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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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ATOMIC SAFETY AND LICENSING BOARD

BEFORE ADMINISTRATIVE JUDGES:

Helen F. Hoyt, Chairperson

Dr. Richard F. Cole

Dr. Jerry Harbour

DOCKETING & SERVICE
BRANCH

SERVED JUL 22 1985

In the Matter of

PHILADELPHIA ELECTRIC COMPANY

(Limerick Generating Station,
Units 1 and 2)

Docket Nos. 50-352-OL
50-353-OL

ASLBP No. 81-465-07 OL

July 22, 1985

FOURTH PARTIAL INITIAL DECISION
(On Offsite Emergency Planning Contentions
Relating to Graterford)

I. INTRODUCTION

This is the Fourth Partial Initial Decision ("PID") issued by this Atomic Safety and Licensing Board ("Licensing Board" or "Board") in this proceeding. The First PID and Second PID decided all issues admitted for litigation before this Licensing Board, except offsite emergency planning contentions, and resolved them in favor of Applicant, Philadelphia Electric Company ("Applicant").¹ The Third PID disposed of

¹ The First PID was issued on March 8, 1983 and resolved the litigated issues in favor of Applicant, subject to certain conditions. Philadelphia Electric Company (Limerick Generating Station, Units 1 and 2), LBP-83-11, 17 NRC 413 (1983), aff'd in part, remanded in part, ALAB-785, 20 NRC 848 (1984). The remanded issues relating to the appeal from the First PID were resolved in
(Footnote Continued)

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those remaining issues in favor of Applicant except for a contention admitted on behalf of the inmates of the State Correctional Institution at Graterford ("Graterford" or "SCIG").² The Fourth PID now disposes of the two Graterford issues in favor of Applicant.

In an Order dated June 12, 1985, the Licensing Board ruled on the admissibility of the proposed contentions proffered by the Graterford inmates. One contention with two bases was admitted on behalf of the Graterford inmates.³ Following discovery, two days of evidentiary hearings on the contentions were held on July 15, 1985 and July 16, 1985 in Philadelphia, Pennsylvania.

Prior to the hearing, the Board and parties participated in a conference call regarding the hearing schedule and procedures to be followed. The parties identified their witnesses and agreed to make arrangements for their depositions. The parties further agreed that

(Footnote Continued)

favor of Applicant without the need for an evidentiary hearing. Limerick, supra, "Memorandum and Order on Del-Aware's Remanded and Revised Environmental Contentions V-14 and V-16" (November 8, 1984), aff'd, ALAB-804 (April 10, 1985). The Second PID was issued on August 29, 1984. Limerick, supra, LBP-84-31, 20 NRC 446 (1984), appeal pending. It decided all issues in controversy which were prerequisite for authorization of the low-power operating licenses requested by Applicant pursuant to 10 CFR § 50.57(c). The Third PID decided all offsite emergency planning contentions in Applicant's favor, subject to two conditions which have now been met, as verified by the Federal Emergency Management Agency ("FEMA"). Limerick, supra, LBP-85-14, 21 NRC ____ (May 2, 1984).

² See Limerick, supra, ALAB-806, 21 NRC ____ (May 1, 1985).

³ Limerick, supra, "Order Admitting Certain Revised Contentions of the Graterford Inmates and Denying Others" (June 12, 1985).

proposed findings would be made by way of oral argument, supplemented concurrently by written findings if the parties so desired. Limerick, supra "Memorandum and Order--Graterford Contentions and Hearing Schedule" at 3 (June 18, 1985). As agreed, the Board heard oral argument at 1:00 p.m. on July 17, 1985.

At the evidentiary hearing, the Board heard the testimony of seven witnesses and received into evidence the deposition transcript of Robert L. Morris. Except for Mr. Morris, all the witnesses appeared and were subject to cross-examination. Intervenor offered the deposition of Mr. Morris even though he was not present at the hearing. At the end of Mr. Morris' deposition on July 3, 1985, intervenor proposed, for the first time, that the witness' deposition testimony be received into evidence in lieu of live testimony. Deposition of Robert L. Morris, ff. Tr. 21013, at 73-74. The other parties did not agree to this procedure because there had been no proper notice given or legal basis stated for the proposal. After a discussion at the hearing on the admissibility of the Morris deposition, the parties agreed not to object to the admissibility of this testimony, even though the witness was not present for cross-examination, to avoid any potential claim of error (Tr. 21009-13).

