Kelly, Gardner). Mr. Kelly testified that he had also conducted less formal discussions with several operators and instructors concerning debriefings undertaken to prevent negative transfer from the R&W simulator to the

TMI-1 control room. Tr. 32,074 (Kelly). The Committee finally noted that although the operators interviewed were usually designated as available by the shift supervisor on duty, it had no reason to believe that any operators were either preselected or intentionally restrained from interviewing. Tr. 31,859-60 (Gardner, Christensen); Tr. 33,278 (Gardner, Kelly, Christensen, Uhrig, Kimmel).

22. The Staff adopts Licensee's proposed findings ¶ 246.

23. The Staff adopts Licensee's proposed finding ¶ 247, with the following changes:

247. The Committee's classroom observations involved ~~[the-visitation-of-a-cross-section]~~ visits to a non-representative sample of classes given to TMI-1 licensed operators or given by TMI-1 licensed operator instructors. Committee Rebuttal, ff. Tr. 33,320, at 4. Mr. Kelly observed 8 classes. Tr. 31,910 (Kelly). Dr. Gardner observed 7 classes. Tr. 31,894 (Gardner). As part of his review, Dr. Gardner testified that he carefully reviewed the procedures concerning the development of lesson plans; and that he frequently spoke with instructors after observing their classes and reviewed the lesson plan for that particular class. Tr. 31,944 (Gardner). Moreover, Mr. Kelly reviewed the lesson plans' technical content and checked them to assure himself that they reflected the current plant design. Tr. 31,946 (Kelly). Both Mr. Kelly and Dr. Gardner

also visited a sample of non-licensed operator classes and two BPTS classes. Committee Rebuttal, ff. Tr. 33,320, at 4-5. Dr. Kime1 observed 8 licensed operator training classes. Tr. 31,906-09 (Kime1). And Dr. Christensen observed 4-6 classes. Tr. 31,898 (Christensen).

Dr. Gardner, Dr. Kime1 and Mr. Kelly observed the TMI-1 control board mockup while it was being used as a training device. Committee Rebuttal, ff. Tr. 33,320, at 5.

Dr. Gardner also observed instructors using an overhead projector and various hand-out materials. Tr. 32,158-59 (Gardner).

24. The Staff adopts Licensee's proposed findings ¶¶ 248-250.

25. The Staff adopts Licensee's proposed finding ¶ 251, with the following changes:

251. The Committee's initial assessment of communications mechanisms consisted of discussions with T&E management and the review of documents evidencing communications channels and management's encouragement thereof. The Committee testified that its subsequent assessment also included a review of the numerous corporate memoranda encouraging the development of strong communications channels. More importantly, however, the Committee's subsequent assessment included interviews with licensed operators and instructors during which their attitude regarding the communications mechanisms in place were addressed, in addition to corresponding discussions with

Messrs. Clark, Hukill, Long, Coe, Newton, Leonard and Ross. See Committee Rebuttal, ff. Tr. 33,320, at 6. However, as the NRC Staff pointed out, these interviews were not structured. Staff, ff. Tr. 33,148, at 32-33; Tr. 33,140 (Persensky).

26. The Staff adopts Licensee's proposed finding ¶ 252, with the following changes:

252. Members of the Committee reviewed documents describing the instructor development program, Licensee training instructor criteria and procedures for instructor evaluation. Instructors were evaluated in particular by Dr. Gardner (education specialist) and Mr. Kelly (subject-matter expert). Dr. Gardner reviewed the performance evaluations for each of the TMI-1 licensed operator instructors for 1983 and 1984. [~~Dr. Gardner and Mr. Kelly then compared their own assessments of the instructors with GPU Nuclear's to assure themselves of the expected consistency between the two.~~] Dr. Gardner and Mr. Kelly also attended portions of the most recent instructor development program and observed first-hand its structure, content and execution. During this time, Dr. Gardner and Mr. Kelly had the opportunity to obtain several instructors' views of the instructor development program. Dr. Christensen, Dr. Kimel and Mr. Kelly also observed the training of two instructors on the use of the BPTS as an instructional device. Committee Rebuttal, ff. Tr. 33,320 at 6; Tr. 31,907-08 (Kimel).



27. The Staff adopts Licensee's proposed finding ¶ 253.

28. The Staff adopts Licensee's proposed finding § 254, with the following changes:

254. The Committee's subsequent assessment also included the review of certain documents that the NRC Staff's witnesses [~~suggested-were-genuine~~] testified should be reviewed as preliminary to an in-depth evaluation of the TMI-1 licensed operator training program, especially with regard to operator attitude. Specifically, the Committee reviewed the RHR Report[86/] and its supporting TMI raw data and NUREG-0680, Supp. 4.87/ However, the Committee testified that it did not rely on these documents in formulating its views because it felt that its first-hand observations were more pertinent. Neither did the Committee structure interview questions in such a way that the data on operator attitudes, reflected in those reports, could be compared to information on current attitudes that was being compiled by the Committee. The Committee further testified that Mr. Kelly and Dr. Gardner had reviewed the notes of

---

86/ [omit]

87/ NUREG-0680, Supp. 4, entitled: "TMI-1 Restart, An Evaluation of the RHR, BETA, and Draft INPO Reports as They Affect Restart Issues at Three Mile Island Nuclear Station Unit 1 Docket 50-289" (October, 1983), documents the Staff's review of portions of the organization, management, training programs and operational practices at TMI-1 and the related findings of the RHR and BETA reports.

Ms. Morisseau, which we understand form the basis for the conclusions about operator attitude in NUREG-0680, Supp. 4, and Ms. Morisseau's deposition, in which these notes were discussed. The Committee also reviewed and placed reliance on Licensee's memorandum responding to the RHR Report. Committee Rebuttal, ff. Tr. 33,320 at 7; Tr. 31,851 (Gardner, Kelly); Tr. 31,855 (Kelly); Tr. 33,297-98 (Gardner); Tr. 33,322-23 (Gardner, Kelly); Staff, ff. Tr. 33,148, at 32-33; Tr. 33,140 (Persensky); see Tr. 33,226 (Morisseau).

29. The Staff adopts Licensee's proposed finding ¶ 255, with the following changes:

255. The Committee was aware of but did not review the job/task analysis for TMI-1 licensed operators to assure their accuracy or adequacy or compare these specific tasks to procedures, to on-the-job training, or to the behavioral learning objectives utilized by the training department. Committee Rebuttal, ff. Tr. 33,320, at 10. Nor did it compare the job/task analyses to the training curriculum. Tr. 31,948-50 (Kelly and Gardner). Dr. Gardner's initial explanation as to why this was not done was that, at the time of the preparation of the Committee's Special Report, the job/task analysis for licensed operators at TMI-1 was not complete. Tr. 33,324-25 (Gardner). However, Dr. Gardner recalls that he learned in either August or October that the job/task analysis was complete; the Committee offered no

