

Emergency Plan

Limerick Generating Station

Units 1 & 2

PHILADELPHIA ELECTRIC COMPANY

Vol. 2

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APPENDIX G

STATE AND LOCAL EMERGENCY PLANS

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- G-1 PEMA - Annex E to Commonwealth of Pennsylvania Disaster Operations Plan*
- G-2 Bureau of Radiation Protection Plan for Nuclear Power Generating Station Incidents*
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- G-7 State of Delaware Emergency Plan*
- G-8 State of New Jersey Emergency Plan*
- G-9 PECO Corporate Communications Plan

* Plan to be included after completion of Regional Advisory Committee review.

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G-1 PEMA - Annex E to Commonwealth of Pennsylvania Disaster Operations Plan will be included after completion of the Regional Advisory Committee Review.

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G-2 Bureau of Radiation Protection Plan for Nuclear Power
Generating Station Incidents will be included after
completion of the Regional Advisory Committee review.

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G-3 Montgomery County Office of Emergency Preparedness and Medical Services Emergency Plan will be included after completion of the Regional Advisory Committee review.

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G-4 Chester County Department of Emergency Services
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G-5 Berks County Emergency Management Agency Emergency Plan will be included after completion of the Regional Advisory Committee review.

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G-6 State of Maryland Emergency Plan will be included after completion of the Regional Advisory Committee review.

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G-7 State of Delaware Emergency Plan will be included after completion of the Regional Advisory Committee review.

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G-8 State of New Jersey Emergency Plan will be included after completion of the Regional Advisory Committee review.

THE CORPORATE COMMUNICATIONS DEPARTMENT
EMERGENCY COMMUNICATIONS PLAN
FOR THE LIMERICK GENERATING STATION

Philadelphia Electric Company

Rev. 3, 09/82

THE CORPORATE COMMUNICATIONS DEPARTMENT
EMERGENCY COMMUNICATIONS PLAN
FOR LIMERICK GENERATING STATION

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1.0 PURPOSE

Philadelphia Electric Company has developed and filed with the Nuclear Regulatory Commission a plan for response to a nuclear emergency at the Limerick Generating Station. The Corporate Communications Department's responsibilities and response procedures are detailed in this plan, which is an appendix to the Company's overall plan.

Each individual in the department is responsible for understanding his or her assignment in an emergency and to be prepared to carry out that assignment. Your particular assignment in an emergency is explained in this manual. Training sessions and drills will be held to test this plan.

The Corporate Communications emergency response plan for the Limerick Generating Station is similar to the plan for the Peach Bottom Atomic Power Station. In many cases, individual assignments and organization charts are identical. Procedures and overall policy are also identical.

It is important to understand that this is not a "final" plan. There never will be a "final" plan. As circumstances change, the plan will change. When a better way is found to do something, the plan will be revised. What is important is that the plan is one which works the best in an emergency. With this in mind, the plan will be reviewed and updated regularly and frequently.

2.0 GENERAL COMPANY POLICY ON NUCLEAR PLANT EMERGENCIES

Philadelphia Electric Company has established a policy of full disclosure to the media and the public of all significant incidents at nuclear power stations. Many of these incidents are not "emergencies" but are nevertheless disclosed.

Philadelphia Electric Company respects the public's right to information about its operations and service and, in particular, to information about accidents and unplanned events that occur during Company operations.

The Company's long-standing policy has been to make public, accurate information about these events. This policy is the basis on which the Corporate Communications plan for nuclear emergencies has been developed.

The Company also recognizes that the public has the same right to information affecting its welfare as well as government agencies, contractors, industry sources, and the electric utility industry.

The Company will make much of this information public through news releases, briefing, television and radio announcements.

The Company, through Electric Production and Corporate Communications Departments, have designated spokespersons to answer any questions raised by the public, the media, government, or other companies.

These spokespersons are directed to answer all questions accurately, thoroughly, and quickly. If they do not have an immediate answer to a question, they are directed to obtain the information and reply in a timely manner.

3.0 INFORMING THE PUBLIC ABOUT EMERGENCY PLANNING

The Company will inform the public about emergency planning and necessary protective actions which residents should take in the event of an emergency at the Limerick Station. Among the ways in which this information will be made to the public on a regular and timely basis, are:

- 3.1 To participate with the Pennsylvania Emergency Management Agency in public information and education programs as defined in the PEMA emergency plan.
- 3.2 To distribute annually a brochure outlining procedures the public should follow in the event of an emergency at the Limerick station.
- 3.3 To conduct briefings for the media on emergency planning and the Company's procedures to expedite the timely dissemination of information during an emergency.

4.0 REPORTABLE INCIDENTS AT NUCLEAR PLANTS

The Nuclear Regulatory Commission has four classifications for reportable incidents at nuclear plants. These are:

- 4.1 UNUSUAL EVENTS: In this classification are events which are in progress or have occurred which indicate a limited potential degradation of the level of safety of the plant. The nature of these events may be of concern, but are below the threshold for emergencies. However, State and County officials and the USNRC are promptly notified. Also included in this classification are certain events which do not have a direct relationship to plant safety but which are reported to appropriate organizations as a matter of public responsibility, to respond to or prevent public concern, or to keep these organizations informed.
- 4.2 ALERT: In this classification are events which are in progress or have occurred which involve actual or potential substantial degradation of the level of safety of the plant.
- 4.3 SITE AREA EMERGENCY: In this classification are events which are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public.

4.4 GENERAL EMERGENCY: In this classification are events which are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity.

The Electric Production Department notifies the Corporate Communications Department by telephone of any of the four types of emergency.

Figure 4-1 is a check list of information to be noted by the Corporate Communications Department representative who is notified by the Electric Production Department of an emergency at the Limerick Generating Station.

REPORT OF ACCIDENT

DATE _____

Limerick Generating Station

TIME _____

Personnel Injuries: (numbers only) _____

Fatalities: (numbers only) _____

Nature of accident: _____

Damage: _____

Radiation release yes

TYPE OF EMERGENCY:

no

Unusual Event _____

Amount of radiation slight
 moderate
 heavy

Alert _____

Site Emergency _____

General Emergency _____

Probable Evacuation

Evacuation Probability

yes

_____ miles

no

_____ direction

Extent of radioactive material or radiation effect

- not off-site
- less than five miles
- less than ten miles
- less than 50 miles

Senior Company officer notified _____

Government agencies notified

- NRC
- PEMA
- Police
- Firemen
- Hospitals
- Montgomery, Chester & Berks County
- Local Physicians
- Conrail

Callback telephone number _____

5.0 CORPORATE COMMUNICATIONS EMERGENCY ORGANIZATION

When notification of an emergency is received, the office of the vice president-Corporate Communications activates all or part of this plan.

In all cases, the vice president or the manager-Corporate Communications or the manager-Public Information will be available to take charge. In all cases, prompt public information is distributed through Mediawire service during business hours and through Associated Press (AP) and United Press International (UPI) during non-business hours. A statement will be issued by Corporate Communications Department within one hour after notification by Electric Production.

5.1 Unusual Events: The manager-Public Information or designated representative will issue a statement after consultation with the senior officer of Electric Production. The senior officer of Corporate Communications will be informed. News release distribution and notification of the public information officers of joint owners, industry associations, and government agencies will be according to the Public Information Division procedure for nuclear news of a non-emergency nature. If media interest escalates, a Public Information representative will be assigned to the Limerick Information Center along with the center staff.

5.2 Alert: The senior Corporate Communications information officer will authorize release of a statement after verification of facts with the senior Electric Production Officer. The manager-Public Information or the manager-Corporate Communications will initiate such personnel call out and staff assignment as needed to assure adequate response to inquiries. One or more Public Information representatives will be assigned to Limerick Information Center along with the center staff and/or the Emergency Operations Facility to coordinate news coverage. The vice president-Corporate Communications and vice president-Electric Production will consult in anticipation of the need to activate the emergency news center.

5.3 Site Area Emergency: The senior Corporate Communications information officer will authorize release of a statement after verification of facts with the senior Electric Production Officer. The emergency call out and staff assignment procedure will be effected including activation of the emergency news center. Mediawire will be retained for 24-hour service.

5.4 General Emergency: The senior Corporate Communications information officer will authorize release of a statement after verification of facts with the senior Electric Production Officer. The emergency call out

and staff assignment procedure will be effected including activation of the emergency news center. Mediawire will be retained for 24-hour service.

6.0 EMERGENCY STAFFING

Corporate Communications will staff six locations during either a Site Area or General Emergency. The locations, supervision, and staff are described on the following pages.

In the event of a Site Area Emergency or General Emergency during business hours, the Manager-Corporate Communications will cause the emergency organization to be activated and will order the staff assignments. You will be notified by your supervisor.

During non-business hours the manager-Public Information or the manager-Corporate Communications will initiate a telephone call out procedure.

Staffing assumes that personnel will staff the centers on a 24-hour basis. Scheduling of personnel will be the responsibility of the supervisor.

C.1 Corporate Command Center (S26-2301 Market Street)

The Vice President-Corporate Communications will remain with the Chief Executive Officer and will direct all Corporate Communications activities at all locations. The organization is shown in Figure 6-1.

The vice president-Corporate Communications and the Chief Executive Officer will report to 2301 Market Street. Helicopter service will be available to take them to the Limerick area.

The vice president-Corporate Communications with the Emergency Support Officer and the Chief Executive Officer will determine overall emergency communications policy.

Any significant policy announcements on the emergency will originate from the vice president-Corporate Communications in consultation with the other two officers.

The vice president-Corporate Communications in consultation with Company officers will decide who will appear on television programs and at press conferences.

Support personnel: Confidential secretary for minutes, letters, and maintaining records.

6.2 Headquarters Emergency Center (S13-2301 Market Street)

The Manager-Editorial Services will supervise the staff to operate a general Corporate News Center and Corporate Command Center media relations function. The organization is shown in Figure 6-2.

The manager-Editorial Services will report to the Corporate Communications offices, 13th floor, 2301 Market Street, to supervise the information offices there. He will assign a Corporate Communications staff member to be on duty at all times in the Headquarters Emergency Support Center on the 7th floor of 2301 Market Street.

Any statements involving Company policy, relations with government agencies, other utilities and industry organizations will be prepared by the Headquarters Emergency Center staff.

Information on the emergency and advisories on subsequent developments will be made available to the offices of state and federal officials, the information representatives of co-owners, other electric utilities and independent contractors. Contact will be made by telephone, telecopier and the Atomic Industrial Forum (AIF) Infowire from the Headquarters Emergency Center.

Public interviews, press conferences and TV appearances of Company officers will be arranged by the staff at the Headquarters Emergency Center.

The manager-Editorial Services will coordinate the notification of Pennsylvania and local information officers.

The manager-Editorial Services will coordinate plans for Company broadcasts to alert the public through radio and television broadcasts.

Staffing: supervisor; assistant supervisor
5 media contact persons/writers
4 government contact persons
1 coordinator for logistics
1 coordinator for visual aids
1 telephone supervisor
4 telephone contact persons

Support personnel: 4 secretary/clerks

Duties:

Supervisor/assistant supervisor: liaison with Corporate Command Center and Emergency News Center; supervision of news center on a 24-hour basis.

Media contact persons: answering questions from media; writing news releases; arranging TV and radio interviews; obtaining information from technical personnel at the Headquarters Emergency Support Center (7th floor, 2301 Market Street).

Government contact persons: relaying updates and responding to calls from federal, state and local officials. These are informational - not technical - calls.

Coordinator for logistics: scheduling; requisitioning supplies; liaison for added personnel; supervising support staff, maintaining company records and tapings.

Coordinator for visual aids: obtaining visual aids; videotapes and radio tapes as required.

Telephone supervisor: supervising flow of calls and telecopier materials to insure orderly and fast operation.

Telephone contact persons: answering incoming calls; responding to rumors; reading statements to media; logging callback notations.

Support personnel: filing; telecopier operation;
duplicating papers; couriers; secretarial duties.

6.3 Headquarters Emergency Support Center (S7-2301 Market Street)

Staff member(s) assigned by the Manager-Editorial Services will be here at all times to coordinate the exchange and verification of information.

6.4 Emergency Operations Facility

The Manager-Corporate Communications will staff this facility to assure immediate and accurate relay of all emergency information from the facility to the public information outlets at the Emergency News Center.

6.5 Emergency News Center

The Emergency News Center is located in the offices of the Corporate Communications Department S13-1, 2301 Market Street. News conferences will be held in room G-1 at 2301 Market Street.

The manager-Public Information will supervise assigned staff to prepare and release information and to work with the media at the scene. The organization is shown in Figure 6-3.

Staffing: supervisor and assistant supervisor
5 media contact persons
4 liaison officers within the Emergency Operations Facility
coordinator for logistics
coordinator for visual aids
visual aid artist
photographer
2 government and community contact persons
telephone supervisor
6 telephone contact persons
4 secretary/clerks

Duties:

Supervisor/assistant supervisor: around-the-clock supervision of the news center; liaison with

Headquarters Emergency Center; presiding at news briefings.

Media representatives: arranging special interviews and handling special requests; answering media questions.

Emergency Operations Facility (EOF) liaison: obtaining information at the Emergency Operations Facility; checking the information with the technical staff; transmitting the information on telecopier to the Emergency News Center.

Coordinator for Logistics: scheduling; requisitioning supplies; liaison for added personnel; supervising support staff; maintaining Company records and tapings.

Coordinator for visual aids: inventory control and obtaining up-to-date visual aids.

Visual aid artist: preparation of updated visual aids.

Photographer: photography for company records and releases.

Government and community contact: person-to-person and telephone contact with local and state officials in the immediate area of Limerick.

Telephone supervisor: insuring orderly flow of
telephone calls.

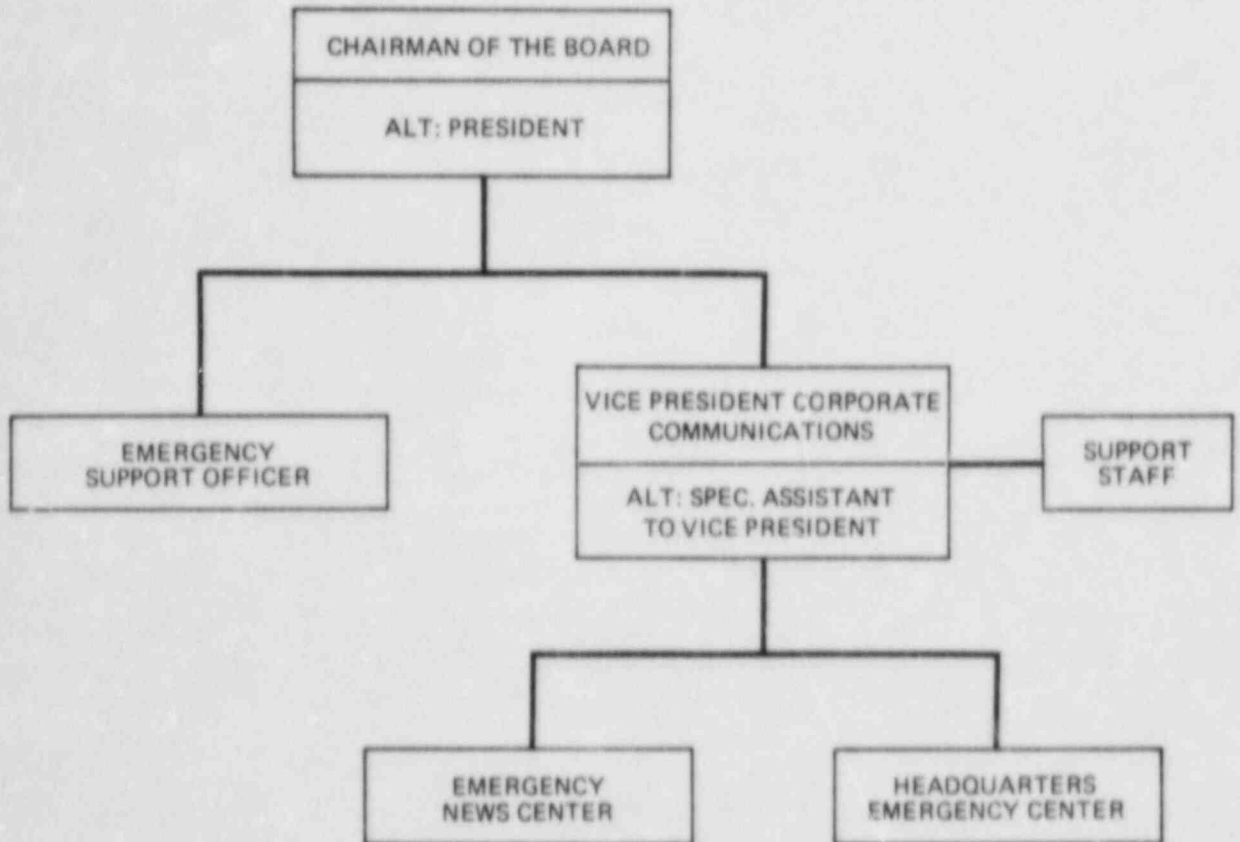
Telephone contact persons: handling incoming calls;
reading releases by telephone; logging callback
notations.

Support personnel: telecopier operation; duplicating
papers; couriers; secretarial duties.

6.6 Peach Bottom Information Center

The normal Information Center staff, directed from S-13 - 2301 Market Street, will respond to inquiries and use existing visual aids for press or public official briefings as directed.

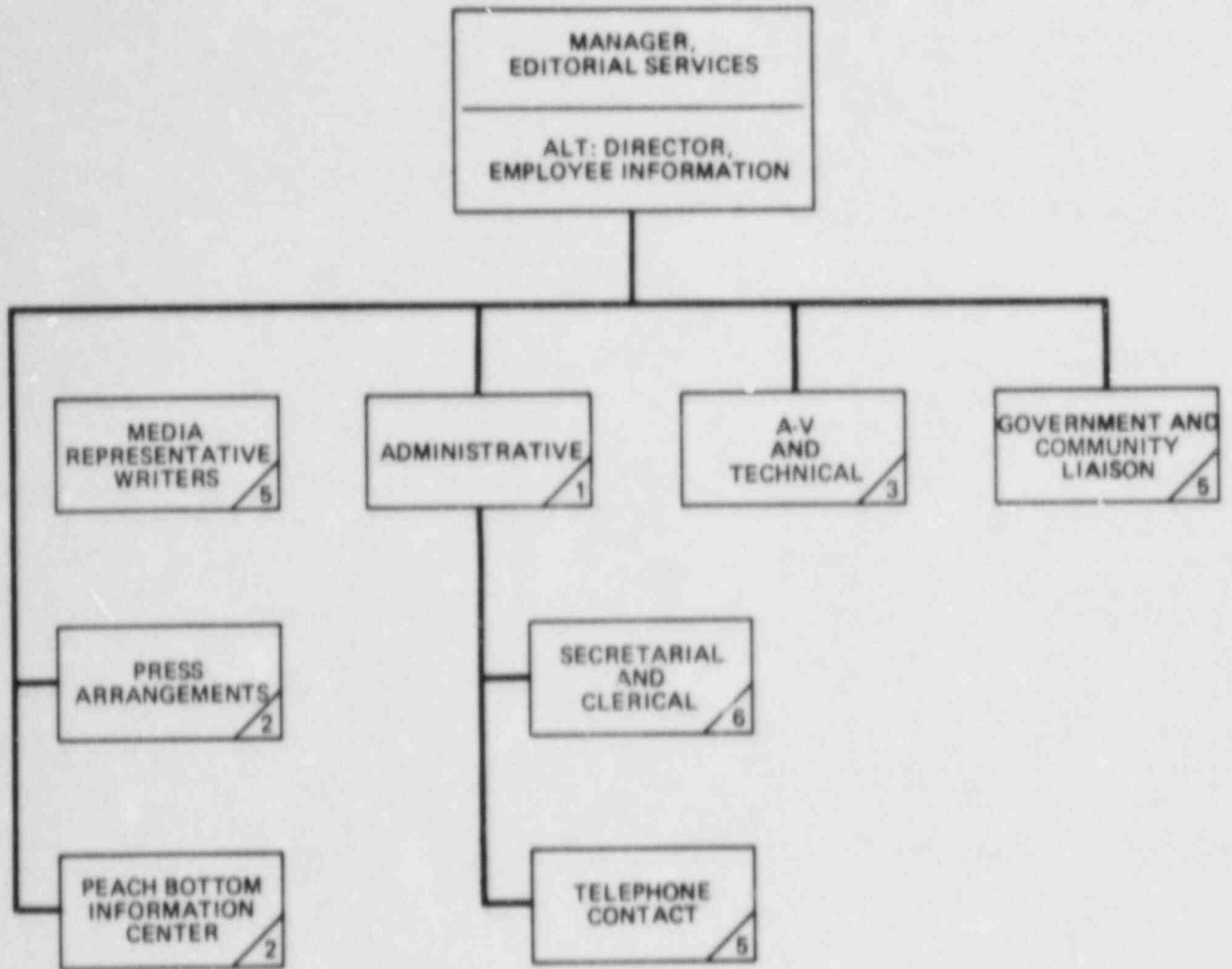
CORPORATE COMMAND CENTER



LIMERICK GENERATING STATION
UNITS 1 AND 2
EMERGENCY PLAN

CORPORATE COMMUNICATIONS DEPT.
EMERGENCY COMMUNICATIONS PLAN

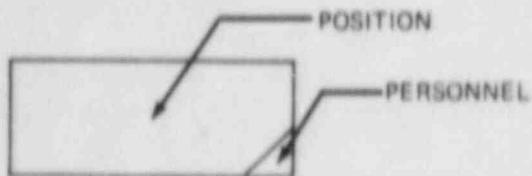
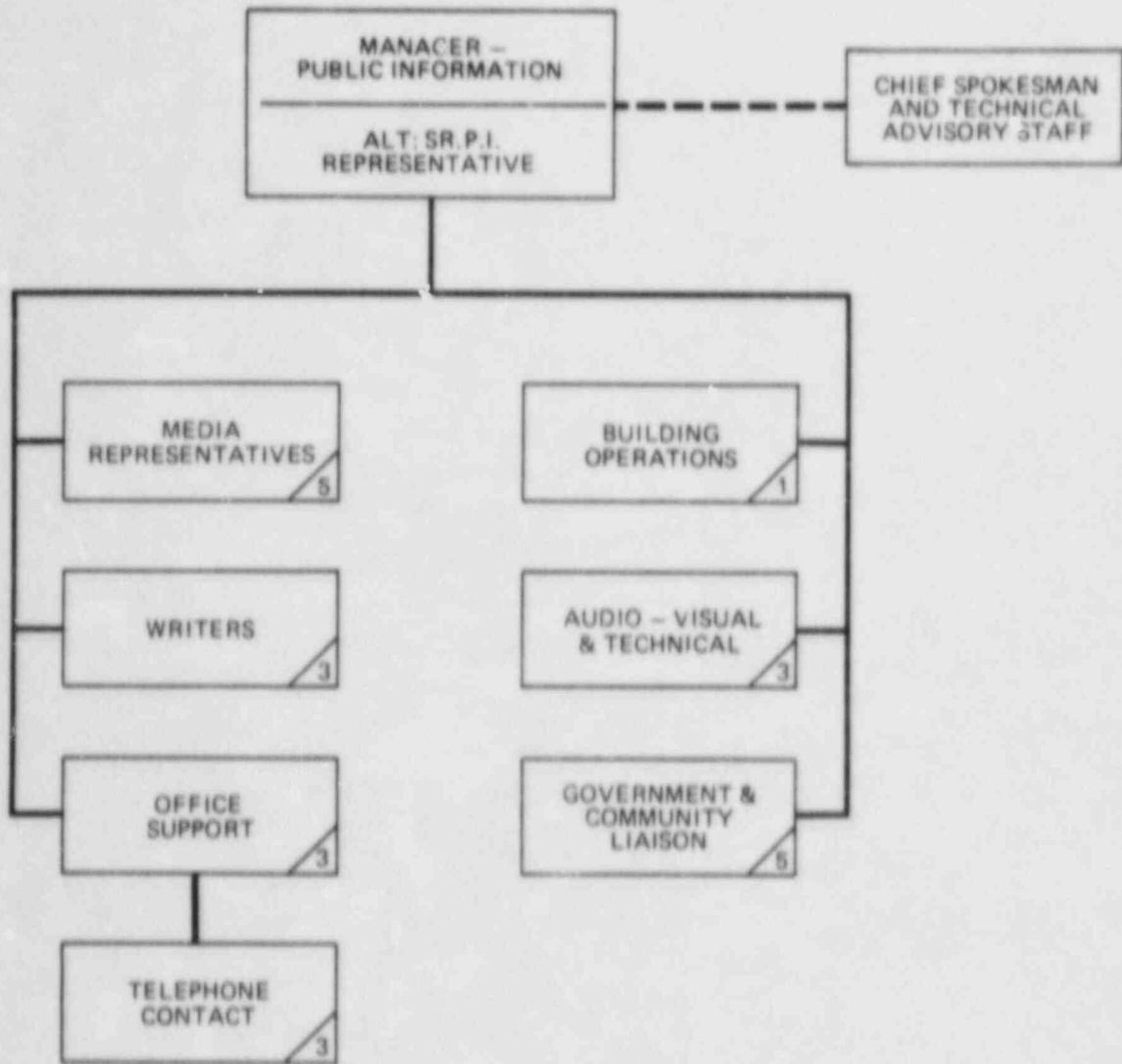
HEADQUARTERS EMERGENCY CENTER



LIMERICK GENERATING STATION
UNITS 1 AND 2
EMERGENCY PLAN

CORPORATE COMMUNICATIONS DEPT.
EMERGENCY COMMUNICATIONS PLAN

EMERGENCY NEWS CENTER



LIMERICK GENERATING STATION
UNITS 1 AND 2
EMERGENCY PLAN

CORPORATE COMMUNICATIONS DEPT.
EMERGENCY COMMUNICATIONS PLAN

7.0 OPERATIONS OF THE EMERGENCY NEWS CENTER

The Emergency News Center, located at company headquarters, 2301 Market Street, Philadelphia, will be the principal location for the release of news on the developments during an emergency at the Limerick plant, of interviews and news briefings with technical experts and of contact with local governments and residents within the ten-mile radius of the plant.