II. FINDINGS OF FACT

CONTENTION OF THE INMATES AT THE STATE CORRECTIONAL INSTITUTION AT GRATERFORD

There is no reasonable assurance that the Radiological Emergency Response Plan for the State Correctional Institute [sic] at Graterford will protect the inmates at said institution in the event of a nuclear emergency at the Limerick Generating Station.

A. Basis C-Training

There is no reasonable assurance the emergency response training will be offered to civilian personnel who will be involved in the emergency response plans, such as civilian bus and ambulance drivers.

The inmates contend that emergency response training be offered to civilian personnel who will be assisting the Bureau of Corrections, the state police, and the National Guard in the appropriate response to an accident at Limerick Generating Station. Pursuant to further discussions, held during the closed conference in Harrisburg, the Commonwealth of Pennsylvania has attempted to address the inmates' concern by the offering of said emergency response training to civilian bus drivers. The method by which the Commonwealth has suggested to achieve this purpose is a letter to all bus providers which is attached to the Commonwealth's "Answer of the Commonwealth of Pennsylvania to Proposed Contentions of the Graterford Inmates with Regard to the Evacuation Plan" dated April 4, 1985 as Exhibit B. This letter, addressed to the employers of the bus drivers, offers a two hour course explaining the proper use of dosimetry by the Pennsylvania Emergency Management Agency ["PEMA"]. The inmates find this letter inadequate in several respects. Initially, there is no guarantee that the employees will ever receive any notice of the opportunity to avail themselves of this training program. Furthermore, the training envisioned by the inmates was a broader, more comprehensive program, such as the training offered to the school bus drivers. See the Third Partial Initial Decision on Offsite Emergency Planning by the Licensing Board,

Section 333, page 155, which reads, "The training program for bus drivers offers a general orientation and overview of radiation principles, emergency management principles, susceptibility of children to radiation and additional background information." The inmates contend that the two hour course offered by PEMA is not as comprehensive as the one offered to the bus drivers of school children and is therefore inadequate in this respect.

Training

1. Planning Standard O. of NUREG-0654/FEMA-REP-1, Rev. 1 and § 50.47(b)(15) call for radiological emergency response training to be "provided to those who may be called on to assist in an emergency." Furthermore, Criterion O.1 provides that "each organization shall assure the training of appropriate individuals." Asher/Kinard, ff. Tr. 20995, at 1.

2. PEMA will be responsible for conducting the training of the civilian bus companies and ambulance companies (Taylor, ff. Tr. 20856, at 3; Asher/Kinard, ff. Tr. 20995, at 1).

Offer of Training

3. Donald Taylor, Director of Training and Education for PEMA, testified that "civilian personnel" within the meaning of this contention are those non-state employees identified in the Radiological Emergency Response Plan ("plan") for Graterford who would have a role in the emergency response in the event of a radiological emergency at Limerick. This includes drivers employed by civilian bus and ambulance companies which have agreed to furnish vehicles upon request to assist in an evacuation of Graterford. Taylor, ff. Tr. 20856, at 2.

4. Reasonable efforts are being made to offer training to civilian personnel who would be involved in an evacuation of Graterford. For example, on April 4, 1985, Mr. Taylor wrote each of the six bus companies that would transport prisoners from Graterford in an evacuation and offered dosimetry and decontamination training at no expense for drivers who would be involved. To date, no responses from those six companies have been received. Mr. Taylor has made plans to visit each of the bus companies personally to urge them to take advantage of this training (Taylor, ff. Tr. 20856, at 3-4; Taylor, Tr. 20863, 20877). Ambulance providers will be offered training in the same manner as bus companies, i.e., by letter and personal visit (Taylor, ff. Tr. 20856, at 4). Personal visits to the bus and ambulance companies will occur in late July or early August 1985 (Taylor, Tr. 20879-80).

5. Any Training sessions that are conducted for bus and ambulance drivers will be scheduled in a place and at a time convenient to the drivers themselves (Taylor, ff. Tr. 20856, at 4; Asher/Kinard, ff. Tr. 20995, at 2).

6. The initial training and/or refresher training will be made available annually to the drivers of each bus and ambulance company having a responsibility for an evacuation of Graterford (Taylor, ff. Tr. 20856, at 5).

Nature of Training

7. The training to be offered to the civilian bus drivers and ambulance drivers who would assist in evacuating the SCIG would include a general orientation and overview of radiation principles, emergency

management principles, and additional background information, as well as instruction on the use of dosimeters and survey meters (Taylor, Tr. 20860-61; Taylor, ff. Tr. 20856, Plan of Instruction Number Seven pp. 1-4).

8. Bus and ambulance drivers will be provided self-reading dosimetry and thermoluminescent dosimeters, which would be read afterwards. Data will be recorded. Taylor, Tr. 20872-73.