explanation as to why it did not perform such comparison at that time. Id. The Committee members were briefed by [~~reviewed with~~] Licensee on its implementation of job/task analyses in the licensed operator training program. See Committee Rebuttal, ff. Tr. 33,320 at 10. Dr. Christensen testified that he was briefed on the job/task analysis process by Licensee who at that time explained that GPU Nuclear was in the process of modifying the INPO generic job/task analysis to make them TMI-specific. Tr. 33,324-25 (Christensen). Dr. Christensen was also briefed on the process of correlating job/task analysis with behavioral learning objectives in terms of the development, implementation and practical applications of behavioral learning objectives. See Tr. 33,330-32 (Christensen). Dr. Gardner looked at [~~evaluated~~] the process of correlating job/task analysis data with behavioral learning objectives by reviewing operator duties, behavioral learning objectives in the Operations Plant Manual and INPO's generic job/task analysis. Tr. 33,330-31 (Gardner). The Committee was apprised of and reviewed the existence and use of performance based behavioral learning objectives, the Operations Plant Manual, the TMI-1 Self-Evaluation Report submitted to INPO, table-top task analysis (general determination of tasks required to perform a job), plant walk-through on-the-job training and simulator training, all of which are based upon or related to job/task analysis. Committee Rebuttal,

ff. Tr. 33,320 at 10-11; Tr. 33,324-30 (Kime1, Christensen). Moreover, the Committee testified that it received and reviewed information on the correlation between job/task analysis data to behavioral learning objectives and exam questions. Tr. 33,330-33 (Gardner, Christensen). Dr. Kime1 reviewed behavioral learning objectives, the Operations Plant Manual, plant specific task lists and the generic INPO job/task analyses to assure himself that the licensed operator training program is performance based. Tr. 33,325-27 (Kime1). Dr. Kime1 did not, however, go back and check whether the tasks and skills that are derived from and associated with those tasks are reflected in the curriculum. Id. at 33,327 (Kime1). In addition, Dr. Christensen received a briefing on table-top analysis from Dr. Knief and observed plant walk-throughs for the same purpose. Tr. 33,327-28 (Christensen). The Committee also evaluated the process for translating job/task analysis data into exam questions. Dr. Christensen was briefed on the process whereby tasks identified from the job/task analysis will be evaluated to assess the best method to teach the task (e.g., classroom, simulator, using a teaching-aid, etc.). Tr. 33,332 (Christensen). Moreover, Mr. Kelly and Dr. Gardner reviewed the [~~requalification~~] exams to determine whether they corresponded with the behavioral learning objectives. Tr. 33,333 (Gardner, Kelly).

30. The Staff adopts Licensee's proposed findings ¶ 256-257.

31. The Staff adopts Licensee's proposed finding ¶ 258, with the following changes:

258. We received testimony from the NRC Staff which was limited to its assessment of the adequacy of the methodology employed by the Reconstituted OARP Review Committee during its evaluation of the TMI-1 licensed operator training program with respect to the remanded training issues. Staff, ff. Tr. 33,148, at 2.90/ The Staff presented what it considers to be an appropriate methodological approach to assessing the licensed operator training program in light of the remanded training issues. The Staff presented its evaluation of the Committee's methodology by comparing its recommended methodology to that utilized by the Committee.

---

90/ The three Staff witnesses were Dr. Julius J. Persensky, Ms. Dolores S. Morisseau and Mr. Joseph J. Buzy. Dr. Persensky is Section Leader of The Personnel Qualifications Section, Licensee Qualifications Branch, in the NRC's Division of Human Factors Safety. He holds a B.A. in Psychology, a M.A. in Experimental Psychology, and a Ph.D. in Applied Experimental Psychology. Ms. Morisseau is a Training and Assessment Specialist, Licensee Qualifications Branch, Division of Human Factors Safety. She holds a B.A. in Psychology and a M.A. in Industrial Psychology. Mr. Buzy, the Staff's subject matter expert in this case, is a Systems Engineer (Training & Assessment), Personnel Qualifications Branch, Division of Human Factors Safety. Mr. Buzy holds a B.S. in Marine Engineering in addition to his vast experience in the nuclear power field over the past 20 years. Staff, ff. Tr. 33,148, attached qualification statements.

Staff, ff. Tr. 33,148, at 3.91/ The Staff has urged the Board to accept the findings of the Committee, but to weight those findings in light of certain methodological limitations identified by the Staff. Id. at 36.

---

91/ [The Board notes that neither the methodology to be employed by the Committee, nor the requirements for any Committee report are addressed anywhere within the Appeal Board's remand of the training issues. -- While we agree that the bases for the Committee's findings are significant and subject to challenge, we are not certain that the method of gaining that information is significant absent any showing that we should doubt the accuracy of the information presented to us by the Committee. Nevertheless,] Licensee questions whether the method for arriving at the bases for the Committee's findings is significant, absent a showing that the Board should doubt the accuracy of the information presented. Licensee's proposed finding ¶ 258, footnote 91. We disagree. A defective methodology conceivably could result in relevant information being overlooked, or conclusions drawn on the basis of a hasty or shallow review of the facts. Any limitations in methodology would have a bearing on the weight to be accorded to the Committee's findings. Accordingly, a discussion of the Staff's concerns regarding the methodology employed by the Committee when it evaluated the training program [would be] is of [some] value to the Board.

32. The Staff adopts Licensee's proposed finding ¶ 259, with the following changes:

259. The Staff outlined in detail the [approximately 110] steps that it felt [each] should be taken or items that [each] should be reviewed in an evaluation of the TMI-1



licensed operator training program in accordance with the Appeal Board's remand.<sup>92/</sup>

---

<sup>92/</sup> In its testimony, the Staff acknowledges that it does not conduct its own reviews of licensee programs using the methodology it proposes. Indeed, the Board notes, as the Staff explained, [~~The Staff explains this as reasonable because~~] the Staff is constrained by law in what it can review, Tr. 33,175-76 (Persensky). [~~and~~] Moreover, its ongoing inspection program provides the Staff with regular input on the status of training at licensee facilities. Staff, ff. Tr. 33,148, at 38. [~~33,175-76-(Persensky)-~~] The Board sees no inherent inconsistency between the fact that the Staff does not use the methodology it proposes and the fact that it believes the Committee should use it in its one-time review. [~~The Board need not address the merits of the Staff rationale. The fact is that the Staff recommended a methodology it felt the Committee could have used, and evaluated the Committee's work against that methodology.~~]

33. The Staff adopts Licensee's proposed finding ¶ 260, with the following changes:

260. The Staff recommended that, before attempting to evaluate the TMI-1 training and testing program, [an appropriate review of the training program should include the review of] the following documents should be reviewed as background: the 1980 OARP Committee Review Report, LBP-81-32, LBP-82-34B, LBP-82-56, ALAB-772, the DDL Report (September 10, 1982), NUREG-0680 (June 1980) including Supplements 1 through 5, the RHR Report (March 15, 1983),

BETA Report (February 28, 1983)<sup>93/</sup> and the INPO Annual Report (1983), in addition to the training procedures and training materials (e.g., lesson plans, learning objectives, examinations) relevant to the remanded issues. Staff, ff. Tr. 33,148, at 8-9. The Staff's methodology would also include interviews with training managers, licensed operator instructors, shift supervisors and operators, and systematic observations of classrooms, instructors, and examination administration (written, oral and simulator). Staff, ff. Tr. 33,148, at 9. The Staff would approach its assessment of the training program in accordance with the three topical categories that it derived from the remanded training issues. These categories are: 1) management/communications/attitudes; 2) training systems/programs; and 3) GPU Nuclear examinations. Id. at 10.

---

<sup>93/</sup> GPU Nuclear commissioned Basic Energy Technology Associates, Inc. (BETA) to review GPU Nuclear, including the TMI-1 Training Department, from a management and cost efficiency standpoint in December, 1981. BETA's findings are documented in its report entitled: "A Review of Current and Projected Expenditures and Manpower Utilization for GPU Nuclear Corporation." (February 28, 1983). See ALAB-738, supra, 18 N.R.C. at 198-99.