Press briefings will be held at least three times daily and news releases will be distributed at least every three hours. More frequent releases and briefings will be held as necessary.

The Emergency News Center has a designated meeting area to handle representatives and will be equipped for the use of television cameras, amplifiers and telecommunication equipment.

Other sections are designated for interview rooms and for office space for information officers of the Nuclear Regulatory Commission, other government agencies and industry associations.

News releases will be issued every three hours even when there is no significant change in the situation since the previous release. Press briefings will be held three times a day. The manager-Public Information will preside at these briefings. The principal Company spokesperson will be the Vice President of the Engineering and Research Department and will explain the technical aspects of the developments.

The staff at the Emergency News Center will maintain liaison with information officers of the NRC and the State who are on site at the center.

The staff at the Emergency News Center will maintain information contact with local officials within the ten-mile radius of the Limerick plant.

Requests for special interviews will be arranged with the media by the staff at Emergency News Center. The persons who are interviewed may be from the company, from a government agency or an outside expert.

The manager-Public Information is the supervisor of the Emergency News Center. The manager-Corporate Communications will be assigned to the Emergency Operations Facility and is responsible for obtaining information for news releases.

Three staff persons with the manager-Corporate Communications are assigned to the Emergency Operations Facility to insure around-the-clock staffing of the center. This staff obtains the information on developments from the technical personnel at the Emergency Operations Facility and reviews it with Company technical personnel. The information will be sent to the Company offices at the Emergency News Center where a writer under the supervision of the manager-Public Information will prepare a release. The finished release will be reviewed with a Company technical adviser assigned to the center by the Electric Production Department.

The manager-Energy Information and Education is the audio-visual coordinator and is responsible for supplying and the operation of necessary visual aids to illustrate the accident and recovery.

8.0 PREPARATION OF NEWS RELEASES

Consistency in style and form is essential in news releases. Company releases from Limerick and 2301 Market Street will be prepared in the same manner and conform to the same style.

Glossaries of nuclear terms and emergency terms will be used to help achieve this consistency.

All releases will note the time and day (10 a.m., January 12, 1980).

All information will be attributed to either Philadelphia Electric Company or an employee of the Company.

News release should identify Company employees by normal corporate title and by explanation of the employee's emergency duties.

If a release is to contain information from any agency other than the company, permission should be obtained from that agency by company information officers.

Releases should be both brief and thorough. No arbitrary limits on length can or should be set because of the uncertainty of the situation.

All releases should be double spaced and typed on one side only.

9.0 SPECIAL REQUESTS FROM THE MEDIA

Company personnel are assigned to the Emergency News Center as media representatives to handle special requests and answer questions from the media.

It is important that media representatives understand that when they answer questions, they are "Company spokespersons" and probably will be named in written news accounts.

Media representatives are not to speculate or theorize about events. They cannot answer questions involving any agency except the company. Such questions should be referred to the proper agency.

Media representatives will handle requests for special interviews, visits to the Limerick site, Company videotapes or other audio-visual aids. If a special request is refused, the reason should always be explained to the newsperson.

Experts not associated with the Company may be present at the Emergency News Center. Interviews with these experts will be arranged for news media when requested and agreed to by the expert.

The media representative will be present with any Company expert and the interview will be taped for the Company records. Interviews with outside experts will be taped unless the expert objects.

The newsperson should be informed before the interview that it will be taped and a copy of the tape will be given to him if he requests one. The newsperson would be free to make his own taping at the same time.

All tapings will be transcribed and filed.

10.0 PRESS BRIEFINGS

Press briefings will be held in the Emergency News Center.

Presiding at the press briefings will be the manager-Public Information. In addition to the Chief Spokesman, other Company spokespersons will be brought to briefings when their particular expertise is needed.

The NRC and State will be invited to have spokespersons present at all news briefings. They will be invited to answer questions or comment.

Written statements with charts and diagrams will be distributed as newsmen enter for briefings.

The principal Company spokesperson will explain the statements and answer questions.

Television recordings and radio tapings will be permitted throughout the briefings.

Corporate Communications will tape the conference. Transcripts will be prepared from the tapes.

Briefings will be held three times daily. If there is a dramatic change in the emergency situation, the manager-Public Information calls for a special briefing.

11.0 RELATIONSHIPS WITH OTHER AGENCIES

The Company will provide working space and review rights to news releases to the information officers of the U.S. Nuclear Regulatory Commission (NRC) and the Commonwealth of Pennsylvania (State).

Space for the information officers of the NRC and the State will be allotted in the Emergency News Center. Telephone and telecopier facilities will be available to these officers.

Representatives of the NRC and the State will be asked to appear at news briefings.

Company news releases will be given to the information officers of the NRC and the State for information on the Company statements. The Company retains the right to decide on the content of the news releases.

Releases to be issued with the joint approval of the NRC and State may be written by personnel from the Company, the NRC or the State.

If the NRC and/or State officials schedule separate news briefings either at the Emergency News Center or another location, the manager-Public Information will assign an information staff member to attend these briefings and tape the sessions. These tapes will be transcribed for Company records.

12.0 PICTURES

The manager-Public Information designates a Corporate Communications staff person as picture coordinator to handle requests for still and television photography.

The picture coordinator supervises the photography, printing and distribution of any pictures taken by Company-hired photographers.

Buses and/or vans will take photographers to areas suitable for photographing the Limerick plant.

There are no restrictions on pictures taken at press conferences in the Emergency News Center.

13.0 VISUAL AIDS AND PRESS KITS

13.1 Visual Aids The film "Portrait of a Nuclear Power Plant" will be edited to ten minutes and videotape cassettes will be prepared and stored at the Emergency News Center. This would be available for distribution on request to television stations.

Enlarged pictures and diagrams of the plant's operations will be prepared and stored for use in the Emergency News Center.

Flip charts, slides, projectors and screens will be available at the Emergency News Center for use of the experts at press briefings.

13.2 Press Kits Press kits will be prepared by the Energy Information staff for the Emergency News Center. They will include:

- a. A basic booklet "Nuclear Power and Philadelphia Electric Company."
- b. Black and white photos of Limerick Generating Station.
- c. Diagrams of the reactor.
- d. Fact sheet on Limerick Generating Station.
- e. A glossary of nuclear terms.

Press kits are stored at the Limerick Information Center and 2301 Market Street for quick distribution.

Press kits will be distributed to all news media on request either before or during an emergency.

14.0 EMPLOYEE COMMUNICATIONS

The manager-Editorial Services supervises the distribution of information to employees as part of his duties as supervisor of the Headquarters Emergency Center.

All news releases issued by the Company will be transmitted from the Headquarters Emergency Center to Company installations for further distribution to employees.

The Company's "newspaper of the air" will carry regular reports on the emergency and recovery.

15.0 COMMUNICATIONS WITH INDUSTRY AND PUBLIC OFFICIALS

The office of the vice president-Legal Department, division managers and the manager-Community Affairs and their staffs are responsible for communicating with public and community officials on the accident and recovery. These communications are informational and are apart from the technical communications among Company technical personnel and technical personnel and decision makers in the public sector.

The manager-Editorial Services at the Headquarters Emergency Center is responsible for informing industrial associations and individual utilities of developments. Atomic Industrial Forum's Infowire is to be used for relaying this information as well as special transmissions to individual utilities and organizations.

The same information contained in news releases and in press briefings will be given to the government and industrial organizations.

16.0 COMMUNICATIONS WITH THE PUBLIC

In an emergency, every employee of the Company becomes, in effect, a public contact person. Supervisors receive information about the emergency from the Headquarters Emergency Center and distribute it to their staffs so each person has adequate information to answer questions.

Many customers and other interested parties can be expected to telephone the Company asking for information. Supervisors are directed to instruct their staffs to reply to questions in the language of the news releases which are distributed.

The manager-Editorial Services at the Headquarters Emergency Center is responsible for having summary sheets of the news releases prepared and distributed to Customers Service personnel on duty at general Company telephone desks.

Other means of informing the public such as radio or television commercials, newspaper advertising or the distribution of special flyers will be used only at the direction of the vice president-Corporate Communications or his alternate.

17.0 INDIVIDUAL RESPONSIBILITIES

Individual Assignment sheets will be distributed to involved employees.

A manual containing this plan and individual assignment sheets will be distributed to involved employees.

Glossaries of emergency and nuclear terms will be included in the manuals.

Appropriate telephone numbers will be incorporated in selected employees manuals and updated in accordance with Company procedures.

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APPENDIX H

EVACUATION TIME STUDY

CONTENT

"Limerick Nuclear Generating Station Preliminary
Evacuation Time Estimates," NUS-3552; NUS Corporation
Rockville Maryland (July 1980).

NUS-3552

LIMERICK NUCLEAR GENERATING STATION
PRELIMINARY EVACUATION
TIME ESTIMATES

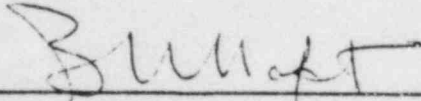
Prepared for
PHILADELPHIA ELECTRIC COMPANY

by

J. H. Berkley, Jr.
C. Y. Li
F. M. Quinn

July 1980

Approved: _____


B. N. Naft, Manager
Licensing and Technology

NUS CORPORATION
4 Research Place
Rockville, Maryland 20850

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1.0 INTRODUCTION AND SUMMARY

1.1 Introduction

This report is a response to a generic letter from the NRC Emergency Preparedness Task Group to Philadelphia Electric Company (PECO) dated December 26, 1979. The NRC letter requests a preliminary estimate of the time required to evacuate a 10-mile radius from the Limerick plant.

At the outset, it must be recognized that a comprehensive analysis of the factors requiring population evacuation as a result of an assumed hazard at the Limerick Nuclear Station cannot be completed until the final NRC/FEMA position is available, and the plans of the appropriate State and local agencies developed thereon. Accordingly, for the purpose of this preliminary estimate, it is necessary to make certain assumptions based upon generic information. For example, it is well recognized that there is little definitive data on traffic flow patterns in emergency conditions. The best study, the one which is most current, is the Transportation Research Circular No. 212,* January 1980, published by the Transportation Research Board, the National Academy of Sciences. The circular itself recognizes the paucity of data.

We wish to emphasize that the Philadelphia Electric Company, of course, will update this information when the above conditions are satisfied and provide it in compliance with Appendix E.

* The circular supplements the Highway Capacity Manual of the NAS, Special Report 87, 1965.

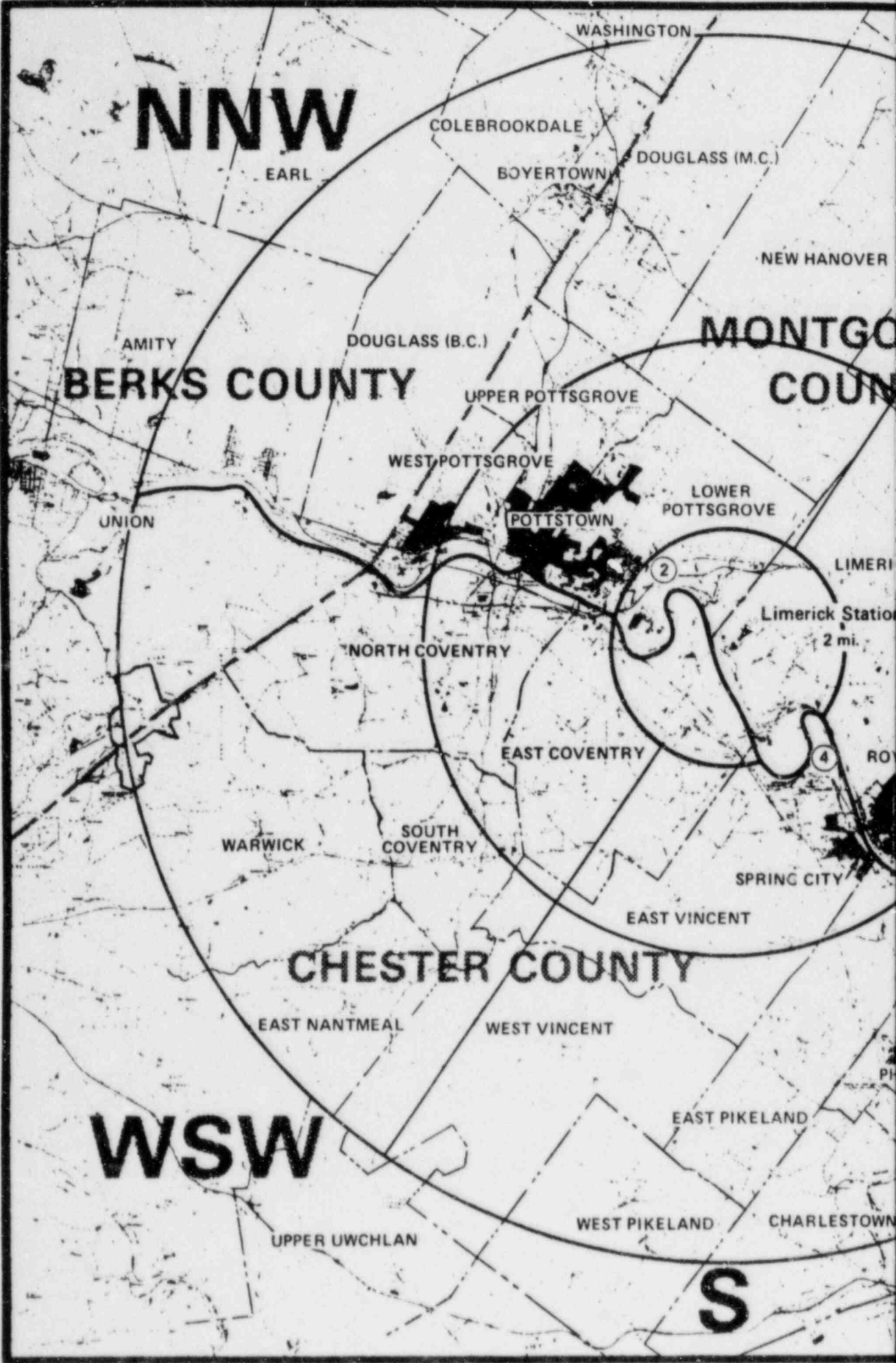
No standard methods for making such estimates are currently recommended by the NRC. We have, however, consulted the available data provided by the NRC and FEMA, particularly NUREG-0654, FEMA Rep. 1, and NUREG-0660. In preparing the analysis, NUS first consulted the available literature, particularly that listed in references to 3.7 infra. It also reviewed the existing demographic information, including that filed in the construction permit phase of this proceeding, and the updating of this material being prepared for submission in the Environmental Report, operating license stage for the Limerick facility. NUS also performed an analysis of evacuation times from the various sectors, using highway capacity information obtained from the Delaware Valley Regional Planning Commission, the Berks County Planning Commission, and techniques obtained from the 1965 U.S. Highway Capacity Manual, and the Pennsylvania Department of Transportation. NUS then conducted an on-site investigation and interviewed the appropriate State and local officials for their input and comments.* Finally, NUS conducted an aerial inspection of the area and drove over some of the indicated evacuation routes.

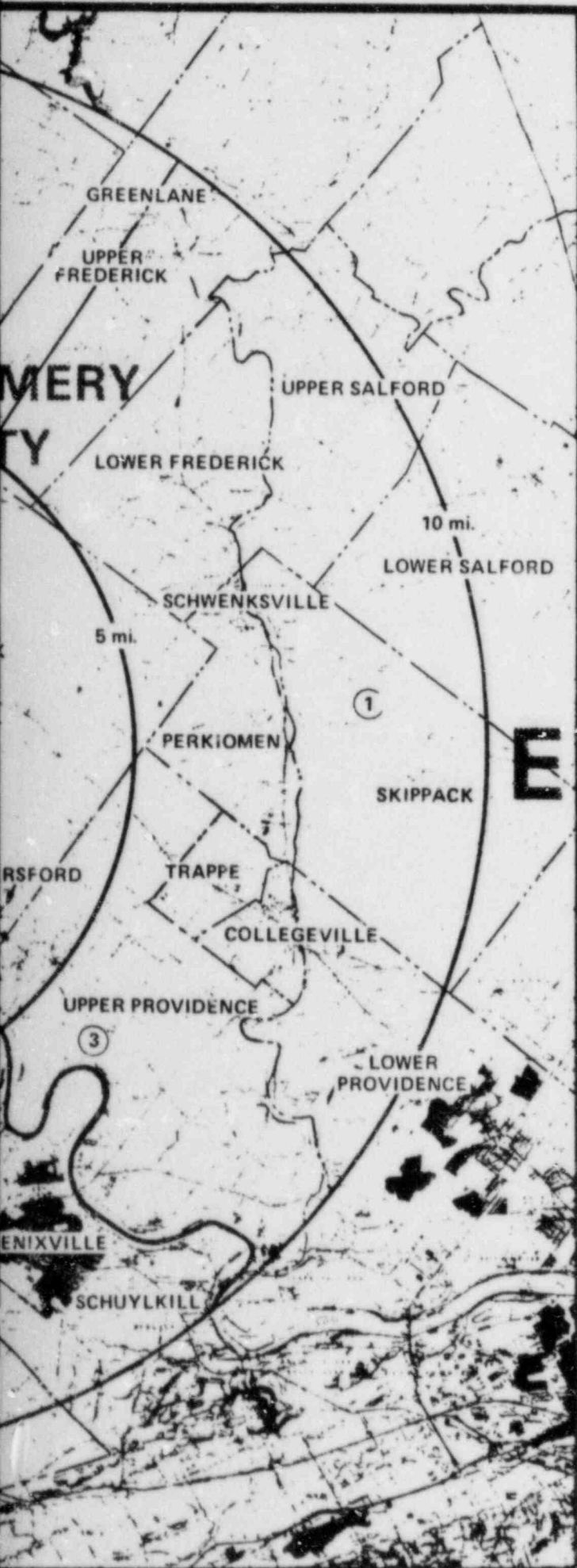
A summary of the evacuation-time estimates is presented in Table 1.1-1. A composite map of the area around the station is presented in Figure 1.1-1. The 2-, 5-, and 10-mile sectors within the Emergency Planning Zone (EPZ), population centers, and evacuation routes are shown on this figure. More detailed maps for each sector are provided in the section on evacuation routes and highway capacities.

* All of the comments provided by these officials have been incorporated in this report to the extent feasible at this time. Obviously, all of these matters will be finally resolved in the final emergency plan.

TABLE 1.1-1
EVACUATION TIME ESTIMATES
BY SECTOR (Hours)

<u>Section and Weather</u>	<u>Notification</u>	<u>Highway Movement</u>	<u>Total</u>
<u>0-2 Miles</u>			
<u>Fair</u>			
NNW	1	1	2
E	1	1	2
S	1	1	2
WSW	1	1	2
<u>Foul</u>			
NNW	1.25	1.25	2.50
E	1.25	1.25	2.50
S	1.25	1.25	2.50
WSW	1.25	1.25	2.50
<u>0-5 Miles</u>			
<u>Fair</u>			
NNW	3	3	6
E	3	3	6
S	3	3	6
WSW	3	3	6
<u>Foul</u>			
NNW	3.75	3.75	7.50
E	3.75	3.75	7.50
S	3.75	3.75	7.50
WSW	3.75	3.75	7.50
<u>0-10 Miles</u>			
<u>Fair</u>			
NNW	5	4	9
E	5	4	9
S	5	4	9
WSW	5	3	8
<u>Foul</u>			
NNW	6.25	5	11.25
E	6.25	5	11.25
S	6.25	5	11.25
WSW	6.25	3.75	10





- ① STATE CORRECTIONAL INSTITUTE
 - ② POTTSTOWN MEMORIAL MEDICAL CENTRE
 - ③ MONTGOMERY COUNTY GERIATRIC AND REHABILITATION CENTRE
 - ④ PENNHURST CENTRE
- Also Available On
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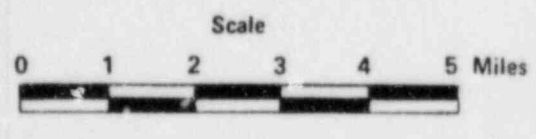


Figure 1.1-1
Limerick 10-Mile Emergency Planning Zone Sectors

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The NRC letter requested estimates for the EPZ in a 10-mile radius divided into 10 geometric sectors around the plant. Since the station is on the Schuylkill River, the sectors were modified slightly to accommodate local preliminary evacuation planning efforts.

After receipt of the NRC letter, Philadelphia Electric Company and NUS representatives met with officials from Montgomery and Chester counties to discuss evacuation considerations relative to the NRC letter. A PECO on-site representative also met with the Berks County Emergency Management Agency (EMA) and a regional Pennsylvania Emergency Management Agency (PEMA) official. During the course of this study, PECO and NUS representatives discussed emergency planning with various institutional and public officials. A draft of this report was presented and discussed at a meeting among PECO, NUS, PEMA, Montgomery County, Chester County, Berks County, and the Pennsylvania State Police. Comments from these organizations were solicited. As noted above, these comments have been incorporated herein to the extent possible at this time.

1.2 Summary

The total evacuation-time estimate for the entire 10-mile, 173,704 population is 9 hours in fair weather conditions and 11 hours and 15 minutes in adverse weather conditions.

These estimates are rooted in conservative assumptions and procedures including the rounding of fractions to the next higher whole number. For instance, in Perkiomen where the actual computed maximum local highway movement time is 3.8 hours, the estimate is rounded to 4 hours. Adverse weather estimates were then computed using these rounded-off local highway movement times. This conservatism is employed by the district traffic engineer who performed the evacuation time estimate for the Three Mile Island Generating Station EPZ. Where other procedures or assumptions were found to be more conservative than those employed at Three Mile Island, those assumptions were used, such as certain assumptions regarding highway capacities. These are discussed in Section 3.0, Methodology.

A future consideration in the Limerick EPZ is the fact that these estimates are based on existing highway systems even though the Schuylkill Expressway leg to Pottstown has just been rescheduled for completion in 1983 instead of 1985. Parts of the expressway are already open but were not used in forming these estimates. The Schuylkill Expressway will connect the Pottstown bypass to the Betzwood Bridge, thus providing a high-capacity modern expressway linking one of the most time consuming sectors in the Limerick EPZ with major highways outside the EPZ, thus reducing the evacuation time in that sector. Other conservative methods, such as the calculations for the number of vehicles, are discussed

in Section 3.0, Methodology. This section also provides all evacuation-time estimates and specific highway-capacity and evacuation-route information.

Section 2.0 is a description of the 10-mile EPZ, including a general description, land use, population by counties and sectors, meteorology, and a discussion on the way sectors were drawn.

Section 4.0 discusses the evacuation of a sample special facility from each of four different kinds of special facilities in the EPZ.

2.0 THE 10-MILE EMERGENCY PLANNING ZONE

2.1 General Description and Site Location

The 10-mile Emergency Planning Zone (EPZ) of the Limerick Generating Station includes about 300 square miles, reaching into Montgomery, Chester, and Berks counties in southeastern Pennsylvania. The city limit of Philadelphia is 20.7 miles from the plant site and 10.7 miles from the 10-mile EPZ boundary. The northwestern boundary of the 10-mile EPZ is approximately 8 miles from the eastern boundary of the City of Reading. The Allentown, Bethlehem, and Easton population center is 16 miles north of the EPZ.⁽¹⁾

Overall, the 10-mile EPZ is rural and open, with suburban development. There are many large forests and hundreds of smaller clusters of woodlands. The predominant land use category is agricultural. The Delaware Valley Regional Planning Commission (DVRPC) estimates the ratio of available land to total usable land to be over 75% for Montgomery County and between 60% to 74.9% for the Chester County portions of this region. Available land is land that is not in some urban use, whereas usable land is available land that excludes swamps, water, streambeds, and steep hills.