9. The training program offered by Pennsylvania Emergency Management Agency ("PEMA") is essentially identical to that offered by Energy Consultants ("EC") to other bus drivers who would participate in an evacuation of the plume exposure pathway emergency planning zone for Limerick ("EPZ"), which this Board previously found to be acceptable (Taylor, ff. Tr. 20856, at 6; Taylor, Tr. 20860-86; see Third PID at 156). Training on decontamination monitoring procedures is also included, however, on the remote possibility that bus and ambulance drivers might become involved in some manner with decontamination monitoring (Taylor, ff. Tr. 20856, at 2).

10. The training program for school bus drivers provided by EC through the auspices of the Applicant was approved by Mr. Taylor, The Director of Training and Education for PEMA, prior to its implementation in the various counties in the Limerick EPZ (Taylor, ff. Tr. 20856, at 5-6). Further, PEMA certifies the EC instructors as qualified to give such instruction (Id.; Taylor, Tr. 20861). Consequently, the Board believes Mr. Taylor is in a position to compare the EC course to that being offered by PEMA in this instance (Id.).

11. The plan of instruction for these bus and ambulance drivers covers a full spectrum of topics, including government response to disasters, levels of radiation during an incident at a fixed nuclear facility, proper use of dosimetry, and decontamination monitoring procedures (Taylor, ff. Tr. 20856, at 6; and Plan of Instruction Number Seven, ff. Tr. 20856). The only significant difference between this course and the EC program is that the latter provides for a "public relations" lesson, which explains how a nuclear generating plant operates and the safety of such a facility (Taylor, ff. Tr. 20856, at 6).

12. It is the judgment of Federal Emergency Management Agency ("FEMA") that emergency response training should be tailored to the individual's expected duty in responding to an emergency (Kinard, Tr. 21000).

13. The bus and ambulance driver's role is limited to driving the bus or ambulance during an evacuation of the SCIG (Kinard, Tr. 21005; Taylor, Tr. 20869).

14. Training in inmate custody and control is unnecessary. Drivers will only be required to drive their buses or ambulances. The Department of Corrections will provide the staff necessary to ensure control of the inmates. Taylor Tr. 20860, 20868-69; Asher, Tr. 20999.

15. Any additional concerns raised by the drivers during training, such as security precautions for the protection of the drivers, will be addressed by PEMA during the training sessions (Taylor, ff. Tr. 20856,

at 6; Asher/Kinard, ff. Tr. 20995, at 2; Asher/Kinard, Tr. 20999-21000).

16. Graterford inmates have also raised a concern about whether there is a "guarantee" that training will be offered to bus and ambulance drivers, since no financial inducement has been offered for participation in the training (Case, ff. Tr. 20930, at 5).

17. In his testimony, Major John D. Case's main concern within the scope of this contention was whether bus drivers would have an incentive to attend the training session (Case, Tr. 20938-39). He did not address in any way the adequacy of the training to be offered bus and ambulance drivers by PEMA.

18. Notwithstanding his belief that incentives should be offered to civilian bus drivers, Major Case expressed no basis for believing that civilian bus drivers would not accept training (Case, ff. Tr. 20930, at 5; Case, Tr. 20939).

19. At the outset, the Board observes that our mandate does not include a standard that calls for a "guarantee" in the emergency planning area. Rather, the standard to be applied for emergency matters under the Commission's regulations is whether there is "reasonable assurance." See 10 CFR § 50.47.

20. There is nothing in the emergency planning guidance (NUREG-0654/FEMA REP-1, Rev. 1) that requires the provision of financial incentives to anyone receiving training (Asher, Tr. 21001). PEMA's Director of Training and Education does not believe that the bus and

ambulance drivers will not accept training because of the lack of financial incentives (Taylor, Tr. 20869).

21. Based upon training given to offsite emergency response personnel and volunteers for other nuclear power plant sites in Pennsylvania and information supplied by PEMA concerning Graterford and Limerick, FEMA concluded there is reasonable assurance that emergency response training will be offered to civilian personnel expected to be involved in the implementation of the Department of Correction's emergency plan for Limerick (Asher/Kinard, ff. Tr. 20995, at 2).

22. Even if such training were not received by bus and ambulance drivers assisting in the evacuation of Graterford in the event of an emergency at Limerick, those drivers would not be expected to do more than what they would do in carrying out their routine work assignments, i.e., drive a bus or ambulance (Taylor, Tr. 20866; see Third PID at 159). Thus, their ability to function during an emergency would not be impaired by not having received training (Taylor, Tr. 20874). The FEMA witnesses agreed that drivers could perform their function without training (Asher, Tr. 20998).