34. The Staff adopts Licensee's proposed finding ¶ 261, with the following changes:

261. In the Staff's opinion, an appropriate assessment of its first category (management/communications/attitudes) would essentially consist of a series of interviews with

training management, instructors and operators, as well as an extensive review of relevant documents (e.g., documents concerning communications mechanisms, management resumes and job descriptions, instructor resumes and performance evaluations, documents concerning the instructor development program, the RHR Report, NUREG-0680, Supp. 4, the DDL Report, and documents concerning attrition rates and absenteeism). Id. at 11-19. Specifically, an evaluation utilizing the Staff's methodology would include interviews with: training managers regarding communication mechanisms and the effectiveness of the instructor development program; operators with respect to their opinion of the quality of the instructors, their perception of communications, their attitudes toward the training program, and their level of "pride and enthusiasm";<sup>94/</sup> and the training staff to ascertain their assessment of operator attitude and communications mechanisms. Staff, ff. Tr. 33,148, at 11-19. The Staff's methodology would also include classroom observations by a subject-matter expert and an instructional technologist to review the quality of instruction, instructor attitude, operator attitude and course content. Finally, the

---

<sup>94/</sup> The Staff's methodology states [~~suggests~~] that interviews regarding operator pride and enthusiasm should utilize questions that parallel the RHR survey questions. Staff, ff. Tr. 33,148, at 16. In this way, data from surveys such as those in the RHR Report and Supplement 4 of NUREG-0680 could be used as a measure of change or consistency of operator attitudes. Id.

Staff recommends that an evaluating group (consisting of a subject-matter expert and an instructional technologist) [party] review: organizational documents to determine the structure of the training program and its relationship to corporate and plant management structure; documents concerning training department staff qualifications and job specifications, especially those of Messrs. Long, Coe, Newton and Frederick, to ensure that they are qualified to serve in their positions; documents related to the cheating incidents to investigate the involvement (if any) of these individuals; and documents describing the instructor criteria and instructor evaluation procedures and records of instructor attendance in addition to a review of the aforementioned documents. Id.

35. The Staff adopts Licensee's proposed finding ¶ 262, with the following change to footnote 95:

---

95/ The Staff acknowledged that GPU Nuclear does not maintain specific control room operator performance evaluations; however, [Mr.] Dr. Persensky still believes that some effort should be made to evaluate the performance of graduates of the training program. Tr. 33,143 (Persensky). Dr. Regan also supports the review of job performance evaluations as a measure of the adequacy of the training. Tr. 32,784-86 (Regan).

36. The Staff adopts Licensee's proposed finding ¶ 263.

37. The Staff adopts Licensee's proposed finding ¶ 264, with the following changes:

264. The Staff's recommended evaluation also would require the examining [party] group to: visit the TMI training center to assess its adequacy and to observe the instructors' use of training aids; evaluate training expenditures to determine the adequacy and appropriateness of the training programs; observe and evaluate the training instructors qualifications against the documented instructor criteria, in addition to reviewing the new instructor evaluation forms; review the simulator training lesson plans and learning objectives [~~objections~~] for consistency with task analyses; have the examining group [~~a-subject-matter-expert~~] observe simulator training at PSI (B&W) and on the BPTS; and review the GPU Nuclear performance evaluations of simulator instructors. Staff, ff. Tr. 33,148, at 23-26.

38. The Staff adopts Licensee's proposed finding ¶ 265, with the following changes:

265. Finally, with respect to the Staff's recommended methodology for assessing its third category (GPU Nuclear examinations), the Staff witnesses testified that exam development procedures, security procedures, content, format and administration should be reviewed by direct inspection of the exams and by observation of the administration of exams. To this end, the Staff testified that a [party] group conducting an evaluation of this issue should review: documentation describing exam security, construction and administration procedures for written, oral and simulator

exams; exam content to ensure that it is consistent with job/task analyses, behavioral learning objectives and current plant design; exam questions to determine balance between responses testing recall skills and those testing an operator's ability to solve problems and address plant systems. The evaluating group should also observe and review the content of simulator and oral exams in addition to reviewing them to ensure that Licensee's written exams offer an effective means of measuring an operator's ability to run the plant. The ~~[reviewing-party]~~ evaluating group should, finally, observe the administration of examinations, review exam answer keys for technical accuracy, and interview trainees to ascertain their opinion of the importance of exam integrity. Staff, ff. Tr. 33,148, at 27-31.

39. The Staff adopts Licensee's proposed finding ¶ 266, with the following changes:

266. We have carefully examined the testimony of both the NRC Staff and the Reconstituted OARP Review Committee concerning the Staff's view of an appropriate methodological approach to addressing the remanded issues and the Committee's actual methodological approach to those issues. ~~[We-are-struck-by-the-similarity-between]~~ The Staff's approach is similar to that ~~[and-that]~~ ultimately taken by the Committee ~~[when]~~ after the submission of its Special Report, ~~[it]~~ when the Committee conducted its more detailed assessment of the TMI-1 licensed operator training program



in contemplation of this hearing. [In our estimation,  
the Committee reviewed or observed at least 85% of the items  
recommended by the Staff. The magnitude of the remaining  
differences between these two methodologies is not of such a  
nature that we feel that our confidence in the substantive  
findings of the Committee has or should be in any way  
diminished. To the contrary, given the extraordinary  
expectations of the Staff, the methodology utilized by the  
Committee is impressive.] It is certainly true that, by the  
time of the hearing, the Committee had reviewed or observed  
the majority of the items identified by the Staff. We  
are hesitant to attempt to characterize the Committee's  
efforts in terms of a percentage of the recommended items,  
because the numerous items of review cannot be quantified;  
some items, such as efforts to correlate job/task analysis  
data with behavioral learning objectives, are more important  
to a review than other items, such as an examination of  
attendance records as part of an effort to determine operator  
attitudes. While the Staff concludes that the Committee's  
methodology was appropriate for some issues, the Staff  
identified a number of instances where the Committee's  
methodology did not appear to be complete enough to fully  
answer the question or issues addressed. Tr. 33,139-46  
(Persensky). Ideally, the Board would have liked to see a  
methodology like that proposed by the Staff followed in  
every instance. Where the Committee's efforts lack complete  
ness, however, we find ourselves in the position of being

able to "fill in the gaps," so to speak, by reference to testimony of GPU personnel on the subject of the training program. Moreover, because of the vast extent of such testimony in the record, we have increased confidence that we agree with the conclusions of the OARP, notwithstanding the shortcomings in methodology noted by the Staff.

40. The Staff adopts Licensee's proposed finding ¶ 267, with the following changes:

267. An initial comparison of the Staff's methodology against the Committee's methodology (and by this we are including the post-Special Report methodology) shows that both methodologies are designed to gather information regarding those areas of the licensed operator training program which are germane to the remanded training issues. Hence, both methodologies focus on examination construction, content, administration and security; instructor development and instructor qualifications; simulator training (PSI/B&W and BPTS); the implementation of job/task analyses; procedures to ensure that the training program reflects current plant design; communications mechanisms; operator attitudes; training staff and facilities; and T&E management qualifications. Both methodologies called for the reviewing body to evaluate these topics through documentary review, interviews and discussions with knowledgeable management, training staff, and operations personnel, and first-hand

observation of the relevant aspects of the training program. The documents, personnel, procedures and programs reviewed, interviewed or observed or recommended to be evaluated are almost identical, which is not surprising when one considers that both methodologies were designed to review the same training program in order to address the same remanded issues. Upon closer inspection of the evidence presented by the Staff and the Committee, we found that our initial impression was not unfounded. Although we discovered certain differences in the reliance placed on certain information sources,<sup>96/</sup> and in the method of reviewing certain aspects of the training program, we found that both methodological approaches are [very] similar indeed.