The bulk of the residential development is concentrated in urban areas; however, most of the major and secondary roads surrounding these areas are developing suburban communities.

2.1.1 Topography of the Emergency Planning Zone

The topography within a 10-mile radius of the Limerick site is varied. Elevations range from 80 feet above mean sea level on the eastern boundary of the 10-mile radius at the confluence of the Schuylkill River and the Perkiomen Creek to 1,080 feet on the western boundary just west of Boyertown Borough.

The topography within a 5-mile radius of the Limerick site can be generally characterized as a gently rolling to hilly landform, dissected by the Schuylkill River, stream valleys, and runs leading into the Schuylkill River. There is an ample number of bridges crossing the Schuylkill River. Vehicle capacities at these crossings were examined specifically, and are reflected in the first time estimate. Most of these stream valleys are located below the 200-foot elevation.

The relative position of these rolling hills to the Schuylkill floodplain varies within the 5-mile radius. In the vicinity of the Limerick site, the hills fall rather sharply to a narrow floodplain on the north side of the Schuylkill River. In contrast, the other side the river has a floodplain nearly 0.5 mile in width. This situation is typical as the Schuylkill River wends its way through the area.

Most of the land within the 5-mile radius lies between 200 and 400 feet in elevation. There are seven isolated hills located in this 5-mile radius--five to the north and two to the south located generally 3 to 4 miles from the site. These hills are not seen as posing a barrier to evacuation. Most of the land within this 5-mile radius slopes toward the Schuylkill River and the Limerick site.

Slopes in this area are generally under 10% in grade, and therefore are not expected to be a limiting factor in vehicle movement away from the plant. Similar topographic characteristics can be found west and northwest in the 5- to 10-mile ring, although the hills are higher in elevation and steeper. In the 5- to 10-mile ring south of the site, elevations reach 800 feet in height with most land located between 400 to 600 feet.

2.1.2 Site Location

The Limerick Generating Station is on a 595-acre site that extends on both sides of the Schuylkill River into two counties and three townships in southeastern Pennsylvania. The plant itself is sited in Limerick Township of Montgomery County. The land portion of the site is 595 acres and the Schuylkill River, which traverses the site, is the boundary between Montgomery and Chester counties. The boundary of the closest and largest population center, the Borough of Pottstown, is 1.7 miles to the west northwest. Continuing in this direction, the limits of the Borough of Stowe are approximately 4.5 miles from the plant. Southeast of the site, the limits of the Borough of Royersford are approximately 3.4 miles away and the boundary of Spring City is approximately 3.1 miles from the plant. Phoenixville is approximately 7.1 miles from the plant, and the city limits of Philadelphia are approximately 20.7 miles away from the plant.



Figure 2.2-1
Site Location Map

2.2 Use of Lands and Waters in the 10-Mile EPZ

The general land use character of the area within 5 miles of the Limerick site is rural and suburban and contains one major forest, located in northern Limerick and Lower Pottsgrove townships.

The predominant land use category within the 10-mile radius is agricultural. The agricultural industry in the vicinity of the Limerick site consists mainly of small independent farms producing small amounts of agricultural goods for local distribution. An agricultural land use survey in the vicinity of Limerick was performed in early 1976. This survey used data from a door-to-door survey of farmers within 5 miles of the site, and published agricultural data for the area from 5 to 50 miles. The State of Pennsylvania had lost about 170,000 acres of farm land per year from 1960 through 1974.

The urban development and population concentration near Limerick lie outside a 2-mile ring and, historically, have been oriented along the Schuylkill River, with suburban growth spilling out over municipal boundaries. Pottstown Borough, with a 1977 population of 25,739, is the largest municipality within the 10-mile radius.

Industrial operations, for the most part, are clustered along the Schuylkill River, adjacent to rail lines, in the urban areas. The major industrial concentration is in the West Pottsgrove, Pottstown, Lower Pottsgrove section of the Schuylkill River. Both Royersford and Spring City, located on opposite sides of the Schuylkill River, have a river-oriented industrial pattern. Phoenixville's industrial pattern parallels French Creek. Other industrial

locations are found in smaller urban centers such as Boyertown, Colleagueville, Trappe, East Coventry Township, and Linfield just east of the site.

There are 91 industries with ten or more employees within 5 miles of Limerick Generating Station, with a total work population of approximately 13,254. Nineteen of these industries are across the Schuylkill River in Chester County and represent approximately 2,119 employees.

There are no major parks or recreational areas within 5 miles of the Limerick site. However, the Schuylkill River downstream of the site is utilized for recreational boating and fishing. The Hopewell Village National Historic Site is cut by the 10-mile radius southwest of the plant. Valley Forge State Park is approximately 1 mile beyond the 10-mile EPZ limit.

The 5-mile area contains the Eastern State Game Farm and State Game Refuge. The Eastern State Game Farm raised and released 60,000 pheasants between July 1, 1975 and June 30, 1976. No other wildlife is raised or released from this facility.

There is no other designated hunting area. However, small-game hunting is extensively pursued in almost all areas except where prohibited by Pennsylvania law.

The Countryside Swim Club is located approximately 1 mile from the site. Estimated average daily attendance during the swimming season is 400 people; it is likely that people at recreational sport sites, such as swimming pools, came in cars and would return home in cars parked at the site.

There is no commercial fishing or shellfishing industry throughout the entire length of the Schuylkill River. Furthermore, as a result of the river's physical restraints, future commercial fishing development is not anticipated.

The river downstream of the Limerick site is used for recreational boating and fishing. There are eight sites that are presently accessible for these purposes, and eight other potential downstream recreational areas within the 10-mile EPZ. Vincent Dam is the only boating recreation site within 2 miles of the site, or 3.3 river miles.

2.3 Population within the Emergency Planning Zone

The most recent figure for total population within the 10-mile radius extending into all three counties is 173,704.

Populations within the 2-, 5-, and 10-mile rings are as follows:

o	0 to 2 miles	5,932
o	2 to 5 miles	58,378
o	5 to 10 miles	<u>109,394</u>
	Total	173,704

The source for the 2- to 5-mile population data is the Delaware Valley Regional Planning Commission (DVRPC).⁽²⁾ The population data for the 5- to 10-mile ring comes from two sources. All Montgomery and Chester county data come from the DVRPC. Berks County data come from the 1970 U.S. Census. The DVRPC does not keep data on Berks County because of jurisdictional limitations. The Berks County Planning Commission supplied 1970 U.S. Census data. The Berks County townships within the 10-mile EPZ lie outside the 5-mile limit.

Only portions of each county are within the 10-mile radius. For the purpose of this study, the population within the EPZ on a county basis is as follows:

o	Montgomery County	100,328
o	Chester County	53,276
o	Berks County	<u>20,100</u>
	Total	173,704

Population densities are greatest along the Schuylkill River where the largest boroughs in the EPZ occur. The Borough of Pottstown is the largest population center within the entire EPZ with a population of 25,739, according to 1977 data from the Delaware Valley Regional Planning Commission (DVRPC). Located northwest of the plant, the closest boundary of the borough is 1.7 miles away and the most distant borough boundary is approximately 4.2 miles away. Most of the town area is 3 miles from the plant.

To the southeast, Royersford Borough, Montgomery County, and Spring City, Chester County, are inside the 5-mile limit with populations of 4,932, and 3,786, respectively. Phoenixville, the only other large population center within the 10-mile EPZ, has a population of 14,880.

Where the 10-mile EPZ cuts through a population center, the inhabitants of those communities are included in the evacuation estimates. This holds true for population centers such as Green Lane and Sumneytown northeast of the plant, Monocacy Station to the northwest, and the Lower Providence area along the Schuylkill River and Perkiomen Creek. The ten evacuation sectors used in this report are discussed in detail in the Emergency Planning Zone Sectors section.

Growth in Montgomery County as a whole appears to have been leveling off. The DVRPC shows a 1970 population of 624,000 and projects an increase of 26,000 to a new total of 650,000 in 1990. Rural Chester County had a 1970 population of 278,000 and the DVRPC projects a total population of 320,000 in 1990, an increase of 42,000 during

the 20-year period. The 1977 average family sizes for the Montgomery, Chester, and Berks counties are 3.38, 3.16,⁽³⁾ and 3.0,⁽⁴⁾ respectively. However, for estimating purposes, 3.0 was used for all counties, thus rendering a more conservative approach in the determination of the number of vehicles (refer to Section 3.0, Methodology).

TABLE 2.3-1
MONTGOMERY COUNTY POPULATION
WITHIN EPZ*

<u>Municipality</u>	<u>Population</u>
Pottstown Borough	25,739
Lower Pottsgrove Township	6,681
Limerick Township	5,441
Royersford Borough	4,932
Upper Pottsgrove Township	2,589
West Pottsgrove Township	4,015
Douglass Township	4,950
New Hanover Township	4,004
Upper Frederick Township	1,409
Lower Frederick Township	2,436
Green Lane Borough	685
Upper Salford Township	1,800
Schwenksville Borough	810
Perkiomen Township	2,661
Skippack Township	5,131
Upper Providence Township	9,199
Trappe Borough	1,959
Collegeville Borough	3,281
Lower Providence Township (19,833 x 0.5**) =	9,917
Lower Salford Township (8,147 x 0.33**) =	2,689
TOTAL	100,328

* From DVRPC, 1977 Data Bank Report, Reference 2.

** Fraction indicates the amount of the township's population to be within the Limerick EPZ.

TABLE 2.3-2
CHESTER COUNTY POPULATION
WITHIN EPZ*

<u>Municipality</u>	<u>Population</u>
North Coventry	7,142
East Coventry	3,774
South Coventry	1,063
Warwick	1,468
East Nantmeal	944
East Vincent	4,226
West Vincent	1,866
East Pikeland	4,346
West Pikeland	1,697
Schuylkill	5,762
Phoenixville	14,880
Charlestown	2,172
Upper Uwchlan (1,353x0.11**) =	150
Spring City	<u>3,786</u>
 TOTAL	 53,276

* Population within 10-mile radius from DVRPC, 1977 Data Bank Report, Reference 2.

** Fraction indicates the amount of the township's population estimated to be within the Limerick EPZ.

TABLE 2.3-3
 BERKS COUNTY POPULATION
 WITHIN EPZ*

<u>Municipality</u>	<u>Population</u>
Colebrookdale	3,034
Washington (2,273 x 0.25**) =	568
Douglass	2,944
Earl (2,290 x 0.5**) =	1,146
Amity	5,648
Union	2,332
Boyertown	<u>4,428</u>
 TOTAL	 20,100

* Population within 10-mile radius, 1970 Census Data from Berks County Planning Commission, Reference 4.

** Fractions indicate the amount of the township's population estimated to be within the Limerick EPZ.

2.4 Meteorology

The climate of Montgomery and Chester counties and the southeastern portion of Berks County is characterized by warm, humid summers, and moderately cold winters. The average temperature of the three-county area is approximately 55°F. Temperatures below 0°F and above 100°F are rare; average daily maximum temperatures range from 87°F in July to 40°F in January, and average daily minimum temperatures range from 23°F in January and February to 65°F in July and August. The average annual precipitation is 45 inches and is rather uniformly distributed throughout the year, with only small differences between the wettest and driest months. These weather conditions are due in large measure to the protection given by the Allegheny Mountains to the west.

For information on normal and maximum monthly snowfalls and greatest 24-hour snowfalls at Reading and in Philadelphia, refer to Table 2.4-1.

TABLE 2.4-1

MONTHLY SNOWFALL
1931 through 1967*
(In Inches)

Month	At Philadelphia International Airport		At Reading Airport	
	Normal	Maximum	Normal	Maximum
January	5.6	29.7	8.4	24.3
February	5.7	17.8	8.8	21.0
March	4.1	13.4	5.5	21.5
April	0.1	3.0	0.4	4.8
May	T**	T	T	T
June	---	---	--	---
July	---	---	---	---
August	---	---	--	---
September	---	---	---	---
October	T	T	T	T
November	0.8	8.8	1.1	11.5
December	4.2	17.5	6.4	27.1
TOTAL	20.5		30.6	

* From applicant's Environmental Report--Construction Permit Stage, (Revised), Limerick Generating Station, Philadelphia Electric Company, May 1972.

** Trace of precipitation.

NOTE: Readings's greatest snowfall:

Monthly: 27.1 inches, December 1966
24-Hours: 18.7 inches, February 1958

Philadelphia's greatest snowfall:

Monthly: 31.5 inches, February 1899
24-Hours: 21.0 inches, December 1909

The NRC request seeks a format containing two 180-sectors at 2 miles, four 90-sectors at 5 miles, and four 90-sectors at 10 miles. The request also suggests that population centers be kept intact "to the extent practical."

In the Limerick EPZ, the Schuylkill River is the predominant topographical feature and the boundary between Montgomery and Chester counties. As such, it is an important factor in local evacuation planning. The only river crossings used in the evacuation plan are the three crossings in Pottstown that are used to evacuate about 40% of the population of Pottstown on Highway 422. This limited access highway returns to the north bank of the Schuylkill River in Berks County.

Therefore, for this report, the NRC sector format for evacuation time estimates has been modified to comply with this local evacuation planning approach. In doing so, the resulting sectors divide into practical land areas which conform to the planning needs of the Limerick EPZ. Refer to Figure 1.1-1 in the summary of this report and to the individual sector maps in the methodology section for details of evacuation routes in each sector.

In doing so, the resulting sectors represent practical and manageable land areas that conform to the planning needs of the Limerick EPZ. The sectors are approximate designations, not crisply defined boundaries which theoreticians may use to divide the area for evacuation purposes.

For these reasons, the sectors and the populations within them are defined best by the townships of which they are composed. With this understanding, the sector maps in this report may be applied realistically. For the detailed breakdown of populations and cars by sector, refer to the methodology section of this report.

Where the 10-mile limit is seen to divide populated areas, population estimates for those sectors were adjusted to include those areas. Places falling into this category include Washington in the north and parts of Lower Providence Township.

References

1. Final Environmental Statement Related to the Proposed Limerick Generating Station Units 1 and 2, Philadelphia Electric Company, Docket Numbers 50-352 and 50-353, United States Atomic Energy Commission, Directorate of Licensing, 1973.
2. "1977 Data Bank for Transportation Planning," Delaware Valley Planning Commission, Philadelphia, Pennsylvania, October 1979.
3. Personal Communication between Jack Berkley, NUS Corporation and Don Shanis, DVRPC, February 27, 1980.
4. Berks County Data Book, Berks County Planning Commission, Reading, Pennsylvania, June 1979.

3.0 METHODOLOGY

3.1 Evacuation Time Estimates

Pertinent census data and highway capacity information were given to NUS by the Delaware Valley Regional Planning Commission (DVRPC) and Berks County Planning Commission (BCPC). This information is used to determine highway movement times from the various sectors.

The notification times are based on a previous study⁽¹⁾ which modeled the evacuation time as the sum of a delay time and an actual travel time. The delay time, which was evaluated from statistical data,⁽²⁾ is used as the notification time in this report.

The evacuation time is the sum of the longest highway movement time in a sector and the notification time.

3.2 Population of the Sectors of the EPZ

The populations of each sector are listed in Table 3.2.1 and shown graphically in Figure 3.2-1. Other sectors in the figure are defined by the appropriate townships and portions thereof as shown in Table 3.2-1. The populations of each township are listed in Tables 2.3-1, 2.3-2, and 2.3-3, and Figure 3.2-2.

Cars

The number of vehicles is assumed to be the same as the number of households. The number of people per household is assumed to be three. The number of vehicles of each township is shown graphically in Figure 3.2-3.

TABLE 3.2-1
POPULATION

<u>Sector</u>	<u>City/Township</u>	<u>Population</u>
<u>2-Mile Radius</u>		
NNW + E	Limerick (1,667)*	3,894
	Lower Pottsgrove (2,227)**	
WSW + S	East Coventry (2,038)***	2,038
<u>2- to 5-Mile Radius</u>		
E	Limerick (3,774)*	8,706
	Royersford	
NNW	Lower Pottsgrove (4,454)**	32,782
	Upper Pottsgrove	
	Pottstown	
S	Spring City	8,012
	East Vincent	
WSW	East Coventry (1,736)***	8,878
	North Coventry	
<u>5- to 10-Mile Radius</u>		
E	Upper Providence	41,977
	Lower Providence	
	Collegeville	
	Trappe	
	Skipack	
	Upper Salford	
	Lower Salford	
	Upper Frederick	
	Lower Frederick	
	Schwenksville	
	Perkiomen	
Greenlane		

* Out of total of 5,441.

** Out of total of 6,681.

*** Out of total of 3,774.

TABLE 3.2-1 (Continued)
POPULATION

<u>Sector</u>	<u>City/Township</u>	<u>Population</u>
	<u>5- to 10-Mile Radius</u> (Continued)	
NNW	New Hanover Douglass (Montgomery) Douglass (Berks) West Pottsgrove Amity Colebrookdale Earl Boyertown Washington	30,737
S	West Vincent East Pikeland West Pikeland Schuylkill Phoenixville Charlestown Upper Uwchlan	30,873
WSW	Union Warwick South Coventry East Nantmeal	5,807

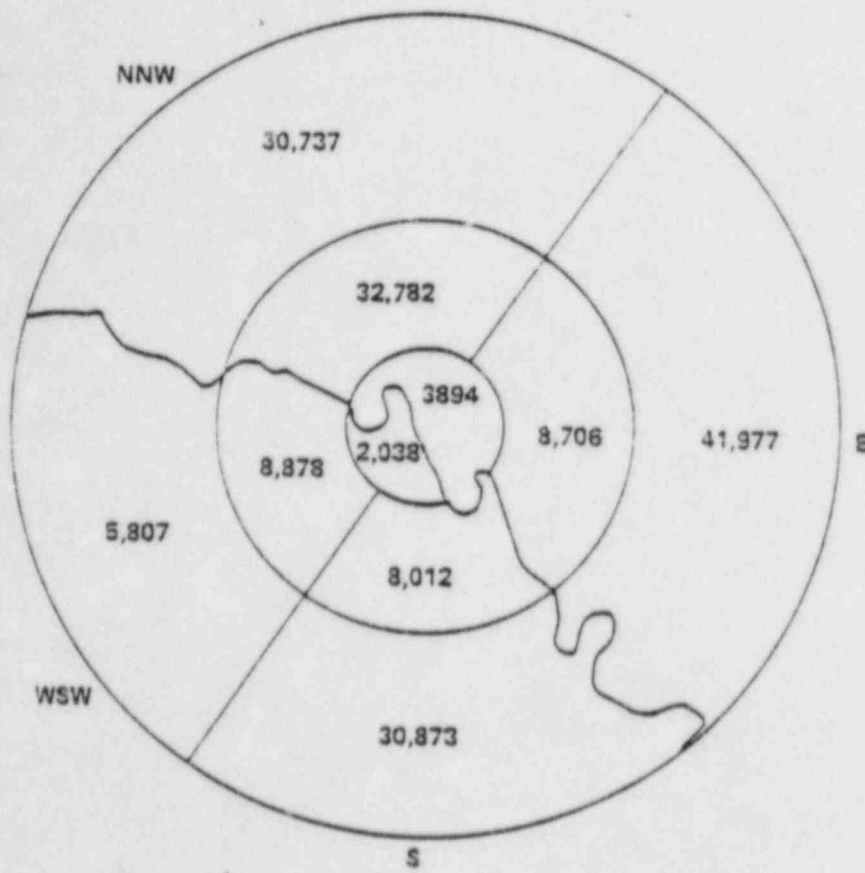


Figure 3.2-1
Population Distribution by Sectors



Figure 3.2-3
Vehicle Distribution

3.3 Evacuation Routes and Highway Capacities

The highway capacity data is based on the DVRPC 1972 Route and Intersection Inventory.⁽³⁾ Level E capacity, as defined therein, is the assumed level of service for these estimates. This capacity is defined as the "maximum number of vehicles which has a reasonable expectation of passing over a given roadway during a given time period under prevailing roadway and traffic conditions."

The evacuation routes of each sector are shown in Figures 3.3-1, 3.3-2, 3.3-3, and 3.3-4. The routes are designated with a letter followed by a two-digit number. The letters N, E, S, and W represent the sectors NNW, E, S, and WSW, respectively. The two-digit numbers are assigned as route reference numbers for this report.

For each proposed evacuation route, the figures on each map reflect the number of vehicles which will pass a given point on that road in the number of hours designated in parentheses. In the Pottstown area, the vehicles-per-hour values provided by the DVRPC were used directly. For the other areas in the 10-mile zone, a conservative capacity of 700 vehicles per hour was used, except in the Schuylkill and Charlestown Townships, where only a 600 vehicles-per-hour factor was employed.

3.4 Evacuation Highway Load Distribution

The evacuation highway load distribution is listed in Tables 3.4-1 through 3.4-4, and in Figures 3.3-1 through 3.3-4.

The routes have been given temporary designations as more than one Federal or State routes may be involved. The final emergency plan will, of course, identify these routes in terms of their current designations.

TABLE 3.4-1
FAIR WEATHER EVACUATION TIMES
North Northwest Sector

<u>Township/Borough</u>	<u>Route</u>	<u># of Cars</u>	<u>Total #Cars</u>	<u>Time* (Hours)</u>	<u>Remarks**</u>
<u>0-2 Miles</u>					
Lower Pottsgrove (556)	N01	556	556	<u>0.8</u>	
<u>0-5 Miles</u>					
Lower Pottsgrove (1671)	N09	1671	1671	<u>2.4</u>	2227 Total Lower Pottsgrove
Pottstown (8580)	N06	4400	4400	2.1	2100 cars/hr
	N08	880	880	1.3	
	N01	3300	3856	0.9	4200 cars/hr
Upper Pottsgrove (863)	N07	863	863	1.3	
<u>0-10 Miles</u>					
West Pottsgrove (1339)	N02	1339	1339	1.6	850 cars/hr
Douglass (Berks) (982)	N02	200	1539	2.2	
	N03	782	782	1.1	
Amity (1883)	N01	942	4798	2.9	1700 cars/hr
	N02	942	2481	<u>3.6</u>	
New Hanover (1335)	N08	1335	2215	3.2	
Douglass (Mont. Co.) (1650)	N07	1650	2513	<u>3.6</u>	
Boyertown (1476)	N04	738	738	1.1	
	N05	738	738	1.1	
Colebrookdale (1012)	N04	1012	1750	2.5	
Earl (382)	N03	382	1164	1.7	
Washington (190)	N05	190	928	1.4	

* Time underlined represents longest time in sector.

** Road capacity assumed to be 700 cars/hr except where noted.

TABLE 3.4-2
FAIR WEATHER EVACUATION TIMES
East Sector

<u>Township/Borough</u>	<u>Route</u>	<u># of Cars</u>	<u>Total #Cars</u>	<u>Time* (Hours)</u>	<u>Remarks**</u>
<u>0-2 Miles</u>					
Limerick (556/1816)	E02	556	556	<u>0.8</u>	
<u>0-5 Miles</u>					
Limerick (1258/1816)	E02	631	1187	1.7	
	E03	627	627	0.9	
Royesford (1644)	E03	1096	1723	<u>2.5</u>	
	E10	548	548	0.8	
<u>0-10 Miles</u>					
Upper Providence (3057)	E10	1534	2082	3.0	
	E06	1534	1534	2.2	
Schwenksville (270)	E02	270	1457	2.1	
Trappe (653)	E06	327	1861	2.7	
	E07	327	327	0.6	
Collegeville (1127)	E07	1127	1454	2.5	
Lower Providence (3306)	E09	1354	1354	2.4	
	E08	1354	1354	2.4	
	E07	600	2054	3.0	
Perkiomen (887)	E03	887	2610	<u>3.8</u>	
Skippack (1711)	E05	1711	1711	2.5	
Lower Salford (906)	E04	906	906	1.3	
Lower Frederick (812)	E01	812	812	1.2	
Upper Frederick (470)	E01	470	1282	1.9	
Green Lane (229)	E01	229	1511	2.2	
Upper Salford (600)	E02	600	2057	3.0	

* Time underlined represents longest time in sector.