23. PEMA has determined that the training offered to the bus drivers and that will be offered to the ambulance drivers will adequately prepare the drivers to respond to the Graterford facility during a radiological emergency at the Limerick Generating Station (Taylor, ff. Tr. 20856, at 6).

24. Based on (1) the fact that the offered training has been provided at other sites in Pennsylvania; (2) the information

provided by PEMA to FEMA concerning how training will be offered to the drivers supporting the evacuation of the SCIG; and (3) the assurances of PEMA and Mr. Taylor that personal contact will be made with the bus and ambulance companies, FEMA has concluded that there is reasonable assurance that emergency response training will be offered to civilian bus and ambulance drivers supporting the SCIG radiological emergency response plan (Asher/Kinard, ff. Tr. 20995, at 2; Kinard, Tr. 20997-98; Asher, Tr. 21003-04).

25. Additionally, the Board finds that, based on this record, the PEMA's letter of April 4, 1985 to the bus providers and Mr. Taylor's commitment to personally visit each of the bus and ambulance companies assisting in the evacuation of the SCIG provides reasonable assurance that the drivers will receive notice of the emergency response training to be provided by PEMA.

26. The Board has reasonable assurance that training will be offered and accepted by bus and ambulance providers. The Board also finds that based on this record there is reasonable assurance that the training to be provided by PEMA is as comprehensive as the training offered to the school bus drivers. The Board is further satisfied that the limited responsibility which drivers would be called upon to perform in an actual emergency involves no more than the driving assignments they perform on a daily basis. Accordingly, even if drivers for Graterford inmate evacuation have not received training, overall bus and ambulance provider response and the ability to implement an evacuation at Graterford would not be impaired. Moreover, drivers could be quickly

instructed in the use of dosimetry at the time of an actual emergency before carrying out their assignments. Taylor, Tr. 20873.

B. Basis E-Estimate of Time of Evacuation

There is no reasonable assurance that the estimated time of evacuation of six-to-ten hours can be achieved.

Appendix 4 of NUREG-0654 provides details regarding evacuation time estimates within the plume exposure pathway. II.C. Special Facility Populations states, "An estimate for this special population group shall usually be done on an institution by institution basis. The means of transportation are also highly individualized and shall be described." Section IV.B. of Appendix 4 entitled Methodology states, "The method for computing total evacuation time shall be specified. Two approaches are acceptable. The simplest approach is to assume that events are sequential. That is to say, for example, that no one begins to move until all persons are warned and prepared to leave before anyone starts moving. The time is estimated by simply adding the maximum time for each component. This approach tends to overestimate the evacuation time. The second approach, which is more complex and will be discussed further, is to combine the distribution functions for the various evacuation time components. This second approach may result in reduced time estimates due to a more realistic assumption." The inmates contend that the failure to specifically address this estimated time of evacuation in the plan and the mere mention in a footnote of the Applicant's request for an exemption fails to meet the criteria as suggested by Appendix 4. The inmates are concerned that the six-to-ten hours estimate does not include a breakdown of the various sequential events as prescribed in NUREG-0654, Appendix 4 IV.B. necessary to accomplish the task. The inmates contend that such a breakdown is necessary.

27. Appendix 4, NUREG-0654/FEMA-REP-1, Rev. 1 (November 1980) is

the Commission's guidance which governs the preparation of evacuation time estimates for special facilities (Urbanik, Tr. 20974-75). Section II.C of Appendix 4, NUREG-0654 provides under special facility population that "An estimate for this special population group shall usually be done on an institution-by-institution basis" (NUREG-0654 at 4-3).

28. Dr. Thomas Urbanik one of the principal authors of Appendix 4, NUREG-0654, explained that Appendix 4, NUREG-0654 did not intend evacuation time estimates for special facilities to include analysis of worst case scenarios (Urbanik, Tr. 20976, 20979-80). Rather Appendix 4, NUREG-0654 intended such estimates for special facilities to provide some data points from which decisionmakers can make decisions (Id.). Further, the intent of Appendix 4, NUREG-0654 is for evacuation time estimates to present representative evacuation times for fair and adverse weather conditions which can be used by decisionmakers (Urbanik, Tr. 20976-77, 20979-80).