---

<sup>96/</sup> See ¶¶ 275, 288 and n.112, infra.

41. The Staff adopts Licensee's proposed finding ¶ 268, with the following changes:

268. The Committee reviewed all of the documents recommended by the Staff, with the exception of the first three revisions of NUREG-0680.<sup>97/</sup> Staff, ff. Tr. 33,148, at 8-9. However, the Staff would have had the Committee review, as background, the recommended documents before the Committee conducted its review which led to the

---

<sup>97/</sup> NUREG-0680 and its first three revisions are dated June, 1980, November, 1980, March, 1981, and April, 1981 respectively. Staff, ff. Tr. 33,148, at 8.

issuance of its Special Report. Id. Had the Committee assimilated the information in these documents before conducting its review, it clearly would have been more informed when it arrived at TMI-1 for its information gathering sessions. The Committee addressed all of the remanded issues identified by the Staff, and several other issues that the Staff did not address. See generally Committee, ff. Tr. 31,749, Special Report; Staff, ff. Tr. 33,148, at 3-6. The Staff recommended a review of the training procedures and materials that were relevant to the remanded issues, although it did not specify which of those documents were worthy of review. Id. at 9. The Committee, similarly, reviewed all of the training documents and materials concerning training programs and procedures that it determined to be relevant to the remanded issues, including some of those recommended by the Staff. [~~which the Committee found to be of limited value.~~] See Committee, ff. Tr. 31,749, Attachment 1, Table A-2, and Attachment 7; ¶¶ 229, 254, 257, supra. [~~¶ 222-224~~] The Staff recommended classroom visitation to evaluate instructor quality, exam administration, instructor attitude, operator attitude, excessive use of repetition, and instructor use of training aids. See ¶¶ 261, 263, supra. The Committee visited approximately 25 licensed operator training classes. See ¶ 247, supra. During the course of its visits, the Committee evaluated instructor performance and matched their

findings against the instructors' GPU Nuclear performance evaluations; observed the administration of several written exams while following along the GPU Nuclear exam administration check-off list; observed and evaluated the use of lesson plans and discussed their use with instructors; observed operator and instructor attitudes; observed the use of various training aids; and assured themselves that the classes did not inappropriately rely on repetition. See ¶¶ 247, 249, 252-53, supra.

42. The Staff adopts Licensee's proposed finding ¶ 269, with the following changes:

269. With regard to interviews and discussions with knowledgeable personnel, the Staff recommended interviews of operators, instructors, and T&E management to address: operator and instructor attitudes; communications mechanisms; training staff and operator morale; operators' perception of instructors, the training program, the integrity of the exam process, the cheating incidents, and the Company response thereto. See ¶¶ 260, 261, 265, supra. The Committee interviewed a non-representative sample of 27 RO's and SRO's including 6 shift supervisors, 4 replacement operator candidates, 5 licensed operator or simulator instructors and, as well, met with a number of corporate, T&E and operations managers. See ¶¶ 245, 251, supra. During these interviews, the Committee addressed all of the aforementioned issues. Id. However, in addressing the

issue of employee attitudes and morale, the Committee did not structure their interviews to allow comparison to the findings of the RHR Report or Supplement 4 to NUREG-0680. Tr. 33,140 (Persensky). Without structured interviews, no meaningful comparison can be made between the results of the Committee's interviews and the results of the RHR and NUREG-0680 Supplement 4 interviews. Tr. 33,190 (Persensky). The Staff was not urging that the questions asked by the Committee be identical to the RHR questions, but rather that questions be asked in the same areas and in a similar manner of a similar set of respondents. Tr. 33,189 (Persensky).97a/ The Staff testified that, even though NUREG-0680 Supplement 4 was critical of the RHR Report, both that Report and Supplement 4 should have been taken into account by the Committee in its interviews. They are both reports that contained information relating to operator attitudes at TMI-1 and, as existing benchmarks which could be used to measure operator attitude over time, should have been reviewed before the Committee conducted its own interviews on operator attitudes. Tr. 33,233-35 (Persensky). The Board agrees with the Staff that the RHR Report and Supplement 4 are useful data points and it would have been desirable for the Committee to have

---

97a/ Indeed, given the Staff's criticisms in NUREG-0680, Supplement 4 of the RHR Report questionnaire, the Staff would not have found use of these precise questions to be adequate. Tr. 33,126 (Morisseau).



structured its interviews so a comparison could be made between operator attitudes today and attitudes at the time those reports were issued. However, the Committee members are all experienced interviewers, and did conduct their interviews in such a way as to give the Committee a basis to form an opinion about the current status of operator attitudes. Accordingly, we do not believe the Committee's opinion on this subject to be fatally defective.

43. The Staff adopts Licensee's proposed finding ¶ 270, with the following changes:

270. To answer the question posed in ALAB-772 concerning the appropriateness of certain personnel changes since the cheating incidents, the Staff recommended that the qualifications of T&E management, especially those of Dr. Long, Dr. Coe and Mr. Newton, should be reviewed in addition to those of the operator training instructors. See ¶ 261, supra. The Committee testified that it did review the qualifications of the T&E management and of the instructors. See ¶¶ 236, 246, 252-53, supra. Their evaluation included the review of resumes and performance evaluations, discussions with management, including private discussions with the President of GPU Nuclear, Mr. Clark, classroom observation, and extensive interactions with all three of the individuals highlighted by the Staff. Id.

44. The Staff adopts Licensee's proposed finding ¶ 271, with the following changes:

271. The Committee's assessment did not include [~~included~~] the review of the job/task analysis for licensed operators at TMI-1, as did the Staff's methodology. See ¶ 255, supra. However, the Committee was briefed on [and the] procedures for translating job/task analyses to learning objectives and exam questions, as [did] the Staff's methodology also proposed. Id. [See ¶-255, supra.] The Committee's assessment of the integration of job/task analyses into the licensed operator training program involved briefings on and the review of the INPO generic job/task analysis, the TMI-1 Self Evaluation Report which was submitted to INPO, plant specific task lists, the table-top analysis, the use of behavioral learning objectives and the Operations Plant Manual, plant walk-through training, on-the-job training, and written requalification exams and exam development matrices. Licensee argues that all of these mechanisms are either related to, reflect or are based upon job/task analyses. Id. Nevertheless, the fact remains that the job/task analyses for TMI-1 were not reviewed to assure that they are accurate on their face, and they were not compared to actual plant conditions to assure that the analyses are both technically accurate and current. The Staff believes, and we agree, that failure to do so constitutes a limitation in the Committee's methodology that reflects negatively on the weight to be given to the Committee's conclusions in this area.

45. The Staff adopts Licensee's proposed finding ¶ 272, with the following changes to footnote 98:

---

98/ The union contract does not provide for GPU Nuclear to maintain control room operator performance evaluations. [Tr. 33,143-(Persensky);] Tr. 33,419-22 (Ross). Evaluations therefore could not be used as a basis for job-dismissal. [~~to-affect-individuals'-job-status~~] Tr. 33,420 (Ross).