** Road capacity assumed to be 700 cars/hr except where noted.

TABLE 3.4-3
FAIR WEATHER EVACUATION TIMES
South Sector

<u>Township/Borough</u>	<u>Route</u>	<u># of Cars</u>	<u>Total #Cars</u>	<u>Time* (Hours)</u>	<u>Remarks**</u>
<u>0-2 Miles</u>					
East Coventry (340/1258)	S09	340	340	<u>0.5</u>	See Table 3.4-4
<u>0-5 Miles</u>					
Spring City (1263)	S09	631	971	1.4	629 in WSW Sector <u>629</u> in S Sector 1258 East Coventry
	S08	632	632	0.9	
East Vincent (1409)	S08	1409	2041	<u>2.9</u>	
East Coventry (289/1258)	S09	289	1260	1.8	S09 joins W02 in WSW Sector
<u>0-10 Miles</u>					
Phoenixville (4960)	S01	992	992	1.4	
	S02	992	992	1.4	
	S03	992	992	1.4	
	S04	992	992	1.4	
	S07	992	992	1.4	
Schuylkill (1921)	S01	641	1633	2.8	600 cars/hr
	S02	641	1633	2.8	600 cars/hr
	S03	641	1633	2.8	600 cars/hr
Charlestown (724)	S03	362	1995	<u>3.4</u>	600 cars/hr
	S04	362	1354	<u>2.3</u>	600 cars/hr
East Pikeland (1449)	S05	725	725	1.1	
	S06	725	725	1.1	
West Pikeland (566)	S05	283	1008	1.5	
	S06	283	1008	1.5	
Upper Uwchlan (50)	S07	50	1042	1.5	50 out of 451
West Vincent (622)	S07	622	1664	2.4	

* Time underlined represents longest time in sector.

** Road capacity assumed to be 700 cars/hr except where noted.

TABLE 3.4-4
FAIR WEATHER EVACUATION TIMES
West Southwest Sector

<u>Township/Borough</u>	<u>Route</u>	<u># of Cars</u>	<u>Total #Cars</u>	<u>Time* (Hours)</u>	<u>Remarks**</u>
<u>0-2 Miles</u> East Coventry (340/1258)	W05	340	340	<u>0.5</u>	See Table 3.4-3 629 in WSW Sector <u>629</u> in S Sector <u>1258</u> East Coventry
<u>0-5 Miles</u> East Coventry (289/1258)	W02	289	1549	2.2	1260 from S09
North Coventry (2381)	W05	1500	1840	<u>2.7</u>	
	W03	881	881	<u>1.3</u>	
<u>0-10 Miles</u> Union (778)	W04	778	778	1.1	
South Coventry (355)	W02	355	1904	<u>2.7</u>	
Warwick (490)	W03	490	1371	2.0	
East Nantmeal (315)	W01	315	315	0.5	

* Time underlined represents longest time in sector.

** Road capacity assumed to be 700 cars/hr except where noted.

3.5 Evacuation Times

3.5.1 Limerick Evacuation Times

The evacuation time for a given sector is the sum of the notification time and the sector highway movement time. The sector highway movement time is the maximum local highway movement time of each sector, which is underscored in Table 3.4-1. Each sector highway movement time is rounded off to the next higher whole number before it is added to the notification time.

The local highway movement time is the time required to move the accumulated vehicles out of the township on the specified evacuation route. The notification times, as applied in this study, include notification, preparation, and initial movement times. Notification times are assumed to be 1, 3, and 5 hours for 2-, 5-, and 10-mile radii, respectively.

The maximum evacuation time is represented by the parenthetical number closest to the point where each designated evacuation route crosses the 10-mile perimeter. Hence, the estimated evacuation time represents the most conservative assumptions possible, i.e., the person who receives notification and initiates movement at the last possible moment, so that he is the last person in the traffic flow to utilize the designated evacuation route. Obviously, therefore, all other persons will have crossed prior thereto.

Realistically, it is clear that the existing road network will permit evacuation of all of the population in the 10-mile zone on a much shorter time frame. Moreover, it is unlikely that notification times of 3 and 5 hours would be required in an actual situation.

Notification is assumed to be achieved by door-to-door contact, radio and television broadcasts, and public address systems, including mobile units with loud speakers.

Confirmation times were thoroughly explored with the pertinent local officials. The directors of the emergency preparedness agencies for Montgomery, Chester, and Berks counties believe that confirmation can be achieved by some method such as traffic monitoring, but not by a door-to-door check. This method of confirmation does not add to the total evacuation times.

A summary of the notification times and the highway movement times is shown in Figure 3.5-1. When the highway movement times rest in fractions, the fractions are rounded off to the next higher whole number. The evacuation times are summarized in Figure 3.5-2.

3.5.2 A Comparison With An EPA Evacuation Study

Evacuation experience in the United States, for the period from 1959 to 1973, is summarized in a report published by the U.S. Environmental Protection Agency (EPA).⁽²⁾ The report provides data on 64 evacuation events, most of which were in response to hazards from transportation accidents, floods, or hurricanes.

The Reactor Safety Study (RSS)⁽⁵⁾ found that evacuation times from transportation accidents were more appropriate for the evaluation of evacuation times in reactor accidents. (Table 3.5-1 presents the collected data for transportation accidents.)

Based on a distribution of evacuation speeds for evacuations of all types, the RSS concluded that an effective speed of 1.2 mph had the highest probability of occurrence during evacuations. In applying this conclusion, a simple estimate for an evacuation of a 10-mile radius is 8 hours 20 minutes. This is reasonably close to the estimates of 9, 9, 9, and 8 hours shown in Figure 3.5-2.

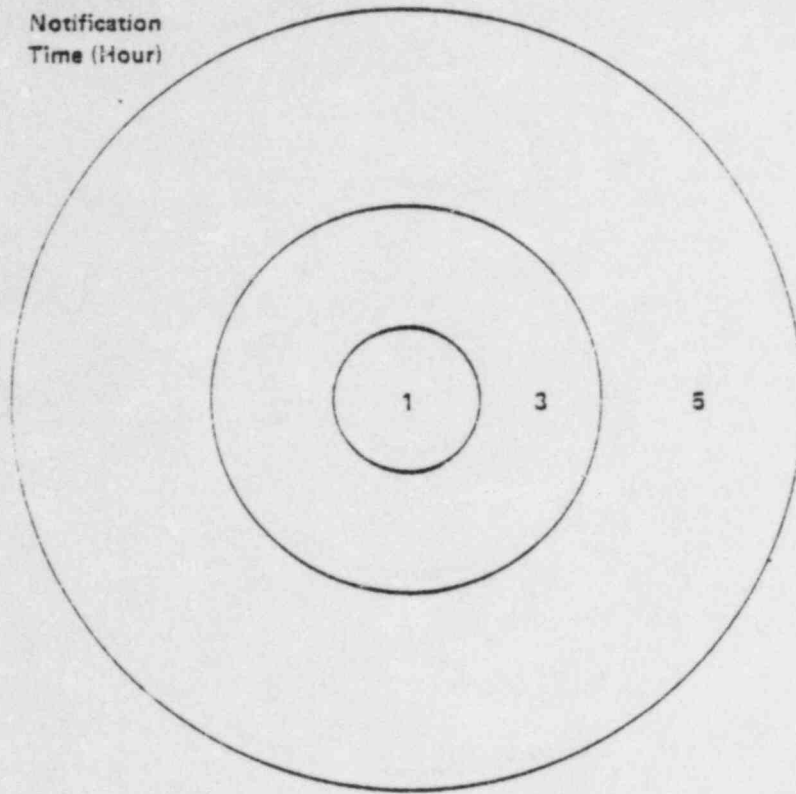
TABLE 3.5-1
BASIC EVACUATION DATA - TRANSPORTATION

Event Number	Location and Date	Type of Area Evacuated	Area Evacuated (sq. miles)	Number of Persons Evacuated	Distance Evacuated (Miles)	Evacuation Period (hrs)	Population Density (number per sq. mile)	Road and Conditions (a)	Weather	Time of Day	Evacuation Plans (b)	Remarks
12	Downington, PA; 2/5/73	Suburban	0.25	700 of 800	1.0	2.0	3200	Dry S	Cloudy	Night	PU	Private vehicles
16	Creve Coeur, MO; 8/1/61	Rural residential; suburban; urban	15	7,500	12	1.0	500	Dry S	Fog	Night	PU	Private vehicles
18	Chadbourn, NC; 1/13/68	Suburban	0.5	350	1.0	5.0	700	Dry S	Cloudy	Dusk Night	NP	Private vehicles
33	Wetanka, OH; 4/4/69	Rural residential	3	2,000	25	8	667	Dry S	Cloudy	Day	PU	Private vehicles
34	Louisville, KY; 1/19/72	Urban	0.35	4,000	1	3	11,400	Wet U	Rain	Day	PU	Private vehicles; chlorine barge; no chlorine release
35	Urbana, OH; 8/13/53	Suburban	3.1	4,000	0.75	3.5	1,300	Dry S	Clear	Dawn	N.D.	Private vehicles
36	Bacon Rouge, LA; 8/65	Urban	8	150,000	30	2.0	19,000	Dry U, EU	Clear	Day	PU	Private vehicles; chlorine barge; no chlorine release
38	Morgan City, LA; 1/19/73	Urban	1.8	3,000 of 3,300	2	4	1,800	Ice U	Snow	Day	PU	Private vehicles; chlorine barge; no chlorine release
39	Texarkana, TX; 8/27/67	Suburban	9.0	5,000	3	4	550	Dry U	Clear	Night	NP	Private vehicles
44	Glendora, MS; 9/11/69	Rural farming; rural residential; suburban; urban	1.200	15,000	20	4	29	Dry S	Cloudy	Night	P	Private vehicles

(a) Key: U - urban road;
S - suburban road;
R - rural road;
EU - express way (unlimited access);
EL - express way (limited access).

(b) Key: P - plan available (not used);
PU - plan used
NP - no plan
N.D. - no data

Notification
Time (Hour)



Highway Movement Time (Hour)

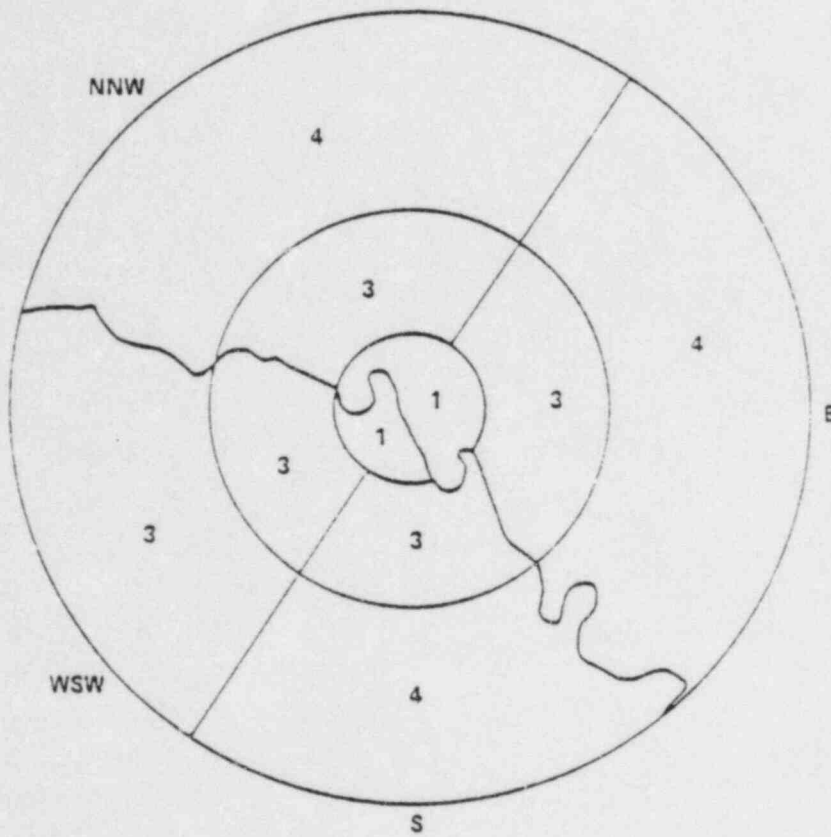


Figure 3.5-1

Notification Time and Sector Highway Movement Time

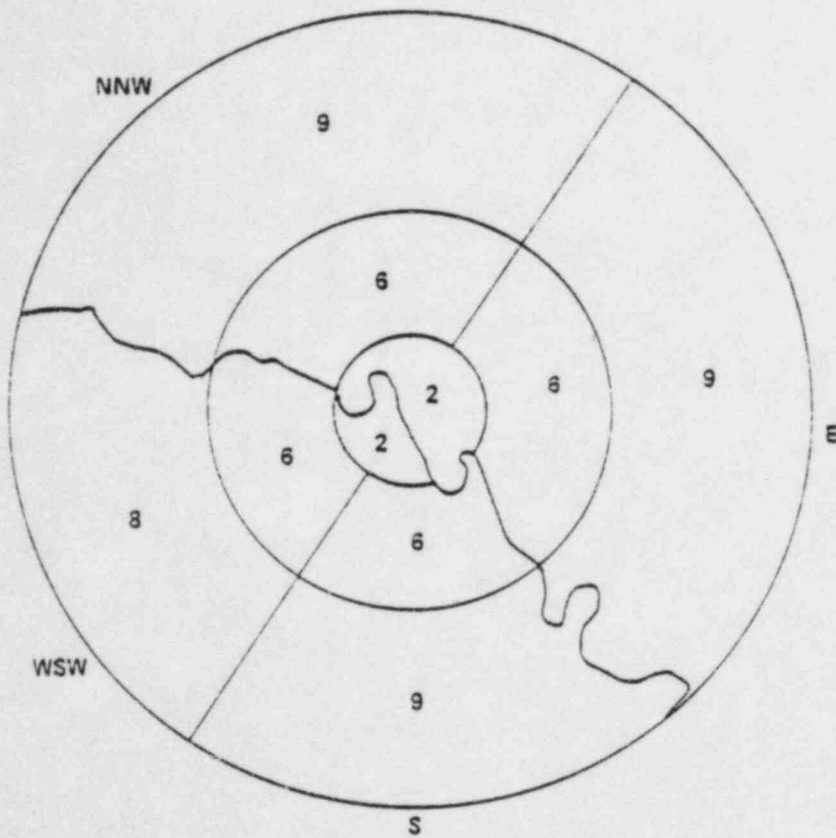


Figure 3.5-2
Evacuation Times By Sector*

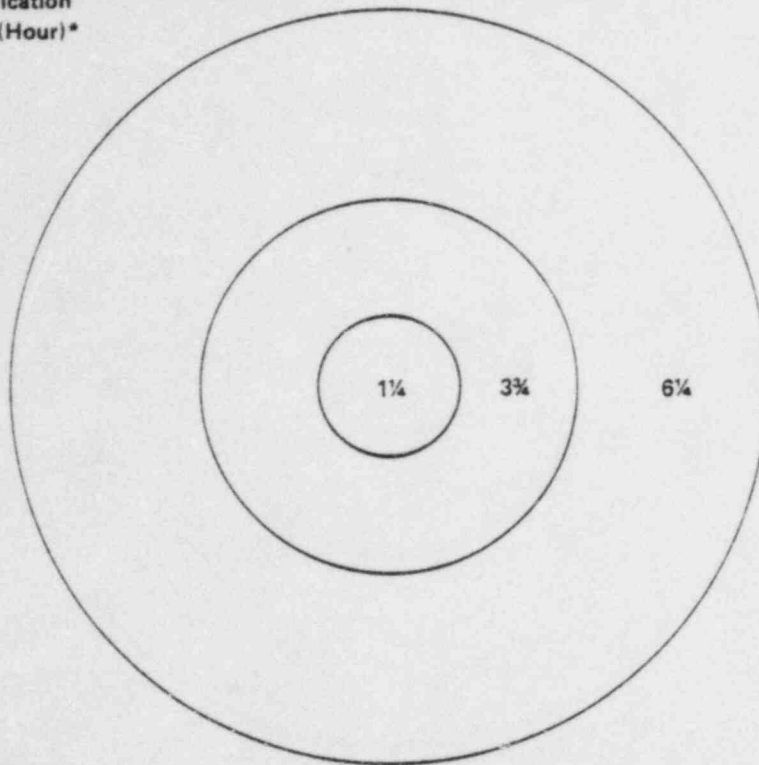
*Evacuation times include notification time.

3.6 Adverse Weather

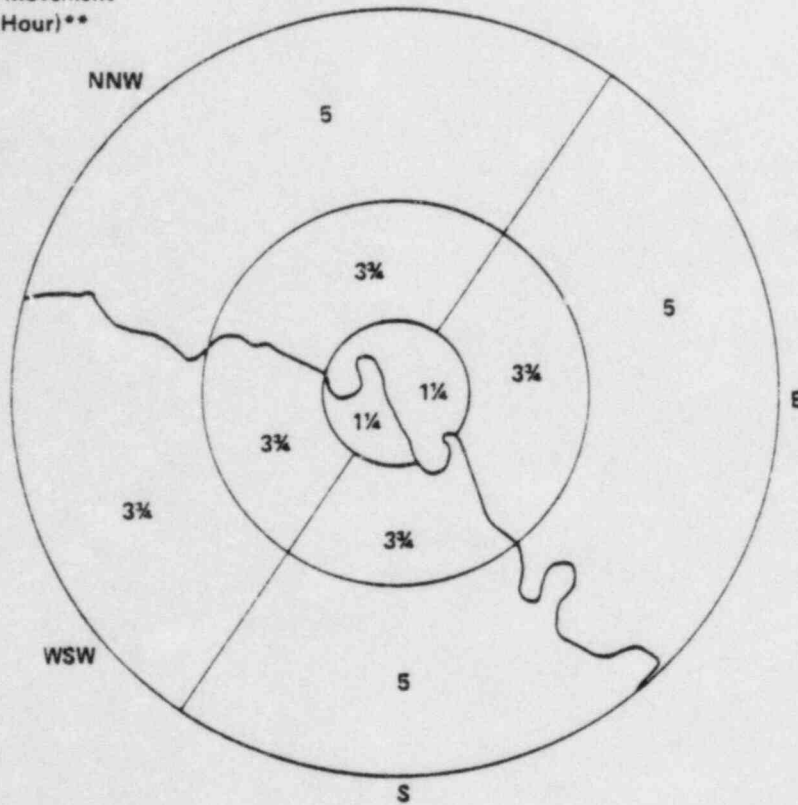
Obviously, the impact of weather conditions may vary widely, as illustrated by the data on snowfalls (see Table 2.4-1). However, in order to respond, we have taken the 20% figure from the Transportation Research Circular, page 261.⁽⁴⁾ Obviously, as is recognized by the Grimes letter, if one assumes a blizzard to occur simultaneously with an evacuation, it is likely that the responsible authorities would determine that the more effective protection of the public health and safety would be to have the populace remain sheltered.

This 20% reduction in highway capacity resulted in a 25% increase in local highway movement times. Notification times, which include notification, preparation, and initial movement times, are also increased by 25%. These results are shown in Figures 3.6-1 and 3.6-2. For more details on the meteorology and adverse weather in the EPZ, refer to Section 2.4.

Notification
Time (Hour)*



Highway Movement
Time (Hour)**



*Notification times are cumulative. The notification time for the entire 10-mile EPZ is 6 1/4 hours.
 **Highway movement times are cumulative. The outer number represents the total sector highway movement time.

Figure 3.6-1

Notification Time and Sector Highway Movement Times in Adverse Weather

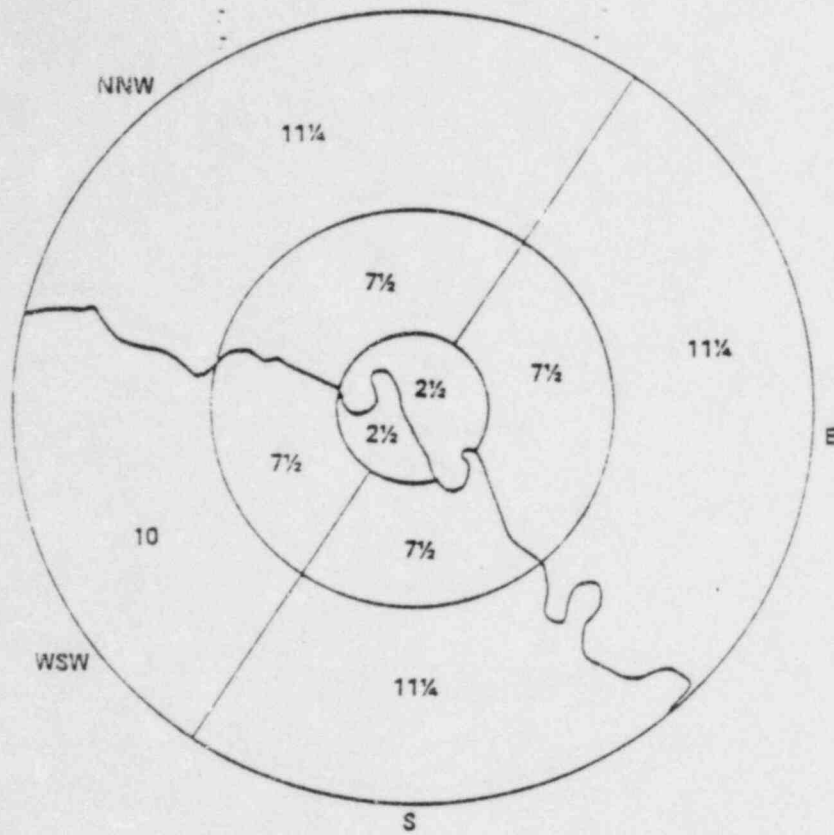


Figure 3.6-2
Evacuation Time in Adverse Weather

*Times for the 5- and 10-mile radial sectors are cumulative. The outer number is the total for the entire 10-mile sector.

3.7 References

1. Aldrich, D. C., "Examination of Offsite Radiological Emergency Protective Measures for Nuclear Reactor Accidents Involving Core Melt," Ph.D. Thesis, MIT, 1978.
2. Hans, J. M. and T. C. Sell, "Evacuation Risks--An Evaluation, U.S. Environmental Protection Agency, EPA-520/6-74-002, 1974.
3. "1972 Route and Intersection Inventory, Delaware Valley Regional Planning Commission, June 1977.
4. Transportation Research Circular, Number 212, Transportation Research Board, National Academy of Sciences, 2101 Constitution Avenue, Washington, D.C., January 1980.
5. WASH 1400, Appendix VI, Reactor Safety Study.