29. The primary purpose of evacuation time estimates is to serve as a tool in the protective action decisionmaking process by providing a framework within which decisionmakers can incorporate input on evacuation characteristics and traffic flows at the time of an actual emergency. As such, pursuant to NUREG-0654, time estimates are intended to be representative and reasonable so that any protective action decision based on those estimates would reflect realistic conditions. An overly conservative estimate could result in an inappropriate decision. Urbanik, Tr. 20979-80. As explained by Dr. Urbanik, it was

the intention of planners to rely upon the judgement of authorities responsible for particular special facilities in estimating evacuation times because of their specialized knowledge and expertise in operating those facilities (Urbanik, Tr. 20975, 20981).

30. Neither NRC regulations nor NUREG-0654 establish a standard for effectuating evacuations within a given time. An evacuation time estimate study does not attempt to predict exact conditions during an evacuation. Rather, it attempts to indicate the sensitivity of the analysis to a number of commonly occurring events. Id.

Development of Evacuation Time Estimate

31. As part of its emergency planning effort for Graterford, the Department of Corrections undertook an evacuation time estimate analysis. In so doing, it worked with the Graterford staff and developed estimates based upon past experience as to how long it would take to secure the prisoners, assemble them, load buses, and transport inmates from the institution. Zimmerman, ff. Tr. 20763, at 3; Zimmerman, Tr. 20771.

32. The Board finds that the issues of whether the estimated time of evacuation (ETE) of six-to-ten hours developed by Commissioner Jeffes can be achieved and whether there is an adequate basis for that estimate's methodology are moot for several reasons. First, as we noted earlier (see, Board Finding 30), neither the Commission's requirements or guidance established a standard for effectuating evacuations within a given time. Second, the Bureau of Corrections for the Commonwealth subsequently undertook an independent analysis of the components and

time needed to complete an evacuation of the SCIG. Zimmerman, ff. Tr. 20763, at 2. This analysis resulted in a revised ETE for Graterford of eight-to-ten hours which is within the range of and consistent with the six-to-ten hour ETE developed by Commissioner Jeffes (Zimmerman, ff. Tr. 20763, at 1-2, 8; Tr. 20768-69). The methodology for the revised ETE of eight-to-ten hours has been litigated and the record shows, as demonstrated below, that the methodology was based on reasonable assumptions regarding the evacuation of the SCIG. Accordingly, the Board does not find that the revised ETE for Graterford of eight-to-ten hours requires any changes in the SCIG's emergency planning or preparedness.

33. To illustrate the methodology it used to determine the evacuation time for Graterford, the Department of Corrections developed a "flow chart" based upon previous experience with other emergencies and the day-to-day operation of the prison. This flow chart details the actions to be taken in evacuating the prison (e.g., calling off-duty personnel, assigning vehicle loading teams) and the times necessary to carry out these actions. On this basis, the Department of Corrections determined that it would take approximately eight-to-ten hours to evacuate the prisoners. Zimmerman, ff. Tr. 20763, at 3; Zimmerman Flow Chart. The Board finds this estimate reasonable and in accordance with the guidance of NUREG-0654, Appendix 4 (Zimmerman Flow Chart).

34. There are certain times where the inmates at Graterford would already be locked down, such as at night, before lunch and before dinner (Zimmerman, ff. Tr. 20763, at 3-4).

35. In the event an evacuation of the SCIG were necessary, the inmates would be notified via the public address system, which is heard throughout the institution, that they should pack their personal effects in a pillowcase, that they would be permitted to take only that which would fit on that person and in the pillowcase, and only those health and comfort items deemed necessary for their trip and for their relocation (Id.). Further, the inmates will be informed through an inmate handbook provided to every inmate about what to do to assist in their evacuation (Id.). Thus, the Board finds that Major Case's concern about the lockdown time being extended because the inmates will lack information about the evacuation (Case, ff. Tr. 20930, at 3; Case, Tr. 20946-47) is without merit. Major Case acknowledges that the inmates would be likely to cooperate if they are provided information about the evacuation (Case, Tr. 20942, 20946-47). Moreover, based on Superintendent Zimmerman's past experience at the SCIG, the inmates cooperate with SCIG staff when the inmates recognize it is for their benefit during emergency situations. This has been the case in the past with fire drills at the SCIG. Zimmerman, ff. Tr. 20763, at 3.

Vehicle Arrival Time

36. The estimate for the vehicle arrival time portion of the revised ETE is two-to-four hours (Zimmerman, ff. Tr. 20763, at 4). This estimate is based on routes travelled regularly by SCIG buses and vans when moving from one facility to another (Id.). If the radiological emergency developed gradually, the SCIG officials would already have the buses on site at Graterford. On the other hand, if the radiological

emergency developed more rapidly, it might take between one-to-three hours for the bus companies to get their vehicles to the support facilities and then to travel to Graterford. Id. This is based on the drivers having the buses at the support institutions (Id. at 5).