46. The Staff adopts Licensee's proposed finding ¶ 273.

47. The Staff adopts Licensee's proposed finding ¶ 274, with the following changes:

274. The Staff testified during the hearing that the Committee had indeed performed a number of the tasks that the Staff had recommended. The Staff, therefore, testified that it was satisfied that the Committee's assessment properly included: 1) a quality assurance check on the T&E management presentation regarding communications mechanisms, [~~including corroborative-interviews-with-training-and-operations personnel~~] and a documentary review of the communications mechanisms in place, Tr. 33,141 (Persensky); See Tr. 33,530-31 (Wagner); ¶¶ 240, 251, supra; 2) observation of PSI (B&W) simulator and BPTS training to determine whether problem-solving skills are integrated into those programs, Tr. 33,142 (Persensky); 3) a review of the budget allocated to training and a corroborative tour of the training center to observe its utilization (e.g., proper use of training aids) to assure itself of the adequacy of the training facilities, Tr. 33,144-

45 (Persensky); ¶¶ 230, 236, 246-247, supra; and 4) the review of documents describing the procedures for examination security and control and observation of the administration of exams in conformance with these procedures, Tr. 33,146 (Persensky); ¶¶ 229, 235, 244, 249, supra.

48. The Staff adopts Licensee's proposed finding ¶ 275, with the following changes:

275. We also are cognizant of several areas where differences exist between the Staff's methodology and that of the Committee. The emphasis on the significance of the RHR Report and NUREG-0680, Supp. 4 is a prime example. The Staff argues that these documents are essential to a thorough review [~~reviewing~~] of the issue of operator attitude. Hence, the Staff's methodology would include operator interviews involving questions that were structured parallel to those found in the RHR survey so that a comparison could be drawn between the present attitudes elicited during the operator interviews, the findings in Supp. 4 and those in the RHR Report. See Staff, ff. Tr. 33,148, at 15-16. In the course of its work performed after the submittal of the Special Report, the Committee reviewed the RHR Report, the raw data related thereto, NUREG-0680, Supp. 4, and Ms. Morisseau's notes; however, the Committee did not rely on this information as a basis for its findings regarding the adequacy of the training program because it believes that the first-hand

observations of its members are more pertinent.<sup>99/</sup> See ¶ 254, supra. The Committee, [~~therefore,~~] did not structure its interviews such that they would correspond directly with these two documents.<sup>100/</sup> The Staff accordingly faulted the Committee because it did not compare its findings regarding operator attitude with the findings reported in the RHR Report and NUREG-0680, Supp. 4; and because it did not structure its interviews in parallel with the RHR and NUREG-0680, Supp. 4 assessments. Staff, ff. Tr. 33,148, at 32-33; Tr. 33,140 (Persensky).

---

<sup>99/</sup> On cross-examination, Ms. Morisseau testified that the RHR survey of TMI-1 was conducted in mid-late 1982 during the month immediately following the Special Master's Report and our decision on the cheating incidents. Tr. 33,205 (Morisseau). She also testified that the Staff conducted interviews in preparation of NUREG-0680, Supp. 4 in June, 1983. Tr. 33,206-07 (Morisseau). The Committee's operator interviews were conducted during its subsequent assessment, which began on August 13, 1984. Tr. 31,972 (Uhrig).

<sup>100/</sup> Mr. Kelly testified that, after he saw the RHR Report, he did discuss the RHR Report in general [~~ask some operators about the RHR findings~~] during the course of his few remaining operator interviews. [~~See ¶ 245, supra~~] Tr. 31,855 (Kelly).

49. The Staff adopts Licensee's proposed finding ¶ 276, with the following changes to footnote 101:

---

<sup>101/</sup> The Committee did familiarize itself with Licensee's instructor evaluation criteria and utilized these criteria in evaluating instructors, although the instructor form was not filled out. Tr. 31,913 (Kelly). Thus, while the GPU Nuclear criteria were not formally used or formally compared to the Committee members' own criteria [~~criteria~~], they nevertheless were used and evaluated for adequacy by the Committee. See Tr. 31,913-14 (Gardner).

50. The Staff adopts Licensee's proposed finding ¶ 277, with the following changes:

277. The Staff's testimony also noted the following areas where the Committee's methodology did not compare with its recommended methodology. ~~[The Staff felt that]~~ The Committee did not review the job/task analyses for TMI-1 licensed operators.<sup>102/</sup> Staff, ff. Tr. 33,148 at 34; Committee Rebuttal, ff. Tr. 33,320 at . ~~[The Staff also stated that]~~ The Committee did not observe on-the-job training.<sup>103/</sup> The Committee did not review all training materials to determine the degree of memorization required (with the exception of requalification exam questions), nor did it review or observe simulator or oral examinations regarding this issue. Id. The Committee was briefed on, but did not review, the procedures for linking the Job/Task Analysis at TMI-1 to learning objectives and training materials. ~~[In addition,~~

---

<sup>102/</sup> ~~[But]~~ See ¶¶ 228, 255, supra and ¶¶ 301, 308, 311, infra. ~~[In particular]~~ However, Dr. Kimel testified that he had reviewed the OPM, behavioral learning objectives, plant-specific task lists and generic INPO task lists. Tr. 31,835, 33,325-27 (Kimel).

<sup>103/</sup> ~~[Dr. Gardner and Mr. Kelly testified that the Committee did review on-the-job training, however, -- Tr. 33,138-40 (Gardner and Kelly) --]~~ The Committee members confirmed that they did not observe any on-the-job training. Tr. 33,338-39 (Committee members). Mr. Kelly testified that he reviewed the process used by Licensee for on-the-job training, by discussing the process with the training management at TMI and also with the operators. Mr. Kelly looked at a few samplings of documentation for on-the-job training, but did not review any evaluations of on-the-job training. Tr. 33,338-40 (Kelly).



~~the Committee did not use job/task analysis data to evaluate oral and simulator examinations.]~~ Id.

51. The Staff adopts Licensee's proposed finding ¶ 278, with the deletion of Licensee's proposed footnote 107, and the substitution of the following footnote in place of Licensee's footnote 105:

---

105/ Licensee's counsel cross-examined Dr. Regan on the extent of his familiarity with TMI and training of licensed operators generally and Dr. Regan freely acknowledged his ~~[complete]~~ lack of familiarity with these subjects. See Tr. 32,735-38 (Regan); see n.28, supra. The Board does not believe that this lack of subject matter familiarity materially affects our evaluation of this proposed model for review. His lack of familiarity with the training of operators at TMI-1 did, however, affect the value of his testimony on the subject of whether the oral examination given to operators at TMI-1 serves a useful purpose. See generally Tr. 32,791-97 (Regan); Tr. 32,834-40 (Regan, Smith); Tr. 32,849-50 (Regan).

52. The Staff adopts Licensee's proposed finding ¶ 279, with the following changes to Licensee's proposed footnote 109:

---

109/ Dr. Regan participated in ~~[several]~~ two Battelle-affiliated committees that ~~[gave advice to]~~ conducted a review for the NRC on licensed operator qualifications and on simulators. Tr. 32,725-32 (Regan). In both cases, the group was made up of a number of experts who pooled their talent and, based on briefings, gave their opinions on the question at issue. Tr. 32,727-28, 32, 731-32 (Regan). While this process [was strikingly] may appear similar to the approach initially used by the OARP Review Committee here, the process was aimed at a different kind of topic from that presented here. Moreover, the advisory committees on which Dr. Regan served were specifically intended to provide advice from experts who were not necessarily knowledgeable of the specifics of nuclear power or the training of reactor operators. Tr. 32,727-28, 32,730, 32,820-21. The committees on which Dr. Regan served were tasked with the exploration of very general topics (degree requirements for operators and the need for plant-specific simulators), neither of which topic was plant-specific. Accordingly, it would not be proper to infer that, because the process may have been appropriate for the tasks assigned to the committees on which Dr. Regan served, it was therefore proper for the Committee to use a similar approach.