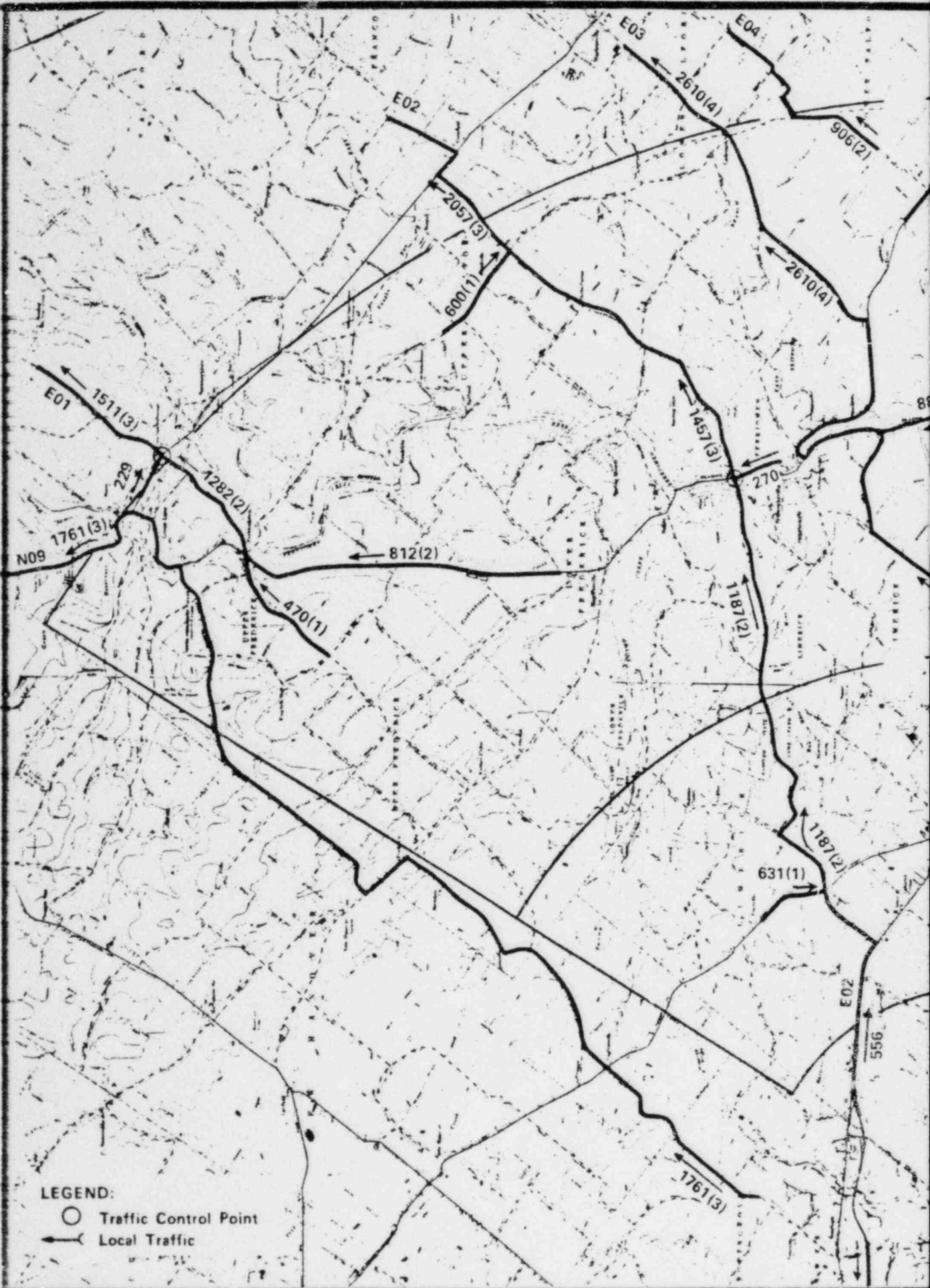
TI
APERTURE
CARD





Figure 3.3-1
Evacuation Routes in NNW Sector

Total Number of Vehicles, 21,920



LEGEND:
○ Traffic Control Point
← Local Traffic



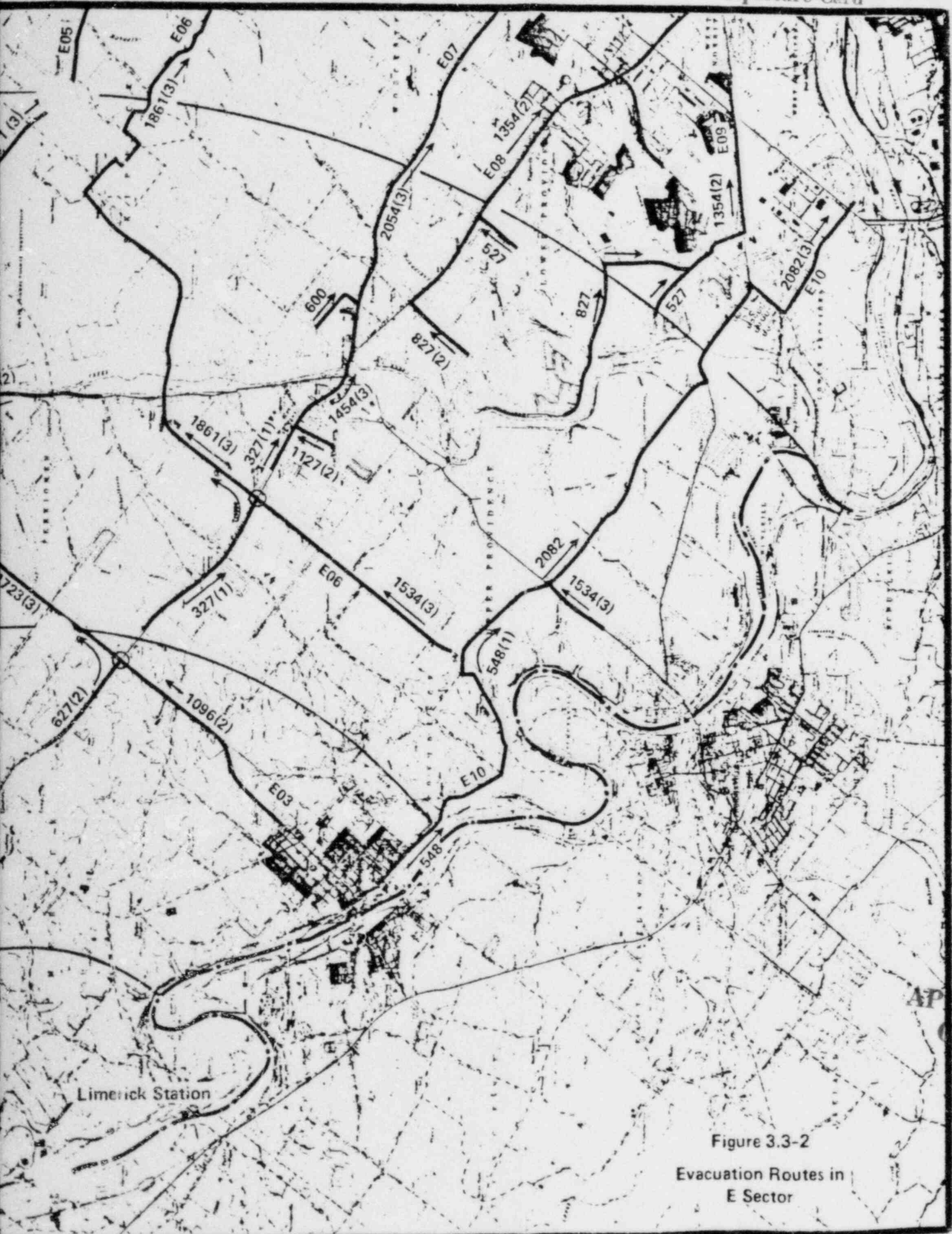


Figure 3.3-2
Evacuation Routes in
E Sector

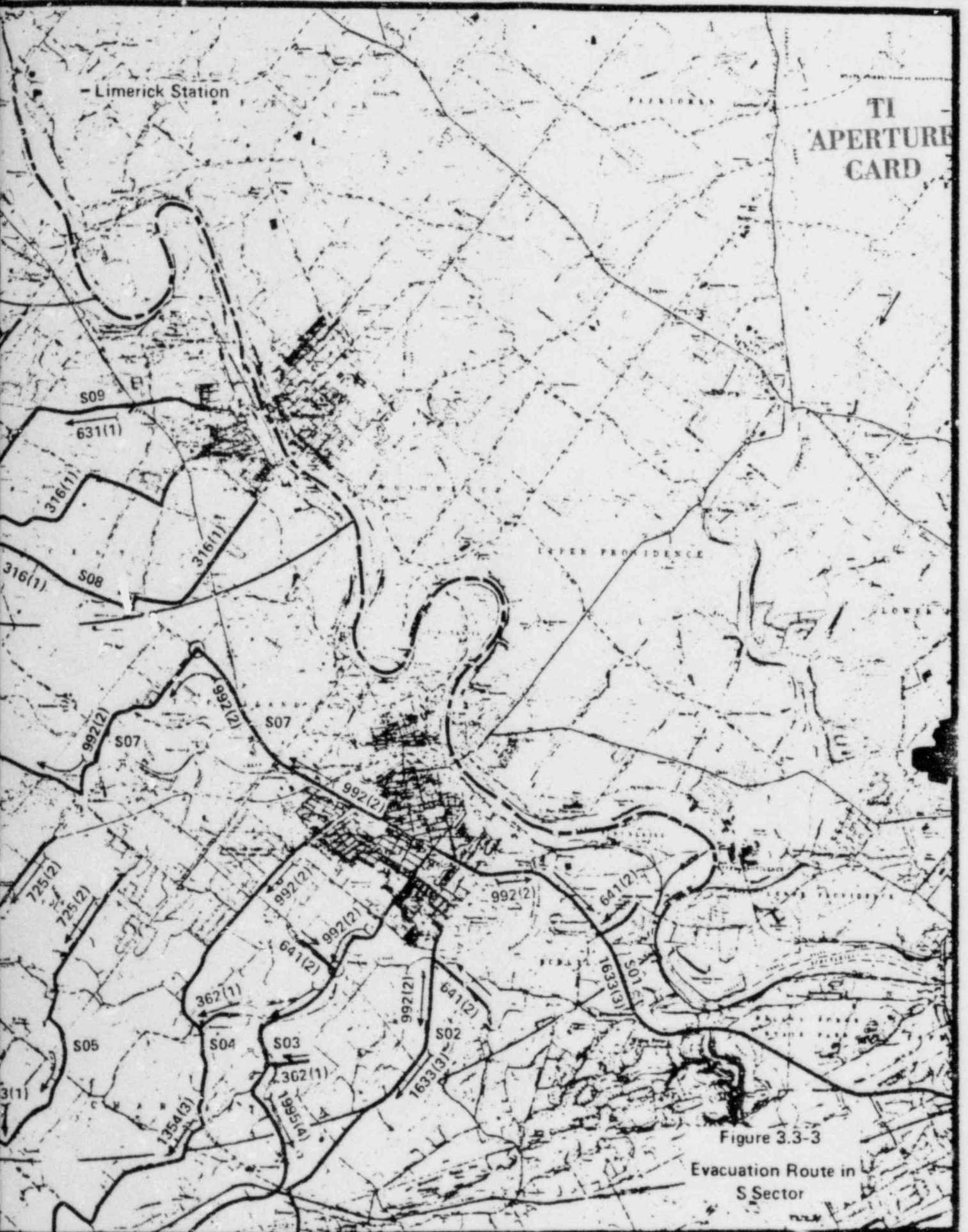
Total Numbers of Vehicles, 17,500

TI
APERTURE
CARD



LEGEND:
○ Traffic Control Point
← Local Traffic





TI
APERTURE
CARD

Figure 3.3-3
Evacuation Route in
S Sector

Total Number of Vehicles, 13,596 (1260 to WSW Sector)

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LEGEND:

- Traffic Control Point
- Local Traffic



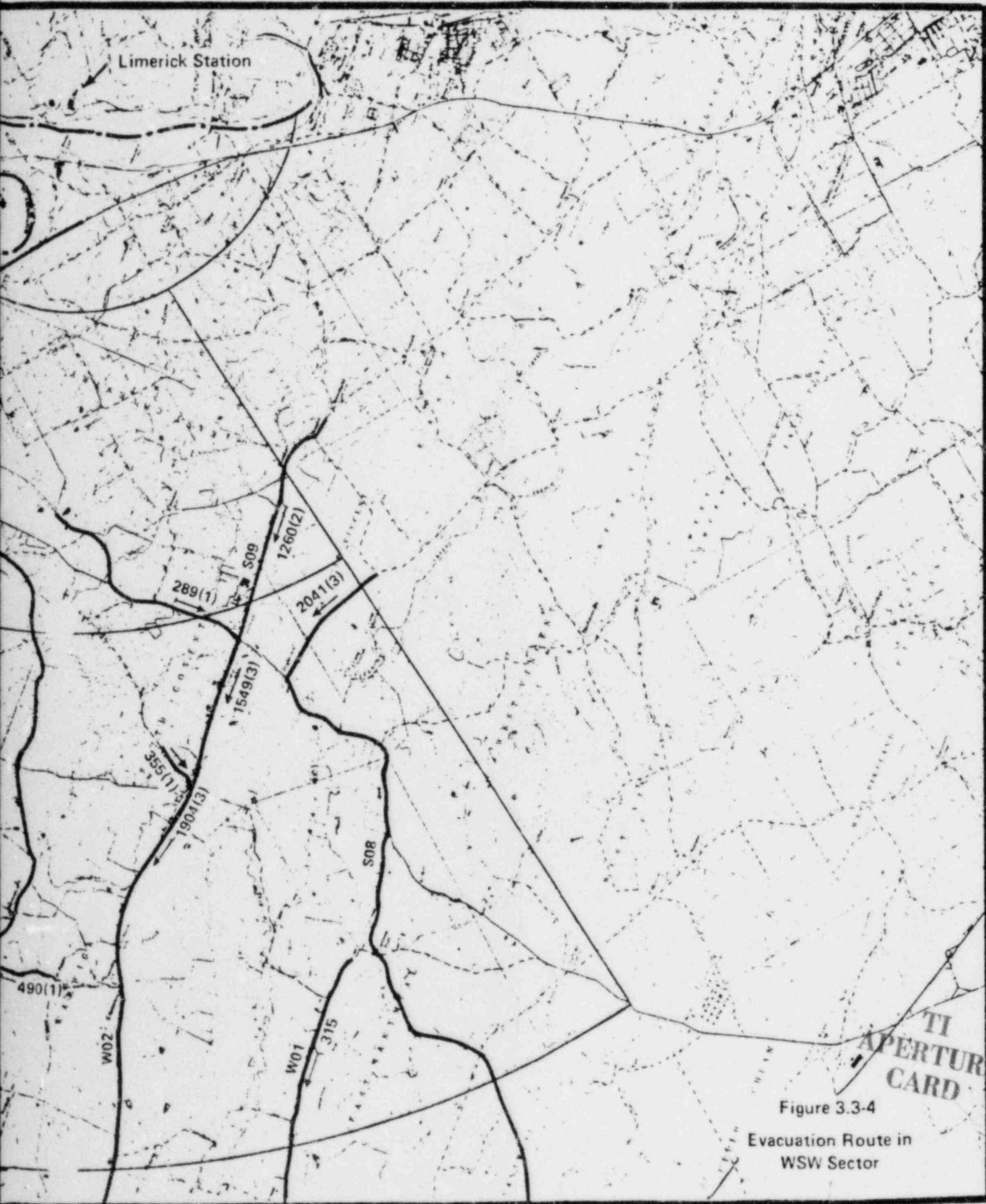


Figure 3.3-4

Evacuation Route in
WSW Sector

Total Numbers of Vehicles, 6,208 (1260 from S Sector)



LEGEND:

- Traffic Control Point
- Local Traffic



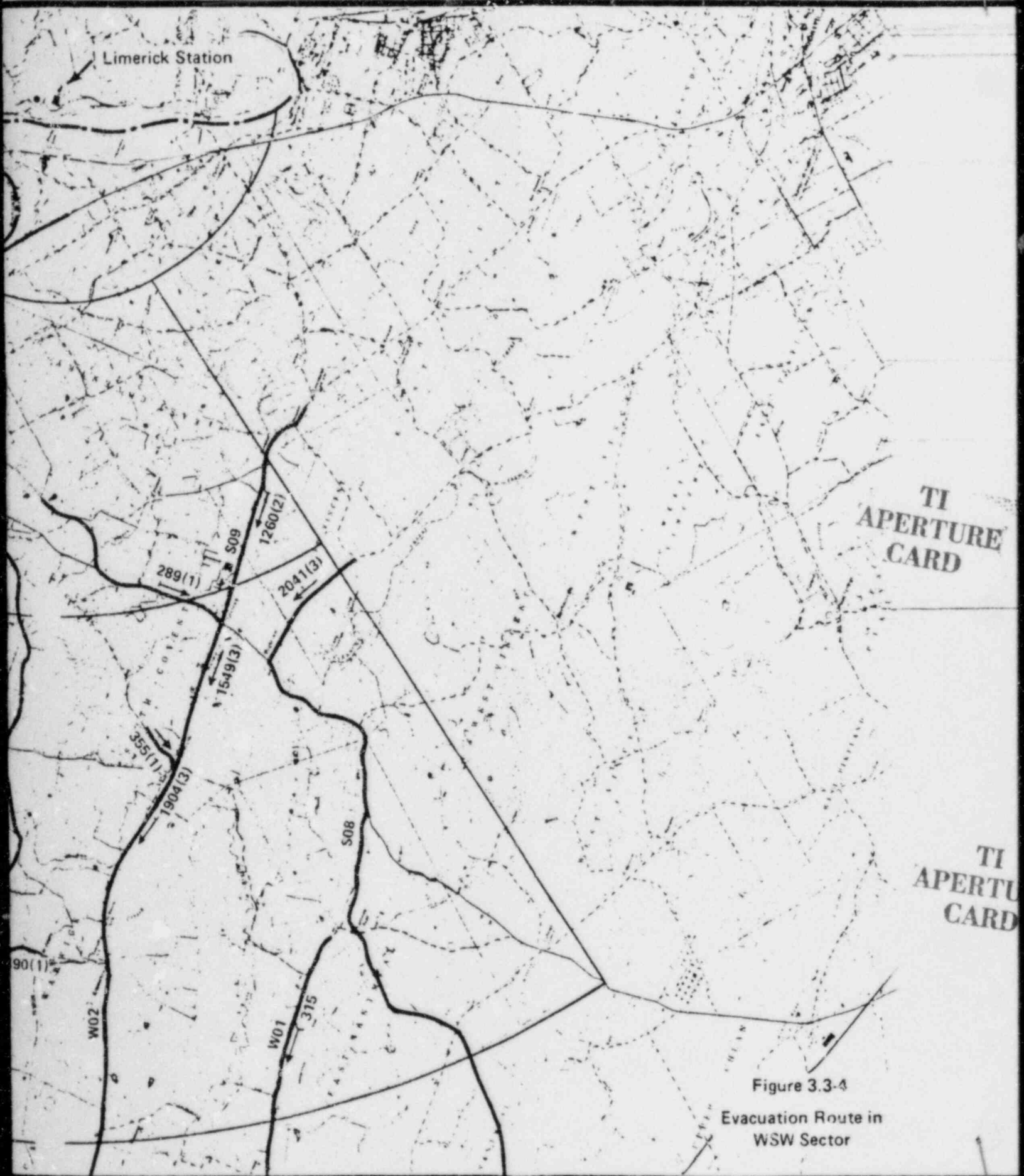


Figure 3.3-4
Evacuation Route in
WSW Sector

0 1 Mile
Scale

Total Numbers of Vehicles, 6,208 (1260 from S Sector)

3-12

8406270377-06

immediate. It is also reasonable to assume that in a slowly developing incident at the plant, advance notification to special facilities would permit certain preparatory measures to commence well before notification to the general public to evacuate the 10-mile EPZ. This advance notification would reduce the preparation time but credit for this reduction is not included in these estimates.

Special facilities are nursing homes, general hospitals, mental institutions, and prisons. Public and private educational institutions are also considered in this category. Within the 10-mile EPZ of Limerick, there are 15 special facilities. Eleven of them are beyond the 5-mile limit and only Pottstown Memorial Medical Center is within the 2-mile radius. It is 1.8 miles from Limerick Station. In order to establish a reasonable perspective on the evacuation times of such institutions, on-site interviews were conducted with the directors and/or other responsible personnel of institutions representing each type of special facility within the 10-mile EPZ: nursing homes, general hospitals, mental hospitals, and correctional institutions. There are 9 nursing homes, 3 general hospitals, 1 mental hospital, and 2 correctional institutions within the EPZ.

Neither of the correctional institutions, Montgomery County Prison Farm or Graterford Prison, are within the 5-mile radius. In fact, Graterford, an 1,800-person maximum security prison, is approximately 8.3 miles from the plant, and the Montgomery County Prison Farm is at the 10-mile limit, just west of Eagleville.

The crucial time factor for a special facility is the time it takes to prepare the special facility population to evacuate, including the time it takes to load the population onto waiting vehicles. Depending upon the facility, the emergency planning agencies will be required to provide supplemental means of transportation. This fact is fully understood by the local authorities. It is assumed that all special facilities would be notified rapidly in the event of a general evacuation per the PEMA plan, thus making notification almost

4.1 Graterford Prison

Graterford Prison is an 1,800-inmate, maximum security, state prison facility that comes under the purview of the Pennsylvania Commissioner of Corrections. The prison is approximately 8.3 miles from the Limerick Station with as much underground space as aboveground space. This underground space was previously used for Civil Defense.

The Commissioner of Corrections has had the experience of planning for and estimating the approximate evacuation time of an 1,100-inmate facility in Camp Hill. He was required to formulate these plans for the Camp Hill facility because of the Three Mile Island incident.

The State Commissioner of Corrections estimated a total evacuation time of 5 hours and 30 minutes for Graterford, if the evacuation order is given in the daytime. (Prisoners would not be moved outside the prison at night for security reasons.) Mobilization time (i.e., time to get buses to the site and get the prisoners ready to load onto the buses) is 4 hours and 15 minutes. Loading and driving time to beyond the 10-mile limit was estimated at 1 hour and 15 minutes. This estimate assumes the availability of 90 buses. If the order to evacuate was given just after sunset, the mobilization would commence 4 hours and 15 minutes before sunrise, and loading and departure would begin at first light. Other planning information and details are proprietary.

The hospital is within the 2-mile radius of the plant. Located approximately 1.8 miles from the plant, Pottstown Memorial Medical Center is the largest hospital in the 10-mile EPZ, based on licensed and approved bed capacity statistics from the Pennsylvania Department of Health,* and on on-site interviews with Pottstown Memorial Medical Center officials. With a current total capacity of 275 beds, it is almost double the capacity of the second largest hospital within the 10-mile EPZ.

Hospital officials estimated that approximately 50% of the patients within the hospital at any given time would be ambulatory and could go home with relatives, thus not requiring any special transportation arrangements other than contacting families to pick them up.

Ambulatory patients, who could not be discharged in time due to problems with contacting relatives, would be moved to a safe staging area from which families would be notified. Hospital officials estimated it would take an estimated 3 to 4 hours to discharge these patients. A more difficult consideration is the evacuation of patients requiring medical equipment such as respirators, or orthopedic patients unable to be transported by ambulance. These patients would have to be transported in bed and it is assumed they would be transported by moving van. This method was used recently when all such patients were moved into the newly constructed hospital building.

* Directory of Licensed/Approved Hospitals in Pennsylvania, Pennsylvania Department of Health, 1976.

Psychiatric patients would require one employee per patient; however, it is anticipated that in an emergency, the level of hospital personnel support necessary to cover this contingency would be present.

So, with these considerations, hospital officials estimated it would take them 3 to 4 hours (maximum) to move all other patients from their rooms and load them into ambulances or other rescue transportation vehicles. It is assumed that the necessary vehicles would arrive at the hospital within the first 3 hours of preparation. It is likely that under any circumstances in which an evacuation is even remotely possible, special facilities would be given special attention by state and local officials so that such facilities would have notice in advance of the general public to prepare well before the general evacuation order is given. It is assumed that under these conditions and with proper police escort evacuation time of the hospital could be significantly reduced.

In the unlikely event the hospital were to not receive advance notification to prepare, its preparation time of 4 hours would be added to the local highway movement time of 4 hours. This assumes the hospital evacuation vehicles would use evacuation route N06. Thus, the worst case fair weather estimate would be 8 hours, and the worst case adverse weather estimate is 9 hours.

Table 4.2-1 lists hospitals within the EPZ, including addresses, licensed/approved bed capacities, and approximate distances from the plant. It is assumed that these hospitals would proceed in a fashion similar to Pottstown in the event of a decision to evacuate.

TABLE 4.2-1
 LIST OF HOSPITALS
 WITHIN THE EPZ

<u>Facility/Address</u>	<u>Beds</u>	<u>Approximate Distance</u>
Pottstown Memorial Center Firestone Boulevard and High Street Pottstown, Montgomery County, PA	275	1.8 miles
Eagleville Hospital and Rehabilitation Center P. O. Box 45, Eagleville Road Eagleville, Montgomery County, PA	126	9.0 miles
Phoenixville Hospital 140 Nutt Road Phoenixville, Chester County, PA	139	7.8 miles

4.3 Nursing Homes

Two nursing homes were selected to represent this category: one in the North Northwest Sector with 143 beds, and one in the Eastern Sector with 600 beds.

4.3.1 Frederick Mennonite Home

The Frederick Mennonite Home is approximately 6.4 miles from the plant and has a total bed capacity of 143 beds. Its physical plant consists of retirement residences and nursing facilities. The requirement for ambulances would be minimal in the worst circumstances since there are no bed-ridden patients in the facility. (Only those recovering from an operation or injury would require ambulance service.) It is assumed that the demand for ambulances could vary considerably at each nursing home. (See Montgomery County Geriatric Center, Section 4.3.2.) The facility conducts fire drills every month.

As part of the drill procedure, each resident goes to a predetermined exit. An evacuation would not require a change in this routine generally except that the residents would then continue from their stations to the vehicles. Also, those residents who normally remain in bed during fire drills would be moved to exit points in wheel chairs. Accounting for this additional time to the fire drill time, the director estimated a total 10 minutes time for all patients to go from bed to the appropriate exits.

The nursing home director estimated that approximately 35% of the resident population would need close personal attention in moving while the remaining 65% would not require an employee

at their side. Those residents requiring close attention would need help in boarding cars and buses. Three minutes per person was assumed just for loading these persons, based on the director's experience in sending groups of residents on field trips and visits.

To move residents from the beds to the exits and then to vehicles in the middle of the night when staff attendance is lowest and during adverse weather conditions, the director estimated 2 hours and 15 minutes. Driving time to beyond the 10-mile limit is considered to be negligible at 6.4 miles from the Limerick Station. With advance notice it is likely that the nursing home could evacuate faster than the general population for the North Northwest Sector.

In the unlikely event that the nursing home was not notified in advance, and preparation started at the same time as for the general population, the nursing home population would be on the road with the general population in 2 hours and 15 minutes. Assuming the facility vehicles used Evacuation Route N09, the total fair weather evacuation time is an estimated 5 hours and 15 minutes, in adverse weather 6 hours and 45 minutes.

4.3.2 Montgomery County Geriatric and Rehabilitation Center*

The Montgomery County Geriatric Center, outside Royersford, is a maximum 600-patient care facility, approximately 6 miles from the Limerick Station. There are 350 skilled patients (i.e., patients requiring close attention) and 241 intermediate care patients (i.e., ambulatory patients).