37. On the time of arrival of the off-duty personnel, the SCIG officials developed an estimate of one-to-two hours maximum for their arrival under average conditions and two-to-three hours maximum under adverse conditions (Id. at 5). This estimate is based on the SCIG's experience over the past several years involving emergency situations where they have had to call in off-duty personnel (Id.). Some of the personnel would begin to arrive almost immediately, but to get the teams needed to load the vehicles it will take one-to-two hours (Id.). All of the off-duty personnel would not be necessary to implement the SCIG evacuation plans, only the number of personnel indicated in the SCIG plans would be necessary to move the inmates from their cells to the staging area for loading (Id.).

Prisoner Assembly and Vehicle Loading

38. The SCIG officials have assigned designated personnel to be vehicle loading teams, that is, they would be at the staging areas. They have designated five of those areas in various places in the institution to which inmates would be funneled and boarded on the buses. Loading team personnel are required to see that the inmates get on the proper vehicle. Id.

39. In developing the revised ETE for the SCIG, the SCIG officials designated different classes of inmates depending on the amount of

security required (Zimmerman, ff. Tr. 20763, at 6-7). For the revised ETE, Class 4 and 5 inmates are those inmates requiring the least amount of security at the institution. In fact, many of these inmates live outside the walls of the institution and work outside the walls. Some of them go home on furloughs periodically. Class 3 inmates are those inmates designated as the general population. They are free to move about the inside of the institution depending on their work assignments, where they live, and in which program they are involved. All of the SCIG staff who would be involved in moving these inmates have been trained in the use of security equipment and use it on a regular basis. The SCIG officials have designated special teams that go on the blocks, the numbers are determined by the size of the block and the amount of security needed. These teams would effectively remove the inmate from his cell, apply the appropriate security device and see him on his way to the appropriate staging areas. The teams can move from cell to cell because officers will be running a line from the block that is being evacuated onto the staging area. The inmate will be directed to go and follow that line of officers so that the inmates in effect would be walking to the staging areas for boarding the buses in a smooth, uninterrupted flow. Id. The amount of time allocated for these Class 3, 4 and 5 inmates indicates that more than one inmate at a time in each of these classes will be getting security restraints and being loaded. There will be teams of officers doing this simultaneously on several blocks and moving right down the block on all of the ranges and tiers. Ranges and tiers are the different part of the cellblock. Id. More

time was allocated for loading Class 1 and 2 inmates because these inmates are those requiring the highest degree of security. These are inmates in restricted housing units or in disciplinary lockup or administrative custody. The reason more time is allowed to restrain and load them is because of additional security devices that may be used and the additional security required in moving them from their cells to the vehicles. However, there are several teams working, depending upon the location and the physical plant, and the time estimate is based on the fact that the officers are familiar with using the restraints and moving the inmates. Id. at 7.

40. Past experience in emergency situations shows that off-duty personnel will arrive within one-to-two hours after notification. Superintendent Zimmerman testified that he had experience in the development of plans for all types of emergencies at the State Correctional Institutions at Huntington and Camp Hill, as well as the State Regional Correctional Facility at Mercer. Zimmerman, Tr. 20766. Additionally, Graterford's (non-radiological) emergency plan, which is tested at least twice a year, requires a demonstration of the call-in system. These tests also establish that off-duty personnel will arrive within one-to-two hours (Zimmerman, ff. Tr. 20763, at 5; Tr. 20808, 20839). Not all off-duty personnel are required to implement the evacuation plan (Zimmerman, ff. Tr. 20763, at 5; Zimmerman, Tr. 20809, 20840). Superintendent Zimmerman testified that, as a practical matter, only a maximum number of 300 staff would be called to assist in an evacuation (Zimmerman, Tr. 20840-42).

41. If one of the cellblocks refuses to lockdown or in some other way tries to impede the evacuation of the institution, the effect on the evacuation would be minimal to none. This is because the SCIG officials handle emergency situations on an almost regular basis, and the fact that Graterford is a maximum security correctional facility. Moreover, a team of trained personnel, the Emergency Response Team, would be on hand and would be ready to respond to any type of situation like this. Areas inside the institution can be isolated, and once isolated, the required personnel can be moved into that area, and then do whatever is necessary to restore order. Id. at 7. The other inmates could still be evacuated (Id.).

42. Intervenor tried to discredit the use of a 30 minute inmate lockdown time estimate by citing various past incidents in which lockdowns had taken longer. The evidence showed, however, that those longer time frames for lockdowns had occurred primarily during power outages before the installation and use of an emergency lighting system in 1984. Zimmerman, Tr. 20782, 20843, 20849). Since that time, partial power losses have occurred, but have never interfered with prison operations, including lockdowns, which have never taken more than 30 minutes (Zimmerman, Tr. 20849-50).