53. The Staff adopts Licensee's proposed finding ¶ 280.

54. The Staff adopts Licensee's proposed finding ¶ 281, with the following changes to Licensee's proposed footnote 111:

---

111/ [~~We did not receive any evidence of the existence of any "learning-interference problems," nor do we perceive that to be among the issues remanded to us by the Appeal Board. -- Nevertheless,~~] Dr. Regan suggested that this problem arises when an individual originally trained on one procedure operates under that procedure for a period of time and is then faced with the implementation of a new procedure. Depending upon the type and extent of the change, the prior learning and experience can significantly inhibit both initial learning and retention of the new material. The problem can become particularly acute in emergency situations, when an operator may tend to revert to previous procedures. Regan, ff. Tr. 33,532, at 20. The Board did not receive any evidence of the existence of any such problem.

55. The Staff adopts Licensee's proposed findings ¶¶ 282-285.

56. The Staff adopts Licensee's proposed finding ¶ 286, with the following changes:

286. We have carefully reviewed the testimony and documents presented concerning the methodology used by the Committee and the recommended methodologies presented by the Staff and UCS. We find, upon comparing the three methodologies, that each of them follow a virtually identical progression toward the evaluation of the training program. Although the UCS methodology incorporates the development of a review model as its initial step, the first step incorporated by the other methodologies is the review of the remanded issues. Given our understanding that the primary

reason that the Committee recently reviewed the training program was to address the Appeal Board's remanded issues, we firmly believe that any review designed to address those issues should certainly begin with a review of ALAB-772. All three methodologies provide for the review of relevant documents (e.g., program descriptions, cheating decisions, training procedures and independent assessments of the training programs) in the preliminary stages of review. See §§ 229, 260, 279, supra. Management briefings are considered valuable initial sources of information for all three methodologies. See §§ 228, 260, 279, supra. Moreover, all three methodologies employ a series of interviews of GPU Nuclear personnel and first-hand observations of various aspects of the training program to corroborate the information reviewed during their respective initial stages of review. See §§ 230, 245-248, 260-61, 279-80, supra. [~~If anything, the Committee's interview process (number and depth) was more thorough, if less formal, than the processes recommended by the Staff and Dr. Regan.~~

57. The Staff adopts Licensee's proposed finding ¶ 287.

58. The Staff adopts Licensee's proposed finding ¶ 288, with the following changes:

288. Recognizing the many similarities which exist among these three methodologies, it is clear that the Committee's approach did not fully conform to either the

Staff or UCS methodologies. Each methodology employs different methods for ascertaining [~~the same~~] information on which to base an opinion. In some cases, however, the different methods would result in obtaining different information.<sup>111a/</sup> The appropriate method of evaluating operator attitudes elicited [~~the greatest disparity~~] a great deal of debate among the three models. The Staff testified that the primary source for this evaluation should be interviews with training staff and operators. In addition, for comparative purposes, the issue of operator attitudes should be evaluated with reference to the findings in the RHR Report and NUREG-0680, Supp. 4. Classes should also be monitored to observe attitudes. See Staff, ff. Tr. 33,148, at 14-15. The Committee [~~on the other hand~~] relies solely upon its independent assessment of operator attitudes which it considers to be more pertinent than the out-of-date findings of the RHR Report and the similarly dated findings of

---

<sup>111a/</sup> See note 112a, infra.

NUREG-0680, Supp.4.112/ See ¶ 254, supra. With the exception of how the RHR Report and NUREG-0680, Supplement 4 should be utilized, the Staff's and Committee's methodology in the area of operator attitudes are quite similar. UCS' methodology distinguished itself as the only one of the three that would incorporate the use of an anonymous survey to assess operator attitude. See ¶ 285, supra. The Staff's methodology, however, distinguishes itself as the only one that would utilize absenteeism records to evaluate employee satisfaction, notwithstanding the Committee's [~~comparable~~]

---

112/ We do not agree that the findings of the RHR Report are of little probative value in assessing the current attitude of operators of TMI-1. [See ¶-254, supra.] However, they are certainly dated. Ms. Morisseau's testimony on cross-examination indicated that the RHR survey data was collected in the wake of the Special Master's report and our 1982 cheating decision. See n.99, supra. Operator morale at that time was understandably low. [~~Moreover,~~] Dr. Gardner and Mr. Kelly testified that the RHR findings were both situationally remote and irrelevant to the current operator attitudes which were the subject of their review. See Tr. 32,039-40 (Gardner, Kelly). Dr. Gardner also testified that attitudes are transient, hence the probative value of the findings of NUREG-0680, Supp. 4 (the data for which was gathered 1½ years ago, see Tr. 33,206-07 (Morisseau)), like those of the RHR Report, is minimal with respect to an assessment of current operator attitudes. See Tr. 33,297-98 (Gardner). The Staff [~~included~~] concluded in NUREG-0680, Supp. 4, that the RHR Report represents nothing more than a behavioral sample of attitudes at that time due to the numerous changes that have occurred since the RHR survey was completed. Tr. 33,205 (Morisseau). Notwithstanding all of the above, it would have been useful if information concerning current operator attitudes had been collected in such a way as to provide a meaningful measure of the changes in attitude since the time of RHR and Supplement 4.



evaluation of attrition rates. 112a/ See ¶ 261, supra;  
Committee, ff. Tr. 31,749, Special Report at 46. [~~Although~~  
~~we-are-not-certain-which-method-of-evaluating-current~~  
~~operator-attitudes-is-best,~~] While we would have liked to have  
seen interviews constructed in such a way that a comparison  
with the RHR Report and Supplement 4 could be made, we are  
confident that the Committee's direct operator interviews and  
conversations with training and operations management is a  
reliable method of ascertaining that information, despite the  
methodological limitations noted by the Staff.

---

112a/ The Staff's methodology, but not the Committee's, included  
a review of attendance records for GPU personnel. Accord-  
ingly, in assessing the status of employee morale, the  
Committee did not have available to it information concerning  
attendance records of employees. This information could  
show a high (or low) incidence of absenteeism, which could  
indicate a low (or high) morale. Attrition records, which  
were included in both Staff and Committee methodologies,  
would show attrition rates but would not show absentee rates.  
Even with low attrition rates, high absenteeism rates could  
be indicative of low morale.

59. The Staff adopts Licensee's proposed finding ¶ 289, with the  
following changes:

289. The following list is representative of the  
disparity between the Committee's methodology and those of  
the Staff and UCS. The Committee did not perform the  
following tasks recommended by the Staff: 1) review  
instructor development class attendance figures; 2) review  
training materials to see how much memorization they require;  
3) observe on-the-job training to ensure consistency with



job/task analyses; 4) observe simulator exams; and 5) observe oral exams. Nor did the Committee perform the following tasks recommended by UCS: 1) review instructor performance on the simulator;<sup>113/</sup> 2) technically verify the accuracy of task analyses, learning objectives and training materials; 3) develop a formal model for review before embarking on the program evaluation;<sup>114/</sup> and 4) test operators for signs of negative transfer from the B&W simulator to the TMI-1 control room. The Board concludes that review of on-the-job training with respect to its relationship to job-task analysis would have added to the Committee's review of the program's adequacy.<sup>115/</sup> [~~We do not believe, nor was it shown, that the absence of these tasks from the Committee's methodology materially affects either the overall adequacy of that methodology or the accuracy of the Committee's substantive findings. Moreover, the substantive value that would have~~

---

<sup>113/</sup> The Committee did not review PSI simulator instructor performance. See Tr. 32,078-79 (Christensen); Tr. 33,280 (Kelly). The Committee also reviewed licensed operator training at the PSI simulator and the BPTS, which is the same training that is received by licensed instructors.