* This facility was added to the study as a result of comments from local officials.

Interviews with the director of the facility indicated that the facility conducts one house drill each month with several smaller drills during the month. Although no general evacuation of the entire facility has been rehearsed at one time, each unit within the facility has experienced a fire drill.

After consultation with his staff, the director of the center estimated that the entire facility could be mobilized within 3.5 hours at night. This time includes preparation from the moment of notification through completion of the process of loading all patients onto waiting vehicles. This time assumes that the required staff members assemble at the facility to help the residents.

The mobilization time estimate also assumes the availability of fifteen 30-passenger buses more than those available onsite full-time, 20 ambulances capable of carrying two patients each, and 4 wheelchair vans. The director estimated conservatively that approximately 40 patients would require ambulances; the remainder could travel by bus.

With advance notification, the nursing home could evacuate the EPZ faster by starting its preparation before notification that there is a general evacuation.

If no advance notification were provided, and assuming the nursing home population uses the closest evacuation route (also the most conservative in terms of highway movement times), the total fair weather-evacuation estimate is 8.5 hours. The adverse weather estimate is 9.75 hours, assuming Evacuation Route E13 is used in both cases.

Table 4.3-1 is a list of nursing home facilities within the EPZ, including addresses, number of beds and approximate distance from the plant.

TABLE 4.3-1

NURSING HOME FACILITIES
WITHIN THE EPZ

<u>Nursing Home Facility/Address</u>	<u>Beds</u>	<u>Approximate Distance from Plant (miles)</u>
Leader Nursing and Rehabilitation Center 724 North Charlotte Street Pottstown, PA 19464	159	4.0
Montgomery County Geriatric and Rehabilitation Center 1600 Black Rock Road Royersford, PA 19468	600	6.0
Frederick Mennonite Home for Aged Route 73 Frederick, PA 19435	143	6.1
Manatawny Manor and Residential Care Route 724, Old Schuylkill Road Pottstown, PA 19466	99	4.8
Douglassville Home R.D. 1 Douglassville, PA	40	7.2
River Road Home R.D. 1 Douglassville, PA	25	6.7
Mary Hill Rest Haven Cold Stream and Mary Hill Roads Phoenixville, PA	17	8.0
Coventry Manor Chestnut Hill Road Coventryville, PA	41	5.5
Phoenixville Manor 833 S. Main Street Phoenixville, PA	135	7.7

The Pennhurst Center is a state mental institution including residents ranging from hyperactive children to those who would require tight security, plus escort in the event of a decision to evacuate the facility. The 1003-resident population is distributed among 24 buildings, and the center itself is approximately 2.5 miles from the plant, just north of Spring City. Each building has a separate evacuation plan geared to the occupants and layout of that building.

The Center's existing evacuation plan requires further work to set up reception centers. It is necessary to send the residents to a similar institution capable of housing and caring for these clients' special needs. The existing plan now provides for a chain of command for decision making, tentatively sets plans for obtaining vehicles, specifies the need for pharmacists to dispense drugs and allocate drug supplies, and sets the priorities for client evacuation by class of client (i.e., first--physically ill or bedfast; second--non-ambulatory; and third--ambulatory). Some percentage of the clients would be discharged to their families, according to the plan.

There are extensive underground facilities at Pennhurst that will accommodate up to 10,000 people. This is sufficient for the residents and staff of Pennhurst as well as the population of Chester County within three miles of the Center. Elmer B. McSurdy, the Director of Administrative Services at Pennhurst is a licensed Shelter Manager.

Transportation of the Pennhurst Center clients would require 33 buses, 76 ambulances, and 2 furniture vans for wheel chair clients. No suitable transport is available at the Center. It will have to be brought to the Center during the advance notification period.

The Center has an employee pool of 1,600, 600 of whom represent the maximum staff at any daytime hour. The availability of a sufficient number of the regular staff would have to be planned and assumed for an evacuation time estimate. Based on these considerations, the director of the facility estimates that the total institution could be mobilized and loaded within 2 hours. This estimate is based on the availability of many loading points for the ambulances and buses (Figure 4.4-1). Because there are 24 separate occupied buildings, Pennhurst clients can be conveniently loaded into their transport at many points simultaneously without interfering with other clients. Embryville and Norristown are two possible reception sites.

Advance notification of about 6 hours is required to allow the facility to begin preparation before the general public gets the notification that it is to evacuate.

In a worst case situation where this special facility is not given advance notification, the preparation time is added to the estimated evacuation time yielding a fair weather estimate of 8 hours and an adverse weather evacuation estimate of 10 hours, which include notification and preparation time, loading time, and highway movement time.

LEGEND:

TRUMAN UNIT (T1, T2, S1, D2, M1, M2)
 JOHNSON UNIT (H1, H2, I1, I2, Wards 1 and 2, ward W)
 JOHNSON UNIT (H1, H2, I1, I2, Wards 1 and 2, Ward W)
 EISENHOWER UNIT (D1, D2, D3, D4, D5)
 PENN HALL 1 AND 2
 PENN HALL 1 and 2
 INDEPENDENCE UNIT (Modulars 1-10)
 LINCOLN UNIT (C9, C10, C11A, C11B, C14)
 WASHINGTON UNIT (C5, C6, C7, C8)
 HUMPHREY UNIT (47, 48, 49, 50, 51, 51)

◆ - BUS LOADING POINT
 ★ - AMBULANCE LOADING POINT

24 OCCUPIED BUILDINGS
 33 BUSES
 76 AMBULANCES
 2 FURNITURE VANS

G BUILDING - DIRECTORY
 L BUILDING - CANTEEN
 P BUILDING - PERSONNEL
 A BUILDING - ADMINISTRATION

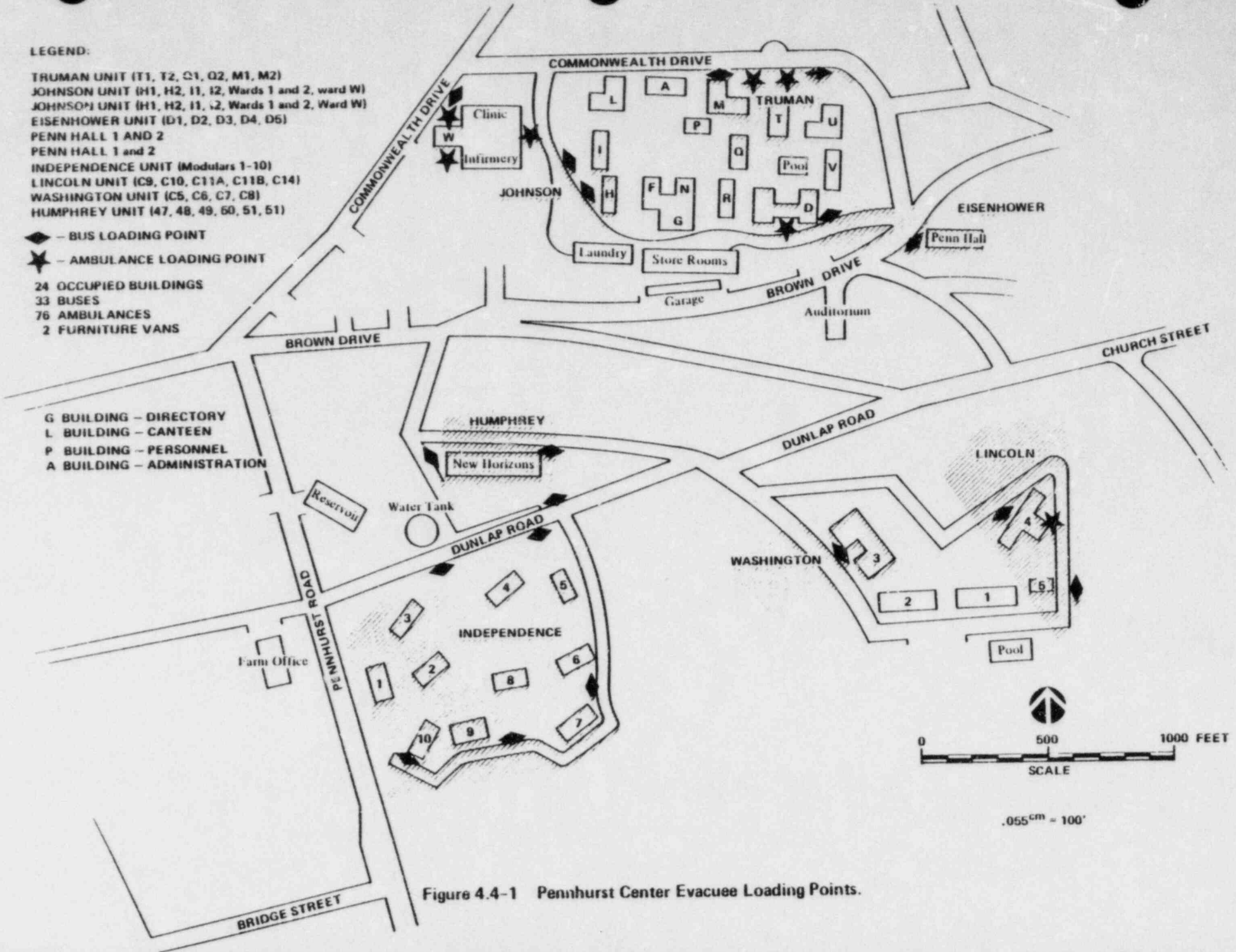


Figure 4.4-1 Pennhurst Center Evacuee Loading Points.

4.5 Schools

There are 12 school districts within the 10-mile EPZ, 10 of which have schools within the EPZ. School bus drivers and school buses are most often contracted from a private company and, for the purposes of this preliminary estimate, these buses and drivers are assumed to be available. Assuming the availability of buses, these schools represent a controlled population for the purpose of evacuation.

The school districts having schools within the 10-mile EPZ are as follows:

- o Montgomery County:

Pottstown, Pottsgrove, Spring Ford, Perkiomen Valley, Methacton, and Boyertown

- o Chester County:

Owen J. Roberts, Phoenixville, and Great Valley

- o Berks County:

Daniel Boone and part of Boyertown

In the affected counties, school districts are required to bus students within their school districts to schools in other districts up to 10 miles from their borders.

APPENDIX

COMMENTS OF STATE AND LOCAL OFFICIALS



PENNSYLVANIA EMERGENCY MANAGEMENT AGENCY
 EASTERN AREA OFFICE
 HAMBURG CENTER
 HAMBURG, PENNSYLVANIA 19526



March 25, 1980

Govt 1-1-4-1
 LIMERICK GEN. STATION
 RECEIVED

MAR 28 1980

GML *Gov 3/28/80*
 JFF _____
 PJD _____
 JO _____
 JBC _____

Mr. Graham Leitch, Plant Superintendant
 Philadelphia Electric Company
 C/O Bechtel Power Corporation
 P.O. Box A - Sanatoga Branch
 Pottstown, PA 19464

Dear Mr. Leitch:

The following comments are submitted on the draft NUS study on the Limerick Preliminary Evacuation Time Estimates:

1. I do not know the basis for the notification estimates, but believe they are overly optimistic for rural areas and for the existing siren network. Because of the siren network's inadequacy, one must assume that door-to-door notification is necessary. While this may be feasible in Pottstown in three hours, I doubt very much that it can be accomplished in rural areas in less than eight hours.
2. The highway movement times appear reasonable for fair weather, but I believe that for inclement weather, we must probably assume an increase of 100 percent in movement time.
3. The Pennhurst estimates appear very optimistic for an institution of that size. It would appear that a non-warning evacuation would take a minimum of four hours and perhaps as much as eight. If one adds to that the time necessary to marshal the transportation, one would see that eight hours might be a more reasonable estimate.
4. Not having studied the Graterford problem, I cannot comment on it.
5. The Frederick Mennonite Home would probably be one of the easiest to evacuate and I suggest you use the Montgomery County Geriatric Center for your planning estimates.

In summary, since neither I nor the three county directors have been able to make a detailed study with local emergency service groups of the Limerick evacuation problem, it is only possible for us to comment when we see something which runs counter to what our present level of knowledge would indicate as being accurate. Therefore, we cannot concur on the study but bring these suggestions up as listed in 1-5 above.

Sincerely,

Robert A. Hetz, Jr.
 Robert A. Hetz, Jr.
 Eastern Area Director

RAH:pad (215-562-3003)

LIMERICK GEN. STATION

RECEIVED

APR 01 1980

Ely 4/2/80

OFFICE OF EMERGENCY PREPAREDNESS AND MEDICAL SERVICES



100 WILSON BLVD.
EAGLEVILLE, PA. 19403

CEP 215-631-5100
EMS 215-631-5103

TO: _____
FROM: _____
SUBJECT: _____

SAMUEL L. ELY, III

March 28, 1980

Mr. Graham Leitch
Plant Supervisor-PE Co.
c/o Bechtel Power Plant
P.O. Box A
Sanatoga Branch
Pottstown, PA 19464

Dear Mr. Leitch:

As a follow-up to our meeting of Wednesday, March 19th concerning planning for evacuation from the areas surrounding the Limerick Nuclear Generating Station and the NUS Draft Plan, I would like to express the following:

Initially I can neither agree with nor refute some of the information in the NUS draft report specifically the figures on which they based their calculations. The cars per lane per hour evacuation figure, I believe, does not allow enough time for a "worst case" due to inclement weather. What about 10" of snow?

I am also concerned as to how the figures for notification times were obtained. I feel that additional time could be needed to notify the less densely populated areas of the evacuation sectors in Montgomery County.

The evacuation time for Pennhurst seems to be extremely optimistic at two hours. I feel 4-8 hours would be more realistic. In conjunction with this thought the Montgomery County Geriatric Center would be a much more logical facility to use as a problem in evacuation rather than the Frederick Mennonite Home. Also a consideration, would be the mobilization time needed for ambulances to take the non-ambulatory patients out.

This survey seems reasonable but I realistically feel that this is a preliminary study and alot more planning and distribution will be needed for a final overall approved plan.

Sincerely,

Samuel L. Ely, III
Director

SLE/cmo

PHONE: 24 HOUR SERVICE • EMERGENCY PREPAREDNESS 631-5100

CHESTER COUNTY
Communications
Fire Marshal
Emergency Management



COMMISSIONERS:
Earl M. Baker, Chairman
Robert J. Thompson
Patrick C. O'Donnell

DIRECTOR:
Timothy R. S. Campbell

DEPARTMENT OF EMERGENCY SERVICES

14 East Biddle Street
West Chester, Pennsylvania 19380
Telephone: 215-431-6160

April 22, 1980

Mr. Phil Duca
Philadelphia Electric Company
Limerick Generating Station
P. O. Box A Sanatoga Branch
Pottstown, Pa. 19464

Dear Phil:

I have a few comments concerning the NUS on evacuation times in the area surrounding the proposed nuclear facility at Limerick. After thinking on the matter I find the times to be optimistic.

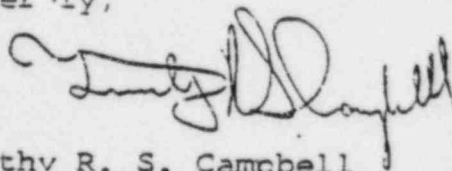
During normal weather the times are dependent on the capacity of roads which as I am sure you are aware, are in fair to poor shape and are not what could be called major roads. Since, as everyone made very clear, we are in the process of developing the methodology for evacuation planning, I am not sure that we can depend on the estimates provided by normal transportation planners. In addition, the variables of mobilization time of the volunteer support required to notify the general public and control the evacuation is presently undefinable since it would depend to a great degree on the skill and scope of the evacuation advisor.

Another concern is that of fuel and breakdowns along the route of march which would increase the overall driving time. Another major concern is that of adverse weather. As you are well aware in this area in recent years we have begun to experience an increasing number of what are commonly referred to as ice storms. These storms have a far greater impact on transportation activities than that caused by the normal snow storm. Utilizing snow fall as the adverse weather condition may be totally wrong. It may be necessary to utilize conditions for example as occurred on December 19, 1979 in eastern Chester County, northern Chester County, southern Montgomery County as more typical of an adverse weather situation.

A final major area of concern relates to a specific facility, that being Pennhurst State Center. A requirement for 70 ambulances to evacuate patients from Pennhurst would require mobilizing ambulance reserves from Lancaster County, Chester County, Cecil County and Newcastle County. It must be remembered that we have to maintain coverage in the areas from which ambulances are moving as well as to provide those being sent to Pennhurst. Driving time for ambulances from below Elkton or in the area of the St. George's Canal must be programmed into an analysis of evacuation times.

Again, I understand that we are dealing with what is in effect a new science and since nobody really knows that one can argue almost any side of a time analysis. Therefore, although there are specific objections to the plans contained in the NUS report, I feel that my best comment is that it is overall far too optimistic.

Sincerely,



Timothy R. S. Campbell

cm

Chart 1-15-1

March 27, 1980

LIMERICK GEN. STATION
RECEIVED

MAR 28 1980

CML _____
 JFF _____
 P.J.O. _____
 J.D. _____
 J.R.C. _____

Mr. Graham Leitch
 Plant Superintendent- PECO
 c/o Bechtel Power Corp.
 P.O. Box A
 Saratoga Branch
 Pottstown, Pa. 19464

SUBJECT: Comments by the Berks County Emergency Agency

RE: The overall PECO Emergency Plan for Limerick Station as per your request at meeting held March 20, 1980 at your Limerick Plant Site

The overall basic plan as discussed on March 20, 1980 is feasible and a good base to start from for the three counties involved within the 5-10 mile radius.

The plan certainly needs alot of kinks removed to make it efficient and workable.

A final draft of the Berks County Emergency Management Agency Plan should be completed for your approval prior to the January 1, 1981 date with all of the pieces of the jig saw puzzle in place and workable.

The following are some of my personal observations and constructive criticisms which need much more clarification prior to final draft.

1. The 15 minute warning to all of the residents residing within the 5 mile radius will not work unless a much more specific warning system is devised than what was discussed at the meeting.
2. At one of our meetings during the early part of 1979 mentioned was the use of powerful sirens to be installed that would reach all of the residents within the rural areas within the 5 mile radius. Most of the area within the 5 mile radius in Berks County is rural. What is the status of the sirens? Will PECO foot the cost of the sirens? If not, other means of dissemination of a possible disaster must be devised which will require more time for notification.

3. Another device mentioned was a direct line from the plant to each Emergency Management Agency (E. M. A.) of the counties involved. Is that a possibility by the PECO ?

4. The maps that were shown to us on March 20, 1980 certainly were about as clear as mud. Why befuddle the issue by giving strange numbers to designated highways which are well known to the residents and traveling public ? Let U.S. 422 be known as 422W or 422E or whatever direction it heads and not as N-6 or N-7 or some other confusing number. Let well enough alone. Make a suitable size map with the three county areas large enough to designate readable highways well marked and symbols for Hospitals- Fire Departments- Police Stations- Rehabilitation homes etc. clearly marked.

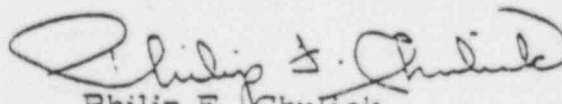
5. Berks County Emergency Management Agency should have a Central Communications System under way by the latter part of 1980. At the present time we rely upon telephones and teletype for our communications. We do have a total of 7 different telephone companies which must be fused into one system which will be the 911 when finalization of our Central Communications System is a reality.

6. We must tie in all of the loose ends into our final plan which as I stated should be finalized prior to January 1, 1981.

We will be discussing some of the pitfalls with you as we progress with our plan concerning all aspects of the overall plan for the possible evacuation of residents within the 5 mile radius, should the need arise as a result of a disaster at the Limerick Plant.

Thanking you for the opportunity to pass on some of the obstacles that must be overcome in such a short time with a shelter staff consisting of myself-Director of the Berks County Emergency Management Agency and one Administrative Assistant-Robert L. Reber.

Respectfully yours,



Philip F. Chulick

Director-Coordinator

PFC/sjm

LGS EP

APPENDIX I

COMPARISON OF LIMERICK EMERGENCY PLAN WITH NUREG-0654
AND 10CFR50, APPENDIX E

The first portion of this Appendix is a comparison of the requirements of NUREG-0654, (FEMA-REP-1, Rev. 1), Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, and the provisions of the Limerick Emergency Plan. The Evaluation Criteria are taken directly from NUREG-0654. Certain criteria which contain more than one requirement are divided by parentheses. The column headed, LGS Compliance/Comment, gives compliance status as: Comply; Partial Compliance; or Not Comply. The sections of the LGS Emergency Plan which address the NUREG-0654 requirement are listed. When the NUREG-0654 Evaluation Criteria contains more than one requirement, the LGS Compliance/Comment column is numbered and compliance with each requirement (in parentheses) is noted. The comments are used to explain compliance or justify partial compliance or noncompliance. Certain NUREG-0654 provisions are under evaluation by PECO organizations and are so noted.

The second portion of this Appendix is a comparison of the requirements of 10CFR50, Appendix E (Section IV) with the provisions of the Limerick Emergency Plan. The format follows that described above.

NUREG 0654 COMPLIANCEA. Assignment of Responsibility (Organization Control)

<u>Evaluation Criteria</u>	<u>LGS Compliance/Comment</u>
1.a. Each plan shall identify the State, local, Federal and private sector organizations (including utilities), that are intended to be part of the overall response organization for Emergency Planning Zones.	<u>Comply.</u> Sections 2.2.3, 2.2.4 and 2.2.5 list Federal, State, and local organizations and industry resources.
1.b. Each organization and suborganization having an operational role shall specify its concept of operations, and its relationship to the total effort.	<u>Comply.</u> Sections 3.0 and 3.2 describe the concept of PECO operations. Figure 3-1 shows organization interfaces.
1.c. Each plan shall illustrate these inter-relationships in a block diagram.	<u>Comply.</u> Figures 3-1, 3-2, 5-3, 5-4 and 5-6.
1.d. Each organization shall identify a specific individual by title who shall be in charge of the emergency response.	<u>Comply.</u> Section 5.2.1.
1.e. Each organization shall provide for 24-hour per day emergency response, including 24-hour per day manning of communications links.	<u>Comply.</u> Section 5.1 discusses normal shift.
2.a. Each organization shall 3-3, 5-1, the functions, and responsibilities for major elements and key individuals by title, of emergency response	<u>Comply.</u> Figure 5-6. Section 5 describes functions and responsibilities for each organization.

including the following:
Command and Control, Alerting
and Notification, Communications,
Public Information, Accident
Assessment, Public Health and
Sanitation, Social Services,
Fire and Rescue, Traffic
Control, Emergency Medical
Services, Law Enforcement,
Transportation, Protective
Response (including
authority to request
Federal assistance and to
initiate other protective
actions), and Radiological
Exposure Control. The
description of these
functions shall include a
clear and concise summary
such as a table of primary
and support responsibilities
using the agency as one axis,
and the function as the
other.

2.b This element is not
applicable to PECO.

3. Each plan shall include
written agreements referring
to the concept of operations
developed between Federal,
State, and local agencies and
other support organizations
having an emergency response
role within the Emergency
Plannings Zones. The agree-
ments shall identify the
emergency measures to be
provided and the mutually
acceptable criteria for their
implementation, and specify
the arrangements for exchange
of information.

Partial Compliance.

Appendix A contains the
agreement letters prepared
to date. The remaining
agreement letters will
be incorporated when
emergency plans are
finalized.

4. Each principal organization shall be capable of continuous (24-hour) operations for a protracted period. The individual in the principal organization who will be responsible for assuring continuity of resources (technical, administrative, and material) shall be specified by title.

Comply. Section 5.1 describes shift operations. Figure 5-5 shows manning and reliefs for prolonged emergency operations.

B. Onsite Emergency Organization

1. Each licensee shall specify the onsite emergency organization of plant staff personnel for all shifts and its relation to the responsibilities and duties of the normal staff complement.

Comply. Section 5.0, 5.1, and 5.2. Figures 5-1 and 5-2.

2. Each licensee shall designate an individual as emergency coordinator who shall be on shift at all times and who shall have the authority and responsibility to immediately and unilaterally initiate any emergency actions, including providing protective action recommendations to authorities responsible for implementing offsite emergency measures.

1. Comply. Section 5.2.1.1.

3. Each licensee shall identify a line of succession for the emergency coordinator position and identify the specific conditions for higher level utility officials assuming this function.

Comply. Sections 5.2.1.1, 5.2.1.2, and 5.2.1.3

4. (Each licensee shall establish the functional responsibilities assigned to the emergency coordinator and shall clearly specify which responsibilities may not be delegated to other elements of the emergency organization.) (Among the responsibilities which may not be delegated shall be the decision to notify and to recommend protective actions to authorities responsible for offsite emergency measures.)