43. On the basis of this information, Intervenor's witness, Major Case, agreed that a 30 minute lockdown time is realistic (Case, Tr. 20946-47). He felt that if there was a good educational program at Graterford for both the officers and prisoners explaining what should be done in the event of an emergency at Limerick and why those actions were

being taken, the prisoners would cooperate and there would be no problem in completing lockdown within 30 minutes, or for that matter, completing any other action that would have to be taken within the time frame calculated by the Department (Case, Tr. 20947). Major Case raised no concern regarding the adequacy of information that would be available to inmates if an emergency occurred (Case, Tr. 20938, 20942, 20946).

44. At the hearing on July 16, 1985, Major Case stated that a one page addendum to the prisoners' handbook would be adequate (Case, Tr. 20938). The Board finds that Major Case's concerns have been adequately addressed by plans to issue an addendum to the inmate handbook, which is given to every prisoner, telling them what to expect in an evacuation (Zimmerman, ff. Tr. 20763, at 4; Zimmerman, Tr. 20833-34). Moreover, given the travel time it will take most buses to reach Graterford from their respective depots, which is greater than one hour, the time required to lockdown and count inmates, a total of one hour, is not a critical path item (Lieberman, ff. Tr. 20956, at 4).

45. The numbers of the times of evacuation for the vans, ambulances and buses were arrived at by evaluating the actions that would take place during the evacuation. Certain actions will take place at the same time. The SCIG officials can begin lockdown, request the vehicles and call in off-duty personnel at the same time. Id. at 7-8. As noted earlier, inmates will be restrained, loaded into vehicles and removed as the vehicles arrive on site. To arrive at the total of eight-to-ten hours, the SCIG officials reviewed the buses that would be coming at what time and how many inmates would be loaded at what times.

Id. They then added a short period of time for travel time out of the evacuation area. Inmates will be sent out of the evacuation area in a reasonably direct route that will not take them past Limerick. Id.

46. Contrary to Graterford inmates' assertions, any ongoing evacuation of the general populace from the EPZ would not delay the arrival of buses and ambulances at Graterford. The Graterford Superintendent testified that the development of the Graterford plan was coordinated with PEMA to ensure that routes were selected such that evacuating traffic of the general public would not interfere with vehicles travelling to Graterford. Zimmerman, Tr. 20803-05, 20815-16, 20844-45.

47. Buses would be loaded as they arrive and sent out to the support institutions, and the buses are expected to come in at varying times since they are travelling different distances (Id. at 8). It is unlikely that the evacuation could take longer than the eight-to-ten hours since the estimate used figures based on experience, including experience with emergency situations (Id. at 8; Lieberman, ff. Tr. 20956, at 8). Moreover, the inmates will have been provided information with respect to an evacuation in the inmate handbook and will be kept abreast of developments during an incident (Id.)

Evaluation of Evacuation Time Estimates

48. Based on a careful analysis of the assumptions and methodology underlying the revised ETE for the SCIG by FEMA's expert in traffic engineering and transportation planning (Lieberman, ff. Tr. 20956, at 1-11), FEMA's expert concluded that the revised ETE for the SCIG is

certainly reasonable and conservative (Id. at 8). Furthermore, the Graterford inmates' witness, Major John D. Case, acknowledges that it is possible to achieve the tasks identified in the revised ETE for the SCIG within the eight-to-ten hour time frame (Case, ff. Tr. 20930, at 4; Case, Tr. 20934-37).

49. Any projected increase in the number of inmates at Graterford would have no effect on the evacuation time estimate of eight-to-ten hours. Any increase in the number of inmates would be met by a concomitant increase in staff and support resources (Zimmerman, Tr. 20831).

50. Finally, Mr. Robert Morris, a witness for the inmates, cited his concerns that the ETE should include a combination of worst case situations such as traffic accident analysis, wind condition analysis, differences in gap acceptance times in a panic situation and various combinations of weather conditions (see, generally, Morris Deposition, ff. Tr. 21013, at 41-55). Mr. Morris stated that he was not familiar with NUREG-0654 or any other emergency planning regulations for nuclear power plants, and he did not think it necessary (Id. at 38-39, 49). Dr. Urbanik has adequately explained why worst case scenarios are not appropriate under Appendix 4, NUREG-0654 for consideration in developing an ETE for a special facility (Urbanik, Tr. 20976-77, 20896). Therefore, the Board finds Mr. Morris' testimony on this matter lacking any probative value.