<sup>114/</sup> The Committee did, however, proceed by dividing up issues into the members' respective areas of expertise. Committee, ff. Tr. 31,749, at 25. Also, Drs. Christensen and Gardner developed a "model" for their joint operator interviews. Tr. 32,067, 32,155, 33,279 (Gardner).

been-derived-from-performing-most-of-these-tasks-was-deter-  
mined-by-other-means-as-discussed-earlier,115/]

---

115/ Dr. Gardner was confident that the Committee's assessment did not suffer because it did not incorporate every step suggested by the Staff and UCS methodologies. [He cautioned-against-the-use-of-"textbook"-models-for-review-over-a-considered-mode-of-review-independently-tailored-in-accordance-with-the-issues-concerned-and-the-resources-available-to-the-reviewing-group.] He further expressed his confidence in the methodology used by the Committee which included management briefings, first-hand observations, interviews with relevant GPU Nuclear personnel, and the review of relevant documents, especially the TMI-1 Self Evaluation Report ("SER") which was submitted to INPO. Dr. Gardner expressed particular confidence in the data contained in the SER because it was submitted as part of the TMI-1 INPO accreditation process and was therefore subjected to a very detailed quality assurance or confirmatory assessment by the INPO site-visitation team. Tr. 33,350-53 (Gardner).

60. The Staff adopts Licensee's proposed finding ¶ 290, with the following changes:

290. [~~In short,~~] Despite these disparities, we are confident that the Committee's methodology is adequate to allow it to address knowledgeably the remanded training issues. Notwithstanding UCS' conviction that the OARP Review Committee's approach was materially lacking, we are further assured by the overall similarity which exists among the three methodologies. Although [~~we would anticipate that there would be~~] there were significant differences in the recommended approaches evaluating the training program, the Committee treated, to some degree, all the questions and issues the Staff identified (Staff, ff. Tr. 33,148, at 6), and there was no evidence that the Committee failed to

review, to a degree, [~~in the generally approved or a like manner,~~] any aspect of the training program.

61. The Staff proposes to add, following finding ¶ 290, the following additional findings:

290a. UCS claims that, given the short time available to the Committee, the Committee could not have implemented an adequate methodology for its Special Report. See UCS proposed findings, ¶¶ 78-112. UCS also argues that, because of these inadequacies, the credibility of the Committee's testimony is in question.

290b. We agree with both UCS and the Staff that the Special Report contained a number of methodological limitations. However, the Staff testified that, while there were many methodological limitations in the Special Report, these shortcomings were in part remedied by work undertaken by the Committee in the post-Special Report period. Staff, ff. Tr. 33,148, at 7-36; Tr. 33,139-46 (Persensky). We find that a number of the limitations that existed were remedied by work performed by the Committee in preparation for these hearings. Accordingly, while there is merit in UCS' claim that the Committee's initial work was less than thorough, the Board does not view the Special Report in a vacuum, but rather in the context of the Committee's extensive efforts in preparation for this hearing. When we cite to the Special Report in this opinion, we take into account the many hours spent by the Committee, after the issuance of the Special Report, in

further review of GPUN licensed operator training programs, procedures and personnel. If the Committee had performed no additional work after the issuance of the Special Report, UCS' criticism of the Report's methodology would be more troubling.

290c. As for UCS' argument that inadequacies in the methodology of the Special Report reflect on the credibility of the Committee's testimony presented at the hearing, e.g., UCS proposed finding ¶ 25, we disagree. The Committee was entirely straightforward in its Special Report as to the constraints of time under which the report had been prepared. At the outset of the Special Report, the Committee set forth the limitations under which it was working because of the Commission's scheduled meeting on TMI-1 restart, and characterized its Special Report as a "'quick response' [to some of the issues in ALAB-772] that would be available in time to contribute to the NRC meeting at which the Commission has indicated it will formally consider the issue of restarting TMI-1." Special Report at 3. It further stated that "there was not an opportunity to undertake an in-depth study" of the type undertaken by the OARP Review Committee in 1979-80. Id. Thus, we reject any implication that the Committee was trying to pass off its Special Report as anything more than what it was -- a "quick response" to the issues in ALAB-772 in time to contribute to the Commission's expected deliberations.

62. The Staff adopts Licensee's proposed findings ¶¶ 291-294.

63. The Staff proposes to add, following finding ¶ 294, the following additional findings:

294a. The Commonwealth of Pennsylvania does not believe that the Licensee and its consultants have conducted a sufficient inquiry into the causes of the cheating incidents at TMI, and the relevance of the cheating to the TMI-1 licensed operator training program, to fully address the significant issues posed by the Appeal Board in ALAB-772. Commonwealth Findings at 3, 12. The Board disagrees. As described elsewhere, the Board believes that the Committee's approach, which concentrated its efforts on reviewing the responsive steps taken to prevent cheating in the future, was appropriate. See ¶¶ 235, 291-294, 323. We now address some of the Commonwealth's specific criticisms which it believes supports its overall position.

294b. The Commonwealth faults the Licensee and the Committee for not undertaking a formal study of, and research on, the causes of cheating. Commonwealth Finding ¶¶ 4, 15. The Board does not believe that such a "formal" study or research was required to adequately address the remanded issues. For example, the broad issue of concern to the Appeal Board was whether the deficiencies in operator training, as manifested by the cheating incidents, may be symptomatic of more extensive failures in Licensee's overall training program. This issue was directly addressed by the Committee, and by Licensee's other witnesses, i.e., Licensee's witnesses

squarely addressed the training program itself, including the changes initiated by Licensee in direct response to deficiencies which may have been related to the cheating events. It was not necessary to engage in a formal study of cheating, or engage in theoretical research, to address head-on the broad issue in the remanded training hearing. Neither was a formal cheating study or research on cheating required to address any of the specific training issues, which we have found were directly addressed by both the Committee and Licensee's other witnesses.

294c. The Commonwealth criticizes the Committee's testimony because none of the members of the Committee considered himself to be an expert on cheating (Commonwealth Finding ¶ 17) and because the testimony was based on the "extensive experience of the members" rather than being "expert testimony or the causes of cheating at TMI-1" (Commonwealth Finding ¶ 16). The Board rejects the Commonwealth's position that the Committee members were not qualified to address the training issues remanded by the Appeal Board. First of all, that position is directly contrary to the clear and unambiguous intent that the remanded issues be addressed primarily by the Committee, on whom the Licensing Board so heavily relied for its earlier favorable findings on training. See ALAB-772, 19 NRC at 1232-37, 1239.

294d. Secondly, even the Commonwealth's phrasing of the specific questions posed by the Appeal Board to be addressed



in the remanded hearing demonstrates that the Committee, not experts on cheating, necessarily must address the questions. (See "4. How do the OARP Review Committee and other consultants assess the cheating incidents and Licensee's subsequent changes in its training and testing programs?")