5. (Each licensee shall specify the positions or title and major tasks to be performed by the persons to be assigned to the functional areas of emergency activity.) (For emergency situations, specific assignments shall be made for all shifts and for plant staff members, both onsite and away from the site.) (These assignments shall cover the emergency functions in Table B-1 entitled, "Minimum Staffing Requirements for Nuclear Power Plant Emergencies.") (The minimum on-shift staffing levels shall be as indicated in Table B-1.) (The licensee must be able to augment on-shift capabilities within a short period after declaration of an emergency. This capability shall be as indicated in Table B-1).

6. Each licensee shall specify the interfaces between and among the onsite functional areas of emergency activity, licensee

1. Comply. Section 5.2.1.1 and 5.2.1.2.
2. Comply. Sections 5.2.1.1 and 5.2.1.2.

1. Comply. Section 5.0 through 5.3.1.37.

2. Comply. Figure 5-2.
3. Comply. Figures 5-1 and 5-2. Table I-1
4. Comply.
5. To be determined when individual assignments to emergency positions covered by the Table B-1 augmentation requirements are made.

Comply. Figures 3-1, 3-2, 5-3, 5-4, 5-6.

headquarters support, local services support, and State and local government response organization. This shall be illustrated in a block diagram and shall include the onsite technical support center and the operational support (assembly) center and the near-site emergency operations facility.

7. Each licensee shall specify the corporate management, administrative, and technical support personnel who will augment the plant staff as specified in the table entitled "Minimum Staffing Requirements for Nuclear Power Plant Emergencies," (Table B-1) and in the following areas:

7.a. logistics support for emergency personnel, e.g., transportation, communications, temporary quarters, food and water, sanitary facilities in the field, and special equipment and supplies procurement;

Comply. Sections 5.3.1.2 through 5.3.1.9 and 7.1.5.

7.b. technical support for planning and reentry/recovery operations;

Comply. Figure 5-2 and Sections 5.3.1.12 and 5.4.

7.c. management level interface with governmental authorities; and

Comply. Sections 5.2.1.3 and 5.3.1.27.

7.d. release of information to news media during an emergency (coordinated with governmental authorities).

Comply. Section 5.3.1.29 and Figure 5-4. Corporate Communications Plan.

COMPARISON OF

	MAJOR FUNCTIONAL AREA	MAJOR TASKS	POSITION, OR EXPERT (TABLE B
1	Plant Operations and Assessment of Operational Aspects *****		Shift Super (SRO) Shift Fore (SRO) Control Ro Operator Aux. Opera
2	Emergency Direction and Control (Emergency Coordinator) ***		Shift Tech Advisor Shift Super or Designated Facility M
3	Notification/ Communication ****	Notify Licensee, State, Local and Federal Personnel and Maintain Communication	
4	Radiological Accident Assessment and Support of Operational Accident Assessment	Emergency Operational Facility (EOP) Director Off-Site Dose Assessment Off-Site Surveys On-Site, Out of Plant In Plant Surveys Chem/Radio Chem	Senior Man Senior H.E H.P. Techn Rad/Chem T

LGS EP
TABLE I-1

NUREG 0654 TABLE B-1 AND LGS STAFFING PLANS

TITLE	NUREG 0654 TABLE B-1 ON SHIFT*	MINIMUM LGS ON SHIFT	NUREG 0654 TABLE B-1 30 MINUTE ADDITIONS	LGS***** 30 MINUTE ADDITIONS (PLANNED)	NUREG 0654 TABLE B-1 60 MINUTE ADDITIONS	LGS***** 60 MINUTE ADDITIONS (PLANNED)
visor	1	1				
an	1	1				
m	2	2				
ors	2	3				
ical	1**	1				
visor						
nager	1	1	1		2	See Emergency Plan Fig. 5-2 Rev. 2 6/82
ger					1	1
			1	1		See Fig. 5-2
cians			2 1		2 1	Rev. 2 6/82
	1	2	1		1	
ch	1	1			1	

TI
APERTURE
CARD

COMPARISON OF

	MAJOR FUNCTIONAL AREA	MAJOR TASKS	POSITION, OR EXPERT (TABLE
5	Plant System Engineering, Repair and Corrective Action	Technical Support Repair and Corrective Action	Shift Tech Advisor Core/Therm Hydraulic Electrical Mechanical Mechanical Maintenance Radwaste Operator Electrical Maintenance I&C Tech
6	Protective Actions (In Plant)	Radiation Protection A-Access Control B-HP&C Coverage for Repair & Corrective Actions, Search and Rescue, First Aid & Fire Fighting C-Personnel Monitoring & Dosimetry	H.P. Technician
7	Fire Fighting		

LGS EP
TABLE I-1

NUREG 0654 TABLE B-1 AND LGS STAFFING PLANS

TITLE	NUREG 0654	MINIMUM	NUREG 0654	LGS*****	NUREG 0654	LGS*****
USE	TABLE B-1	LGS	TABLE B-1	30 MINUTE	TABLE B-1	60 MINUTE
(1)	ON SHIFT*	ON SHIFT	30 MINUTE	ADDITIONS	60 MINUTE	ADDITIONS
			ADDITIONS	(PLANNED)	ADDITIONS	(PLANNED)
ical	1	1				See
l			1	1		Fig. 5-2
ts						Rev. 2
					1	6/82
					1	
ce/	1**	1			1	
ce/	1**	1	1	1	1	
	2**	Per Item 4 Above	1	1	2	See
						Fig. 5-2
						Rev. 2
						6/82

Fire
Brigade
Per
Tech.
Specs.

Fire
Brigade
Per
Tech.
Specs.

Local
Support

Local
Support

Local
Support

Local
Support

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COMPARISON OF

	MAJOR FUNCTIONAL AREA	MAJOR TASKS	POSITION, OR EXPERT (TABLE B
8	Rescue Operations and First Aid		
9	Site Access Control and Personnel Accountability	Security Firefighting Communications Personnel Accountability	Security Personnel

NOTES:

* For each unaffected nuclear unit in operation, one auxiliary operator except that units shall have two.

** May be provided by shift personnel assigned to the unit.

*** Overall direction of facility response and minute-to-minute facility operations responsibilities shall be provided by the shift supervisor.

**** May be performed by engineering aide to the shift supervisor.

***** Augmentation will be reviewed as plant conditions warrant.

***** LGS Title Equivalents

<u>B-1</u>		<u>LGS</u>
Shift Supervisor	=	Shift Supervisor
Shift Foreman	=	Shift Foreman
Control Room Operators	=	Control Room Operators
Aux. Operators	=	Plant Operator Aux. Operator

LGS EP
TABLE I-1

Sheet 3 of 3

NUREG 0654 TABLE B-1 AND LGS STAFFING PLANS						
TITLE	NUREG 0654	MINIMUM	NUREG 0654	LGS*****	NUREG 0654	LGS*****
TABLE B-1	TABLE B-1	LGS	TABLE B-1	30 MINUTE	TABLE B-1	60 MINUTE
ON SHIFT*	ON SHIFT	ON SHIFT	ADDITIONS	ADDITIONS	ADDITIONS	ADDITIONS
	2**	2**	Local	Local	Local	Local
			Support	Support	Support	Support
	All Per	All Per	All Per	All Per	All Per	All Per
	Security	Security	Security	Security	Security	Security
	Plan	Plan	Plan	Plan	Plan	Plan

tion, maintain at least one shift foreman, one control room operator and one
ing a control room may share a shift foreman if all functions are covered.

ned other functions.

o be assumed by EOP director when all centers are fully manned. Director of
ains with senior manager in technical support center or control room.

shift supervisor.

staffing assignments are made.

erintendent
ervisor
perators, Asst. Control Operators.
rator, Asst. Plant Operator,
ator.

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Rev 7 12/83

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8. Each licensee shall specify the contractor and private organizations who may be requested to provide technical assistance to and augmentation of the emergency organization.

Comply. Sections 5.3.2, and 5.3.4. |

9. (Each licensee shall identify the services to be provided by local agencies for handling emergencies, i.e., police, ambulance, medical, hospital, and firefighting organizations shall be specified.) (The licensee shall provide for transportation and treatment of injured personnel who may also be contaminated.) (Copies of the arrangements and agreements reached with contractor, private, and local support agencies shall be appended to the plan. The agreements shall delineate the authorities, responsibilities, and limits on the actions of the contractor, private organization, and local services support groups.)

1. Comply. Sections 2.2.4 and 5.3.2. |

2. Comply. Sections 5.3.2.1, 5.3.2.2, 5.3.2.4, and 5.3.2.5.

3. Comply. Agreement letters are in Appendix A. Authorities and responsibilities are covered in training (see Table 8-1).

C. Emergency Response Support and Resources

1. Each State and licensee shall make provisions for incorporating the Federal response capability into its operation plan, including the following:

Comply. Section 5.3.3.5 and Appendix A.

a. specific persons by title authorized to request Federal assistance;

Comply. Section 5.2.1.1, Figure 5-3 and Table 4-2. |

b. specific Federal resources expected; including expected times of arrival; and

Comply. Section 5.3.3.5 and Figure 3-2.

c. specific licensee resources available to support the Federal response.

Office space and communications are available in the EOF.

2.a. Each principal off-site organization may dispatch representatives to the operators near-site Emergency Operations Facility.

Not applicable to PECO. Space and facilities for such organizations are provided in the EOF.

2.b. The licensee shall prepare for the dispatch of a representative to principal offsite governmental emergency operations centers.

Not applicable under the coordinated concept of operation for Limerick, PEMA, and risk Counties.

3. Each organization shall identify radiological laboratories and their general capabilities and expected availability to provide radiological monitoring and analyses services which can be used in an emergency.

Comply. Sections 5.3.2.1, 7.3.2, 7.3.1 and 7.1.5.e.

4. (Each organization shall identify nuclear and other facilities, organizations or individuals which can be relied upon in an emergency to provide assistance.) (Such assistance shall be identified and supported by appropriate letters of agreement.)

1. Comply. Sections 5.3.2 and 5.3.4.
2. Comply. Appendix A for serviced described in Section 5.3.2.

D. Emergency Classification System

1. An emergency classification and emergency action level scheme as set forth in Appendix 1 of NUREG-0654 must be established by the licensee. The specific instruments, parameters of equipment status shall be shown for establishing each emergency class in the in-plant emergency procedures. The plan shall identify the parameter values and equipment status for each emergency class.

Comply. Sections 3.2 and 4.1. Table 4-2. In-plant emergency procedures have not been developed yet.

2. The initiating conditions shall include the example conditions found in Appendix 1 of NUREG-0654 and all postulated accidents in the Final Safety Analysis Report (FSAR) for the nuclear facility.

Comply. Section 4.2 and Table 4-2.

3. Not applicable to PECO.

4. Not applicable to PECO.

E. Notification Methods and Procedures

1. (Each organization shall establish procedures which describe mutually agreeable bases for notification of response organizations consistent with the emergency classification and action level scheme set forth in Appendix 1 to NUREG-0654.) (These procedures shall include means for verification of messages.)

1. Comply. Section 6.1 and Table 4-2.

2. Comply. Section 6.1.

2. Each organization shall establish procedures for notifying, alerting, and mobilizing emergency response personnel.

Comply. Section 6.1, Figure 5-3, and Table 4-2.

3. The licensee in conjunction with State and local organizations shall establish the contents of the initial emergency messages to be sent from the plant. These messages shall contain information about the class of emergency, whether a release is taking place, potentially affected population and areas, and whether protective measures may be necessary.

Comply. Format in Appendix F contain data outlined by PEMA.

4. Each licensee shall make provisions for followup messages from the facility to offsite authorities which shall contain the following information if it is known and appropriate:

Comply. Appendix F and Section 6.2. Because the Emergency Plan covers a wide range of emergencies, the plan lists these criteria as objectives of the assessment actions taken after the initial notifications. As the information becomes available, it is provided to appropriate offsite authorities.

- a. location of incident and name and telephone number (or communications channel identification) of caller;
- b. date/time of incident;
- c. class of emergency;
- d. type of actual or projected release (airborne, waterborne, surface spill), and estimated duration/impact times;

e. estimate of quantity of radioactive material released or being released and the points and height of releases;

f. chemical and physical form of released material, including estimates of the relative quantities and concentration of noble gases, iodines and particulates;

g. meteorological conditions at appropriate levels (wind speed, direction (to and from), indicator of stability, precipitation, if any);

h. actual or projected dose rates at site boundary; projected integrated dose at site boundary;

i. projected dose rates and integrated dose at the projected peak and at 2, 5, and 10 miles, including sector(s) affected;

j. estimate of any surface radioactive contamination inplant, onsite or offsite;

k. licensee emergency response actions underway;

l. recommended emergency actions, including protective measures;

m. request for any needed onsite support by offsite organizations;

n. prognosis for worsening or termination of event based on plant information.

5. Not applicable to PECO.

6. Each organization shall establish administrative and physical means, and the time required for notifying and providing prompt instructions to the public within the plume exposure pathway Emergency Planning Zone. (See Appendix 3). It shall be the licensee's responsibility to demonstrate that such means exist, regardless of who implements this requirement. It shall be the responsibility of the State and local governments to activate such a system.

This topic is under evaluation.

7. Each organization shall provide written messages intended for the public, consistent with the licensee's classification scheme. In particular, draft messages to the public giving instructions with regard to specific protective actions to be taken by occupants of affected areas shall be prepared and included as part of the State and local plans. Such messages should include the appropriate aspects of sheltering, ad hoc respiratory protection, thyroid blocking or evacuation. The role of licensee is to provide supporting information for the messages.

Comply. The Corporate Communications plan provides for written press information and for call takers to utilize prepared statements. See Appendix G, Appendix F and Section 6.2 describe supporting information to be provided to off-site agencies for their messages.

F. Emergency Communications

1. (The communication plans for emergencies shall include organizational titles and alternates for both ends of the communication links.) (Each organization shall establish reliable primary and backup means of communication for licensees, local, and State response organizations. Such systems should be selected to be compatible with one another.) Each plan shall include:

1.a. provision for 24-hour per day notification to and activation of the State/local emergency response network; at a minimum, a telephone link and alternate, including 24-hour per day manning of communications links that initiate emergency response actions.

1.b. provision for communications with contiguous State/local governments within the Emergency Planning Zones;

1.c. provision for communications as needed with Federal emergency response organizations;

1.d. provision for communications between the nuclear facility and the licensee's near-site Emergency Operations Facility, State and local emergency operations centers, and radiological monitoring teams;

1. Comply. PECO primary and alternate members are designated in Figures 5-2, 5-3, and 5-4.

2. Comply. Section 7.2. and Figure 7-2 and Table 7-2.

Comply. Section 5.1 discusses normal shift. Figure 7-2 shows communications links.

Comply. Figure 7-2. Communication with other States is via PEMA.

Comply. Figure 7-2 and Figure 5-3.

Comply. Figure 7-2 and Section 7.2.7. Figure 3-2.

1.e. provision for alerting or activating emergency personnel in each response organization; and

Comply. Figure 5-3, Table 4-2, and Section 6.1.

1.f. provision for communication by the licensee with NRC headquarters and NRC Regional Office Emergency Operation Centers and the licensee's near-site Emergency Operations Facility and radiological monitoring team assembly area.

Comply. Figures 7-2 and 3-2. USNRC ENG and HPN circuits.

2. Each organization shall ensure that a coordinated communication link for fixed and mobile medical support facilities exists.

Comply. Figure 5-3. Mobile medical support facilities at the Emergency Support Center will have telephone service (Section 7.1.5).

3. Each organization shall conduct periodic testing of the entire emergency communications system.

Comply. Section 8.1.2.5.

G. Public Information

1. Each organization shall provide a coordinated periodic (at least annually) dissemination of information to the public regarding how they will be notified and what their actions should be in an emergency. This information shall include, but not necessarily be limited to:

Comply. Section 8.4 and 8.5. PECO has coordinated this effort with PEMA and risk counties for Peach Bottom and expected to do the same for Limerick.

a. educational information on radiation

b. contact for additional information

c. protective measures, e.g. evacuation routes and re-location centers, sheltering, respiratory protection, radio-protective drugs

d. special needs of the handicapped.

Means for accomplishing this dissemination may include, but are not necessarily limited to: information in the telephone book; periodic information in utility bills; posting in public areas; and publications distributed on an annual basis.

2. (The public information program shall provide the permanent and transient adult population within the plume exposure EPZ an adequate opportunity to become aware of this information annually.) (The program should include provision for written material that is likely to be available in a residence during an emergency.) (Updated information shall be disseminated at least annually.) (Signs or other measures shall also be used to disseminate to any transient population within the plume exposure EPZ appropriate information that would be helpful if an emergency or accident occurs. Such notices should

As described for Criterion G.1, above, PECO will work in coordination with PEMA and risk counties in developing and implementing public information programs.

refer the transient to the telephone directory or other source of local emergency information and guide the visitor to appropriate radio and television frequencies.)

3.a. Each organization shall designate the principal points of contact and physical locations for use by news media during an emergency.

Comply. Figures 5-4 and 5-6. Section 5.3.1.28. and 5.3.1 Section 7.1.7. Appendix G.

3.b. Each licensee shall provide space which may be used for a limited number of the news media at the nearsite Emergency Operations Facility.

Comply. Space is available at the EOF location.

4.a. Each principal organization shall designate a spokesperson who should have access to all necessary information.

Comply. Figures 5-4 and 5-6. Section 5.3.1.28. Corp. Communications Plan. (See Appendix G).

4.b. Each organization shall establish arrangements for timely exchange of information among designated spokespersons.

Comply. Corp. Communications Plan. (See Appendix G)

4.c. Each organization shall establish coordinated arrangements for dealing with rumors.

Comply. Corp. Communications Plan. (See Appendix G).

5. Each organization shall conduct coordinated programs at least annually to acquaint news media with the emergency plans, information concerning radiation, and points of contact for release of public information in an emergency.

Comply. Section 8.5

H. Emergency Facilities and Equipment

1. Each licensee shall establish a technical support center and an onsite operational support

Comply. Sections 7.1.3 and 7.1.4.

center (assembly area) in accordance with NUREG-0696, Revision 1.

2. Each licensee shall establish an Emergency Operations Facility from which evaluation and coordination of all licensee activities related to an emergency is to be carried out and from which the licensee shall provide information to Federal, State and local authorities responding to radiological emergencies in accordance with NUREG-0696, Revision 1.

Comply. Section 7.1.2.

3. Not applicable to PECO.

4. Each organization shall provide for timely activation and staffing of the facilities and centers described in the plan.

Comply. Section 6.1. Figures 5-3 and 5-5. Table 4-2.

5. Each licensee shall identify and establish onsite monitoring systems that are to be used to initiate emergency measures in accordance with Appendix 1 of NUREG-0654 as well as those to be used for conducting assessment.

Comply. Section 7.3 and Table 7-3 and 7-4 identify such systems. Table 4-2 implements Appendix 1 of NUREG-0654. Section 6.2 discusses assessment.

The equipment shall include:

5.a. geophysical phenomena monitors (e.g., meteorological, hydrologic, seismic);

Comply. Section 7.3.1 and reference to FSAR.

5.b. radiological monitors, (e.g., process, area, emergency, effluent, and portable monitors and sampling equipment);

Comply. Section 7.3.1, Tables 7-3 and 7-4 and Appendix E.

5.c. process monitors, (e.g., reactor coolant system pressure and temperature, containment pressure and temperature, liquid levels, flow rates, status or lineup of equipment components);

Comply. The FSAR describes this information in detail. Table 4-2 identifies variables which are used.

5.d. fire and combustion products detectors.

Comply. Section 7.3.1 and reference to FSAR.

6. Each licensee shall make provision to acquire data from or for emergency access to offsite monitoring and analysis equipment including:

a. geophysical phenomena monitors;

Comply. Section 7.3.1 and reference to FSAR.

b. radiological monitors including ratemeters and sampling devices. Dosimetry shall be provided and shall meet, as a minimum, the NRC Radiological Assessment Branch Technical Position for the Environmental Radiological Monitoring Program.

Comply. Refer to Environmental Report-Operating License.

c. laboratory facilities, fixed or mobile.

Comply. Sections 7.3.1 and 7.3.2

7. Each organization, where appropriate, shall provide for offsite radiological monitoring equipment in the vicinity of the nuclear facility.

Comply. Table 7-5. Meteorological Towers are identified in Section 7.3.1.

8. Each licensee shall provide meteorological instrumentation and procedures which satisfy the criteria in Appendix 2, and provisions to obtain

This equipment will be described in the Environmental Report.

representative current meteorological information from other sources.

9. Each licensee shall provide for an onsite Operations Support Center (assembly area) which shall have adequate capacity and supplies, including, for example, respiratory protection, protective clothing, portable lighting, portable radiation monitoring equipment, cameras, and communications equipment for personnel present in the assembly area.

10. (Each organization shall make provisions to inspect, inventory and operationally check emergency equipment/instruments at least once each calendar quarter and after each use.) (There shall be sufficient reserves of instruments/equipment to replace those which are removed from emergency kits for calibration or repair.) (Calibration of equipment shall be at intervals recommended by the supplier of the equipment.)

11. Each plan shall, in an appendix, include identification of emergency kits by general category (protective equipment, communications equipment, radiological monitoring equipment and emergency supplies).

Comply. Section 7.1.4. Cameras will not be stored here.

1. Not Comply. Section 8.3 requires semi-annual and after-use inventory. Instrument checks and calibrations are per procedures which consider vendor recommendations.

2. Comply. Section 8.3.

3. Partial Compliance. Section 8.3 requires vendor recommendations to be considered.

Comply. Appendix E. Section 8.3.

12. Each organization shall establish a central point (preferably associated with the licensee's near-site Emergency Operations Facility), for the receipt and analysis of all field monitoring data and coordination of sample media.

Comply. Sections 7.1.2 and 5.2.1.3. Figures 3-1, 3-2, and 5-6.

I. Accident Assessment

1. (Each licensee shall identify plant system and effluent parameter values characteristic of a spectrum of off-normal conditions and accidents, and shall identify the plant parameter values or other information which correspond to the example initiating conditions of Appendix 1 of NUREG-0654.) (Such parameter values and the corresponding emergency class shall be included in the appropriate facility emergency procedures). (Facility emergency procedures shall specify the kinds of instruments being used and their capabilities.)

1. Comply. Table 4-2. Specific values for certain entries in Table 4-2 will be included after further analyses.

2. Comply. Section 4.1. Detailed procedures have not been developed yet.

Will Comply. Detailed procedures have not been developed yet.

2. Onsite capability and resources to provide initial values and continuing assessment throughout the course of an accident shall include post-accident sampling capability, radiation and effluent monitors, in-plant iodine instrumentation, and containment radiation monitoring in accordance with NUREG-0578, as elaborated in the NRC letter to all power reactor licensees dated October 30, 1979.

Comply. Section 7.3.1.

3. Each licensee shall establish methods and techniques to be used for determining:

3.a. the source term of releases of radioactive material within plant systems. An example is the relationship between the containment radiation monitor readings and radioactive material available for release from containment.

Comply. Such relationships will be developed.

3.b. the magnitude of the release of radioactive materials based on plant system parameters and effluent monitors.

Comply. Section 6.2.1. |

4. Each licensee shall establish the relationship between effluent monitor readings and onsite and off-site exposures and contamination for various meteorological conditions.

Comply. Section 6.2.1. |

5. (Each licensee shall have the capability of acquiring and evaluating meteorological information sufficient to meet the criteria of Appendix 2 of NUREG-0654.) (There shall be provisions for access to meteorological information by at least the nearsite Emergency Operations Center, the Technical Support Center, the Control Room and an offsite NRC Center.) (The licensee shall make available to the State suitable meteorological data processing interconnections which will

1. This equipment is addressed in the Environmental Report. |

2. Comply. Section 6.2.1. The transmission of data to an offsite NRC center is under review. |

3. Under review. |

permit independent analysis by the State, of facility generated data in those States with the resources to effectively use this information.)

6. Each licensee shall establish the methodology for determining the release rate/projected doses if the instrumentation used for assessment are offscale or inoperable.

Comply. Section 6.2.3. |

7. Each organization shall describe the capability and resources for field monitoring within the plume exposure Emergency Planning Zone which are an intrinsic part of the concept of operations for the facility.

Comply. Sections 6.2, 6.2.4 |
and 7.3.2. Figure 5-2.

8. (Each organization, where appropriate, shall provide methods, equipment and expertise to make rapid assessments of the actual or potential magnitude and locations of any radiological hazards through liquid or gaseous release pathways.) (This shall include activation, notification means, field team composition, transportation, communication, monitoring equipment and estimated deployment times.)

1. Comply. Sections 6.2, 6.2.1, and 7.3.1. |
Tables 7-3 and 7-4.
Figure 5-2 (Rad Survey).

2. Comply. Section 6.1, |
Table 4-2, Figure 5-3,
Figures 5-2 and 5-5.
Section 7.2.7.
Appendix E. Section 6.2.

9. Each organization shall have a capability to detect and measure radioiodine concentrations in air in the plume exposure EPZ as low as 10E-07 microcuries

Under review.

per cubic centimeter under field conditions. Interference from the presence of noble gas and background radiation shall not decrease the stated minimum detectable activity.