51. The Board finds that the evacuation from the EPZ should proceed rapidly. Graterford is approximately 8.3 miles from Limerick at

the closest point. It is thus reasonable to conclude that the travel distance from Graterford to the EPZ boundary is only a very short distance because "a reasonably direct route" out of the EPZ will be taken. Accordingly, actual travel time of loaded buses out of the EPZ will be very brief. Zimmerman, ff. Tr. 20763, at 8; Lieberman, ff. Tr. 20956, at 5-6.

52. Based on this record, the Board finds there is nothing in the Commission's emergency planning requirements or guidance that requires the estimated time for evacuating a special facility, such as the SCIG, to be included in the radiological emergency response plan for that special facility (see, 10 CFR § 50.47; Appendix E, 10 CFR Part 50; NUREG-0654/FEMA-REP-1, Rev. 1 (November 1980)).

53. The Board finds that the revised ETE for the SCIG has adequately identified the various sequential events necessary to accomplish an evacuation of Graterford. Finally, the Board finds that based on this record the revised ETE of eight-to-ten hours is consistent with the Commission's guidance established in NUREG-0654, Appendix 4.

III. CONCLUSIONS OF LAW

In reaching this decision, the Board has considered all the evidence of the parties and the entire record of this proceeding on the admitted contention including all proposed findings of fact and conclusions of law presented by the parties and oral arguments of counsel. Based upon a review of that record and the foregoing Findings of Fact, which are supported by reliable, probative and substantial

evidence, the Board, with respect to the issues in controversy before us, reaches the following conclusion pursuant to 10 CFR § 2.760a:

The SCIG emergency response plan meets the requirements of 10 CFR § 50.47, and Appendix E to 10 CFR Part 50, as well as the criteria of NUREG-0654, and provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.

IV. ORDER

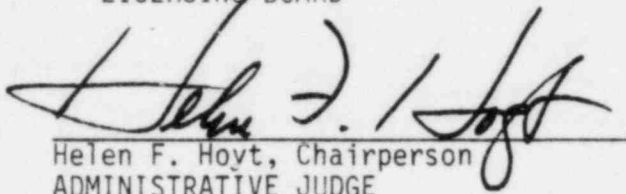
In accordance with the Atomic Energy Act of 1954, as amended, and the Commission's regulations, and based on the findings and conclusions set forth in the Third Partial Initial Decision on Offsite Emergency Planning and in this decision, the Director of Nuclear Reactor Regulation is authorized to issue a full-power operating license for the Limerick Generating Station, Units 1 and 2, consistent with the Board's decisions in this case and upon making requisite findings with respect to matters not embraced in the Third Partial Initial Decision on Offsite Emergency Planing or in this decision.

Pursuant to 10 CFR § 2.760(a) of the Commission's Rules of Practice, this Fourth Partial Initial Decision will constitute the final decision of the Commission forty-five (45) days from the date of issuance, unless an appeal is taken in accordance with 10 CFR § 2.762 or the Commission directs otherwise. See also 10 CFR §§ 2.764 and 2.785 and 2.786.

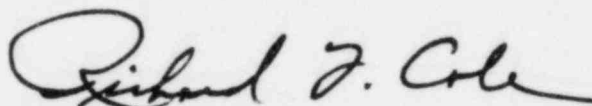
Any party may take an appeal from this decision by filing a Notice of Appeal within ten (10) days after service of this decision. Each appellant must file a brief supporting its position on appeal within thirty (30) days after filing its Notice of Appeal (forty (40) days if the Staff is the Appellant). Within thirty (30) days after the period has expired for the filing and service of the briefs of all appellants (forty (40) days in the case of the Staff), a party who is not an appellant may file a brief in support of or in opposition to the appeal of any other party. A responding party shall file a single, responsive brief regardless of the number of appellant briefs filed. See 10 CFR § 2.762(c).

IT IS SO ORDERED.

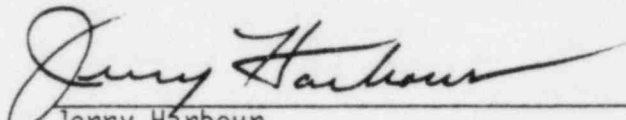
THE ATOMIC SAFETY AND
LICENSING BOARD



Helen F. Hoyt, Chairperson
ADMINISTRATIVE JUDGE



Richard F. Cole
ADMINISTRATIVE JUDGE



Jerry Harbour
ADMINISTRATIVE JUDGE

Dated at Bethesda, Maryland,
this 22nd day of July 1985.