294e. Finally, it is not clear to the Board that there are any "experts" on cheating, even if we believed, which we do not, that the Committee's testimony is inadequate because it is not the testimony of experts on cheating. Furthermore, there is nothing in the record to indicate that UCS' witness Dr. Regan, on whom the Commonwealth relies in its proposed findings (at ¶ 19), is any more qualified to testify on the causes of cheating than the members of the Committee.

294f. For these reasons, the Board rejects the Commonwealth's proposed finding that the Committee did not adequately address the remanded training issues (see, e.g., Commonwealth Finding ¶ 27).

64. The Staff adopts Licensee's proposed findings ¶¶ 295-297.

65. The Staff proposes the following proposed findings ¶¶ 298 and 299:

298. In August, 1981, the TMI training staff moved into new quarters (20,000 square feet). According to the Committee's testimony this move provided more office, classroom and library space to accommodate various training programs, and allowed for more efficient personnel access to the training operation because the facilities are outside of

the plant security area. Moreover, a second building, to be completed in 1985, will about double the available training quarters. The replica simulator, along with additional office space for Training and Communications personnel, will be housed in the new space. Id.

299. The BPTS was delivered to TMI and became operational in early 1984. The Committee found that the BPTS provides licensed operators with ongoing refresher training in PWR basic operating principles in an environment that encourages learning. The simulator's design, checkout, and training program development were supervised by an experienced TMI licensed SRO who continues to supervise the implementation of the simulator training programs. Committee, ff. Tr. 31,749, at 9-10. The Committee was very favorably impressed with the use of the BPTS in the training programs. See e.g., Tr. 32,079-81 (Kimmel, Kelly, Christensen).

66. The Staff adopts Licensee's proposed findings ¶¶ 300-321.

67. The Staff adopts Licensee's proposed finding ¶ 322, with the following changes:

322. After [~~a-thorough~~] consideration of the issue, the Committee concluded that the licensed operator training program at TMI-1 is an effective program and will continue to qualify individuals to safely operate TMI-1. The Committee thus reaffirmed the conclusions reached in its Special Report and, in particular, the findings from that Report that the Committee highlighted in its testimony. Id. at 31.

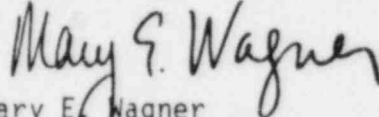
68. The Staff adopts Licensee's proposed finding ¶ 323, with the following changes:

323. An extensive record has been developed concerning the adequacy of the TMI-1 licensed operator training program and the Reconstituted OARP Committee's review thereof. Both the Staff and UCS presented testimony outlining their proposed methodologies for reviewing the training program. [~~Neither proposed methodology was shown to be superior to the methodology used by the Committee when it reviewed the licensed operator training program.~~] We have carefully reviewed the differences that exist between the three methodologies and find that a number of the shortcomings of the Committee's Special Report were remedied by their subsequent visits and review. [~~Nothing that would indicate that the Committee's review of the training program was in any way inadequate to allow it to address knowledgeably the remanded issues before us.~~] We are mindful that the Committee did not attempt to conduct, nor should it have conducted, an accreditation of the training program; instead it embarked on an extensive review of the training program to allow it to address the Appeal Board's remanded issues. This review was a follow-up to the baseline 1980 assessment done by the OARP Review Committee. [~~We are confident that the Committee's review met and exceeded that threshold level of review. -- We, therefore, find that~~] The Committee's methodology used to assess the TMI-1 licensed operator training program

is adequate to support its findings concerning that program. Moreover, the Committee's findings, which are very favorable, are [~~fully~~] consistent with the evidence presented in this proceeding on licensed operator training at TMI-1.

69. The Staff adopts Licensee's proposed conclusion ¶ 324.

Respectfully submitted,



Mary E. Wagner  
Counsel for NRC Staff

Dated at Bethesda, Maryland  
this 1st day of March, 1985

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

Docket No. 50-289  
(Restart Remand  
on Management)

CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF'S PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW IN THE FORM OF A PARTIAL INITIAL DECISION ON THE REMANDED ISSUE OF LICENSED OPERATOR TRAINING AT TMI-1" in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class, or, as indicated by an asterisk, by deposit in the Nuclear Regulatory Commission's internal mail system, or, as indicated by double asterisks, by hand-delivery, this 1st day of March, 1985:

\*\*Ivan W. Smith  
Administrative Law Judge  
Atomic Safety & Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Mr. Thomas Gerusky  
Bureau of Radiation Protection  
Dept. of Environmental Resources  
P. O. Box 2063  
Harrisburg, PA 17120

\*\*Sheldon J. Wolfe  
Administrative Judge  
Atomic Safety & Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

\*\*George F. Trowbridge, Esq.  
Shaw, Pittman, Potts & Trowbridge  
1800 M Street, NW  
Washington, DC 20036

\*\*Mr. Gustave A. Linenberger, Jr.  
Administrative Judge  
Atomic Safety & Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Thomas Y. Au, Esq.  
Office of Chief Counsel  
Department of Environmental Resources  
505 Executive House, P.O. Box 2357  
Harrisburg, PA 17120

Ms. Marjorie Aamodt  
R.D. #5  
Coatesville, PA 19320

Michael W. Maupin, Esq.  
Hunton & Williams  
707 East Main Street  
P.O. Box 1535  
Richmond, VA 23212

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

Mr. C. W. Smyth, Manager  
Licensing TMI-1  
Three Mile Island Nuclear Station  
P. O. Box 480  
Middletown, PA 17057

Ms. Jane Lee  
183 Valley Road  
Etters, PA 17319

Allen R. Carter, Chairman  
Joint Legislative Committee on Energy  
Post Office Box 142  
Suite 513  
Senate Gressette Building  
Columbia, South Carolina 29202

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

Ms. Frieda Berryhill, Chairman  
Coalition for Nuclear Power Plant  
Postponement  
2610 Grendon Drive  
Wilmington, Delaware 19808

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

Michael McBride, Esq.  
LeBoeuf, Lamb, Leiby & McRae  
Suite 1100  
1333 New Hampshire Avenue, NW  
Washington, DC 20036

William S. Jordan, III, Esq.  
Harmon, Weiss & Jordan  
2001 S Street, NW  
Suite 430  
Washington, DC 20009

Lynne Bernabei, Esq.  
Government Accountability Project  
1555 Connecticut Ave., NW  
Washington, DC 20009

Jordan D. Cunningham, Esq.  
Fox, Farr and Cunningham  
2320 North 2nd Street  
Harrisburg, PA 17110

Louise Bradford  
Three Mile Island Alert  
1011 Green Street  
Harrisburg, PA 17102

Ms. Ellyn R. Weiss  
Harmon, Weiss & Jordan  
2001 S Street, NW  
Suite 430  
Washington, DC 20009

\*Gary J. Edles  
Atomic Safety & Licensing  
Appeal Board  
U.S. Nuclear Regulatory Commission  
Washington, DC 20036

\*Christine N. Kohl  
Atomic Safety & Licensing  
Appeal Board  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

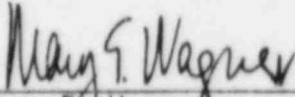
\*Reginald L. Gotchy  
Atomic Safety & Licensing  
Appeal Board  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555



\*Atomic Safety & Licensing Appeal Board Panel  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

\*Atomic Safety & Licensing Board Panel  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

\*Docketing & Service Section  
Office of the Secretary  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

  
\_\_\_\_\_  
Mary E. Wagner  
Counsel for NRC Staff