10. Each organization shall establish means for relating the various measured parameters (e.g., contamination levels, water and air activity levels) to dose rates for key isotopes and gross radioactivity measurements. Provisions shall be made for estimating integrated dose from the projected and actual dose rates and for comparing these estimates with the protective action guides. The detailed provisions shall be described in separate procedures.

Comply. Sections 6.2 and 6.2.1. Dose projection methods will be developed.

11. Not applicable to PECO.

J. Protective Response

1. Each licensee shall establish the means and time required to warn or advise onsite individuals and individuals who may be in areas controlled by the operator, including:

Comply. Sections 6.4 and 6.4.1.1

1.a. Employees not having emergency assignments;

1.b. Visitors;

1.c. Contractor and construction personnel;

1.d. Other persons who may be in the public access areas on or passing through the site or within the owner controlled area.

2. Each licensee shall make provisions for evacuation routes and transportation for onsite individuals to some suitable offsite location,

including alternatives for inclement weather, high traffic density and specific radiological conditions.

3. Each licensee shall provide for radiological monitoring of people evacuated from the site.

4. Each licensee shall provide for the evacuation of onsite non-essential personnel in the event of a Site or General Emergency and shall provide a decontamination capability at or near this offsite location.

5. Each licensee shall provide for a capability to account for all individuals onsite at the time of the emergency and ascertain the names of missing individuals within 30 minutes of the start of an emergency and account for all onsite individuals continuously thereafter.

Comply. Section 6.4.1.1.c and Table 7-1. Appendix C, Figure C-2. Figure 7-1.

Comply. Section 6.4.1.1.e.

Comply. Sections 6.4.1.1.c and 6.4.1.1.e. Table 6-2.

Partial Compliance
Sections 6.4.1.1.c, 6.4.1.1.d, and 7.1.5.d. The ability to meet the 30-minute time limit is not determinable at this time.

6. Each licensee shall, for individuals remaining or arriving onsite during the emergency, make provisions for:

6.a. Individual respiratory protection;

Comply. Sections 6.4.2 and 6.4.2.1.

6.b. Use of protective clothing;

Comply. Sections 6.4.2 and 6.4.2.2

6.c. Use of radioprotective drugs, (e.g., individual thyroid protection).

Comply. Sections 6.4.2 and 6.4.2.3.

7. (Each licensee shall establish a mechanism for recommending protective actions to the appropriate State and local authorities. These shall include Emergency Action Levels corresponding to projected dose to the population-at-risk, in accordance with Appendix 1 of NUREG-0654 and with the recommendations set forth in Tables 2.1 and 2.2 of the Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (EPA-520/1-75-001.) (As specified in Appendix 1 of NUREG-0654, prompt notification shall be made directly to the offsite authorities responsible for implementing protective measures within the plume exposure Emergency Planning Zone.)

1. Comply. Sections 5.2.1.1 and 5.2.1.2. Appendix F. |

2. Comply. Section 6.1, Figure 5-3, and Table 4-2. |

8. Each licensee's plan shall contain time estimates for evacuation within the plume exposure EPZ. These shall be in accordance with Appendix 4.

Comply. Appendix H.

9. Not applicable to PECO.

10. The organization's plans to implement protective measures for the plume exposure pathway shall include:

a. Maps showing evacuation routes, evacuation areas, preselected radiological sampling and monitoring points, relocation centers in host areas, and shelter areas;

Comply. Appendix C and Appendix H.

b. Maps showing population distribution around the nuclear facility. This shall be by evacuation areas and sector format;

Comply. Appendix C.

c. Means for notifying all segments of the transient and resident population;

Comply. Sections 6.4.1.1.b and 6.4.1.1.c for PECO area of responsibility.

d. through l. Not applicable to PECO.

m. (The bases for the choice of recommended protective actions from the plume exposure pathway during emergency conditions.) (This shall include expected local protection afforded in residential units or other shelter for direct and inhalation exposure, as well as, evacuation time estimates.)

1. Comply. Section 6.4.1.1.a

2. Not applicable to PECO. Data is in BRP Plan.

11. Not applicable to PECO.

12. Not applicable to PECO.

K. Radiological Exposure Control

1. Each licensee shall establish onsite exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Actions Guides (EPA 520/1-75/001) for:

1.a. removal of injured persons;

Comply. Table 6-1 and Section 6.5.1.

1.b. undertaking corrective actions;

Comply. Table 6-1.

1.c. performing assessment actions;

Comply. Section 6.5.1.

1.d. providing first aid;

Comply. Table 6-1 and Section 6.5.1.

1.e. performing personnel decontamination;

Comply. Table 6-1 and Section 6.5.1.

1.f. providing ambulance service;

Comply. Table 6-1 and Section 6.5.1.

1.g. providing medical treatment services.

Comply. Table 6-1 and Section 6.5.1.

2. (Each licensee shall provide an onsite radiation protection program to be implemented during emergencies, including methods to implement exposure guidelines. The plan shall identify individual(s), by position or title, who can authorize emergency workers to receive doses in excess of 10 CFR, Part 20 limits.) (Procedures shall be worked out in advance for permitting onsite volunteers to receive radiation exposures in the course of carrying out

1. Comply. The normal plant radiation exposure program remains in effect except as provided in Sections 6.5.1 and 5.2.1.1.i and Table 6-1.

2. Comply. Table 8-1 includes basic radiation protection training for such personnel.

lifescaping activities. These procedures shall include expeditious decision-making and a reasonable consideration of relative risks.)

3.a. Each organization shall make provision for 24-hour-per-day capability to determine the doses received by emergency personnel involved in any nuclear accident, including volunteers. Each organization shall make provisions for distribution of dosimeters, both self-reading and permanent record devices.

Comply. Sections 6.5.1 and 7.1.5.c.

3.b. Each organization shall ensure that dosimeters are read at appropriate frequencies and provide for maintaining dose records for emergency workers involved in any nuclear accident.

Comply. Sections 6.5.1 and 7.1.5.c. Table 8-1 includes basis radiation protection training for emergency workers.

4. Not applicable to PECO.

5.a. Each organization as appropriate, shall specify action levels for determining the need for decontamination.

Comply. Section 6.4.3.1.

5.b. Each organization, as appropriate, shall establish the means for radiological decontamination of emergency personnel wounds, supplies, instruments and equipment, and for waste disposal.

Comply. Sections 6.5.2 and 6.4.3.1.

6. Each licensee shall provide onsite contamination control measures including:

a. area access control;

Comply. Section 6.4.3.1 and plant HP procedures.

b. drinking water and food supplies;

Comply. Section 6.4.3.1.

c. criteria for permitting return of areas and items to normal use.

Comply. Section 6.4.3.1 and plant HP procedures.

7. Each licensee shall provide the capability for decontaminating relocated onsite personnel, including provisions for extra clothing and decontaminants suitable for the type of contamination expected, with particular attention given to radioiodine contamination of the skin.

Comply. Appendix E.

L. Medical and Public Health and Support

1. Each organization shall arrange for local and backup hospital and medical services having the capability for evaluation of radiation exposure and uptake, including assurance that persons providing these services are adequately prepared to handle contaminated individuals.

Comply. Sections 5.3.2.1, 5.3.2.2, 5.3.2.4, and 5.3.2.5. Table 8-1. Section 6.5.4.

2. Each licensee shall provide for onsite first aid capability.

Comply. Sections 5.3.2.4, 6.5.2, and 7.5. Figure 5-2 (Personnel Safety Team).

3. Not applicable to PECO.

4. Each organization shall arrange for transporting victims of radiological accidents to medical support facilities.

Comply. Sections 5.3.2.1, 5.3.2.5, and 6.5.3.

M. Recovery and Re-entry Planning and Postaccident Operations

1. Each organization, as appropriate, shall develop general plans and procedures for reentry and recovery and describe the means by which decisions to relax protective measures are reached. This process should consider both actual and potential conditions.

Comply. Section 9.0.

2. Each licensee plan shall contain the position/title, authority and responsibilities of individuals who will fill key positions in the facility recovery organization. This organization shall include technical personnel with responsibilities to develop, evaluate and direct recovery and reentry operations. The recovery organization recommended by the Atomic Industrial Forum's "Nuclear Power Plant Emergency Response Plan" dated October 11, 1979, is an acceptable framework.

Comply. Section 5.4 and Figure 5-6.

3. Each licensee and State plan shall specify means for informing members of the response organizations that a recovery operation is to be initiated, and of any changes in the organizational structure that may occur.

Comply. Section 5.2.1.3.i.

4. Each plan shall establish a method for periodically estimating total population exposure.

Comply. Section 6.2.1. |

N. Exercises and Drills

1.a. An exercise is an event that tests the integrated capability and a major portion of the basic elements existing within emergency preparedness plans and organizations. The emergency preparedness exercise shall simulate an emergency that results in offsite radiological releases which would require response by offsite authorities. Exercises shall be conducted as set forth in NRC and FEMA rules.

Comply. Section 8.1.2.1 and 8.1.2.2. |

1.b. (An exercise shall include mobilization of State and local personnel and resources adequate to verify the capability to respond to an accident scenario requiring response.) (The organization shall provide for a critique of the annual exercise by Federal and State observers/evaluators.) (The scenario should be varied from year to year such that all major elements of the plans and preparedness organizations are tested within a five-year period.) (Each organization should make provisions to start an exercise between 6:00 p.m. and midnight, and another between midnight and 6:00 a.m. once every six

1. Comply. Section 8.1.2.1 and Section 8.1.2.2.

2. Comply. Section 8.1.2.

3. Comply. Sections 8.1.2.1 and 8.1.2.2.

4. Not Comply. FEMA informed PECO at 4/2/80 meeting that this requirement is being deleted.

years.) (Exercises should be conducted under various weather conditions.) (Some exercises should be unannounced.)

2. (A drill is a supervised instruction period aimed at testing, developing and maintaining skills in a particular operation. A drill is often a component of an exercise.) (A drill shall be supervised and evaluated by a qualified drill instructor.) (Each organization shall conduct drills, in addition to the annual exercise at the frequencies indicated below:)

2.a. Communication Drills

(Communications with State and local governments within the plume exposure pathway Emergency Planning Zone shall be tested monthly.)

(Communications with Federal emergency response organizations and States within the ingestion pathway shall be tested quarterly.) (Communications between the nuclear facility, State and local emergency operations centers, and field assessment teams shall be tested annually.)

(Communication drills shall also include the aspect of understanding the content of messages.

5. The logistics required for exercises normally dictates that the exercise occur regardless of weather conditions.

1. USNRC definition.

2. Comply. Section 8.1.2.

3. Comply. Section 8.1.2 allows concurrent drills and exercises.

1. Comply. Section 8.1.2.5.a.

2. Comply. Sections 8.1.2.5.b and 8.1.2.5.d. PEMA communicates with adjacent States.

3. Comply. Sections 8.1.2.5.a and 8.1.2.5.e.

4. Comply. Section 8.1.2.5.

2.b. Fire Drills

Fire drills shall be conducted in accordance with the plant (nuclear facility) technical specifications.

Comply. Section 8.1.2.4.

2.c. Medical Emergency Drills

A medical emergency drill involving a simulated contaminated individual which contains provisions for participation by the local support services agencies (i.e., ambulance and offsite medical treatment facility) shall be conducted annually. The offsite portions of the medical drill may be performed as part of the required annual exercise.

Comply. Section 8.1.2.3.

2.d. Radiological Monitoring Drills

Plant environs and radiological monitoring drills (onsite and offsite) shall be conducted annually. These drills shall include collection and analysis of all sample media (e.g., water, vegetation, soil and air) and provisions for communications and record keeping.

Comply. Section 8.1.2.6.

2.e. Health Physics Drills

- 1 (1) Health Physics drills shall be conducted semi-annually which involve response to, and analysis of, simulated elevated airborne and liquid samples and direct radiation measurements in the environment.

Comply. Section 8.1.2.6

(2) Analysis of inplant liquid samples with actual elevated radiation levels shall be included in Health Physics drills by licensees annually.

Not Comply. Use of procedures and equipment for such analyses are a part of the training program for these personnel.
Violates 10 CFR 20.

(3) Each organization shall describe how exercises and drills are to be carried out to allow free play for decisionmaking and to meet the following objectives. Pending the development of exercise scenarios and exercise evaluation guidance by NRC and FEMA, the scenarios for use in exercises and drills shall include but not be limited to, the following:

a. The basic objective(s) of each drill and exercise and appropriate evaluation criteria.

Comply. Section 8.1.2.

b. The date(s), time period, place(s) and participating organizations.

Comply. Section 8.1.2.

c. The simulated events.

Comply. Section 8.1.2.

d. A time schedule of real and simulated initiating events.

Comply. Section 8.1.2.

e. A narrative summary describing the conduct of the exercises or drills to include such things as simulated casualties, offsite fire department assistance, rescue of personnel, use of protective clothing, deployment of radiological monitoring teams, and public information activities.

Comply. Section 8.1.2.

f. A description of the arrangements for advanced materials to be provided to official observers.

Comply. Section 8.1.2.

(4) Official observers from Federal, State or local governments will observe, evaluate, and critique the required exercises. A critique shall be scheduled at the conclusion of the exercise to evaluate the ability of organizations to respond as called for in the plan. The critique shall be conducted as soon as practicable after the exercise, and a formal evaluation should result from the critique.

Comply. Section 8.1.2.

(5) Each organization shall establish means for evaluating observer and participant comments on areas needing improvement, including emergency plan procedural changes, and for assigning responsibility for implementing corrective actions. Each organization shall establish management control used to ensure that corrective actions are implemented.

Comply. Sections 8.1.2 and 8.2.1.

0. Radiological Emergency Response Training

1. Each organization shall make provisions for the training of appropriate individuals.

Comply. Section 8.1.1 and Table 8-1.

1.a. Each facility to which the plan applies shall provide site specific emergency response training for those offsite emergency organizations who may be called upon to provide assistance in the event of an emergency.

Comply. Table 8-1.

1.b. Not applicable to PECO.

2. The training program for members of the onsite emergency organization shall include, besides classroom training, practical drills in which each individual demonstrates ability to perform his assigned emergency function. During the practical drills, on-the-spot correction of erroneous performance shall be made and a demonstration of the proper performance offered by the instructor.

Comply. Table 8-1 and Section 8.1.1 describe training for on-site teams.

3. Training for individuals assigned to licensee first aid teams shall include courses equivalent to Red Cross Multi-Media.

Comply. Table 8-1.

4. Each organization shall establish a training program for instructing and qualifying personnel who will implement radiological emergency response plans. The specialized initial training and periodic retraining programs (including the scope, nature and frequency) shall be provided in the following categories:

a. Directors or coordinators of the response organizations;

Comply. Table 8-1 (items 1 and 9).

b. Personnel responsible for accident assessment;

Comply. Table 8-1 (item 2).

c. Radiological monitoring teams and radiological analysis personnel;

Comply. Table 8-1 (items 2 and 3).

- d. Police, security, and fire fighting personnel; Comply. Table 8-1 (items 6 and 8).
- e. Repair and damage control teams (onsite); Comply. Table 8-1 (item 4).
- f. First aid and rescue personnel; Comply. Table 8-1 (item 5).
- g. Local support services personnel including Civil Defense/Emergency Service personnel; Comply. Table 8-1 (item 1).
- h. Medical support personnel; Comply. Table 8-1 (item 7).
- i. Licensee's headquarters support personnel; Comply. Table 8-1 (items 9, 10, and 11).
- j. Personnel responsible for transmission of emergency information and instructions. Comply. Table 8-1 (items 1, 9, and 10).
5. Each organization shall provide for the initial and annual retraining of personnel with emergency response responsibilities. Partial Compliance. Table 8-1. Most retraining is done annually. However, other periodicity is assigned for certain positions.
- P. Responsibility for Planning Effort; Development, Periodic Review and Distribution of Emergency Plans
1. Each organization shall provide for the training of individuals responsible for the planning effort. Comply. Those responsible for planning are included in Table 8-1.
2. Each organization shall identify by title the individual with the overall authority and responsibility for radiological emergency response planning. Comply. Section 2.2.

3. Each organization shall designate an Emergency Planning Coordinator with responsibility for the development and updating of emergency plans and coordination of these plans with other response organizations.

Comply. Section 2.2.

4. Each organization shall update its plan and agreements as needed, review and certify it to be current on an annual basis. The update shall take into account changes identified by drills and exercises.

Comply. Section 8.2.1.

5. (The emergency response plans and approved changes to the plans shall be forwarded to all organizations and appropriate individuals with responsibility for implementation of the plans.) (Revised pages shall be dated and marked to show where changes have been made.)

1. Partial Compliance Section 8.2.3. Not all organizations in the total response organization hold copies of the plan. A detailed distribution list will be included when the plan is in effect.

2. Comply.

6. Each plan shall contain a detailed listing of supporting plans and their source.

Comply. Appendix G.

7. Each plan shall contain as an appendix listing, by title, procedures required to implement the plan. The listing shall include the section(s) of the plan to be implemented by each procedure.

Partial Compliance Appendix D contains a list of procedures expected to be developed. The listing does not yet reference sections of the plan.

8. Each plan shall contain a specific table of contents. Plans submitted for review should be cross-referenced to these criteria.

9. (Each licensee shall arrange for and conduct independent reviews of the emergency preparedness program at least every 12 months.) (The review shall include the emergency plan, its implementing procedures and practices, training, readiness testing, equipment, and interfaces with State and local governments.) (Management controls shall be implemented for evaluation and correction of review findings.) (The result of the review, along with recommendations for improvements, shall be documented, reported to appropriate licensee corporate and plant management, and involved Federal, State, and local organizations, and retained for a period of five years.)

10. Each organization shall provide for updating telephone numbers in emergency procedures at least quarterly.

10 CFR 50, APPENDIX E, SECTION IV COMPLIANCE

10 CFR 50, Appendix E Criteria

1. The applicant's emergency plans shall contain, but not necessarily be limited to, information needed to demonstrate compliance with the elements set forth below, i.e., organization for coping

Comply. An index is included. This Appendix provides the cross-reference.

1. Comply. The annual review (Section 8.2.1) and the audits (Section 8.6) meet the intent of this provision.
2. Comply. Sections 8.2.1 and 8.6.

3. Comply. Sections 8.1.2, 8.2.1, and 8.6.

4. Partial Compliance. Sections 8.1.2, 8.2.1, and 8.6 comply for plant and corporate management. Such reports are not distributed outside of PECO. Such distribution would be of no emergency planning benefit.

Comply. Section 8.2.2.

LGS Compliance/Comment

Comply. The Limerick Emergency Plan addresses each of these areas in detail.

with radiation emergencies, assessment action, activation of emergency organization, notification procedures, emergency facilities and equipment, training, maintaining emergency preparedness, and recovery.

1.a. In addition, the emergency response plans submitted by an applicant for a nuclear power reactor operating license shall contain information needed to demonstrate compliance with the standards described in NUREG-0654, and they will be evaluated against those standards.

1.b. The nuclear power reactor operating license applicant shall also provide an analysis of the time required to evacuate and for taking other protective actions for various sectors and distances with the plume exposure pathway EPZ for transient and permanent populations.

A. Organization

The organization for coping with radiological emergencies shall be described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's

Comply. This first portion of this Appendix compares the Limerick Emergency Plan to these standards.

Comply. Appendix H contains the evacuation time study. Other protective actions for the public would be provided by PEMA and the Counties using the public notification system and Emergency Broadcast System stations.

emergency organization and the means of notification of such individuals in the event of an emergency. Specifically, the following shall be included:

1. A description of the normal plant operating organization.

Comply. Section 5.1 and Figure 5-1.

2. A description of the onsite emergency response organization with a detailed discussion of:

Comply. Section 5.2.

2.a. Authorities, responsibilities, and duties of the individual(s) who will take charge during an emergency;

Comply. Sections 5.2.1 through Section 5.2.1.5.

2.b. Plant staff emergency assignments;

Comply. Sections 5.2.2 through Section 5.2.2.2.7 and Figure 5-2.

2.c. Authorities, responsibilities and duties of an on-site emergency coordinator who shall be in charge of the exchange of information with offsite authorities responsible for coordinating and implementing offsite emergency measures.

Comply. Sections 5.2.1.1, 5.2.1.2, and 5.2.1.3.

3. A description, by position and function to be performed, of the licensee's headquarters personnel who will be sent to the plant site to augment the onsite emergency organization.

Comply. Sections 5.3.1 through 5.3.1.37 and Section 5.4 describe corporate support at all locations. Figure 5-4 and 5-6.

4. Identification, by position and function to be performed, of persons within the licensee organization who will be responsible for making offsite

1. Comply. Sections 5.2.1.1, 5.2.1.2, and 5.2.2.2.1. Figures 5-6 and 5-7.

8. Each plan shall contain a specific table of contents. Plans submitted for review should be cross-referenced to these criteria.

9. (Each licensee shall arrange for and conduct independent reviews of the emergency preparedness program at least every 12 months.) (The review shall include the emergency plan, its implementing procedures and practices, training, readiness testing, equipment, and interfaces with State and local governments.) (Management controls shall be implemented for evaluation and correction of review findings.) (The result of the review, along with recommendations for improvements, shall be documented, reported to appropriate licensee corporate and plant management, and involved Federal, State, and local organizations, and retained for a period of five years.)

10. Each organization shall provide for updating telephone numbers in emergency procedures at least quarterly.

Comply. An index is included. This Appendix provides the cross-reference.

1. Comply. The annual review (Section 8.2.1) and the audits (Section 8.6) meet the intent of this provision.
2. Comply. Sections 8.2.1 and 8.6.

3. Comply. Sections 8.1.2, 8.2.1, and 8.6.

4. Partial Compliance. Sections 8.1.2, 8.2.1, and 8.6 comply for plant and corporate management. Such reports are not distributed outside of PECO. Such distribution would be of no emergency planning benefit.

Comply. Section 8.2.2.

10 CFR 50, APPENDIX E, SECTION IV COMPLIANCE

10 CFR 50, Appendix E Criteria

1. The applicant's emergency plans shall contain, but not necessarily be limited to, information needed to demonstrate compliance with the elements set forth below, i.e., organization for coping

LGS Compliance/Comment

Comply. The Limerick Emergency Plan addresses each of these areas in detail.

with radiation emergencies, assessment action, activation of emergency organization, notification procedures, emergency facilities and equipment, training, maintaining emergency preparedness, and recovery.

1.a. In addition, the emergency response plans submitted by an applicant for a nuclear power reactor operating license shall contain information needed to demonstrate compliance with the standards described in NUREG-0654, and they will be evaluated against those standards.

1.b. The nuclear power reactor operating license applicant shall also provide an analysis of the time required to evacuate and for taking other protective actions for various sectors and distances with the plume exposure pathway EPZ for transient and permanent populations.

A. Organization

The organization for coping with radiological emergencies shall be described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's

Comply. This first portion of this Appendix compares the Limerick Emergency Plan to these standards.

Comply. Appendix H contains the evacuation time study. Other protective actions for the public would be provided by PEMA and the Counties using the public notification system and Emergency Broadcast System stations.

emergency organization and the means of notification of such individuals in the event of an emergency. Specifically, the following shall be included:

1. A description of the normal plant operating organization.

Comply. Section 5.1 and Figure 5-1.

2. A description of the onsite emergency response organization with a detailed discussion of:

Comply. Section 5.2.

2.a. Authorities, responsibilities, and duties of the individual(s) who will take charge during an emergency;

Comply. Sections 5.2.1 through Section 5.2.1.5.

2.b. Plant staff emergency assignments;

Comply. Sections 5.2.2 through Section 5.2.2.2.7 and Figure 5-2.

2.c. Authorities, responsibilities and duties of an on-site emergency coordinator who shall be in charge of the exchange of information with offsite authorities responsible for coordinating and implementing offsite emergency measures.

Comply. Sections 5.2.1.1, 5.2.1.2, and 5.2.1.3.

3. A description, by position and function to be performed, of the licensee's headquarters personnel who will be sent to the plant site to augment the onsite emergency organization.

Comply. Sections 5.3.1 through 5.3.1.37 and Section 5.4 describe corporate support at all locations. Figure 5-4 and 5-6.

4. (Identification, by position and function to be performed, of persons within the licensee organization who will be responsible for making offsite

1. Comply. Sections 5.2.1.1, 5.2.1.2, and 5.2.2.2.1. Figures 5-6 and 5-7.

dose projections,) (and a description of how these projections will be made and the results transmitted to State and local authorities, NRC, and other appropriate governmental entities.)

5. Identification, by position and function to be performed, of other employees of the licensee with special qualifications for coping with emergency conditions that may arise.

5.a. Other persons with special qualifications, such as consultants, who are not employees of the licensee and who may be called upon for assistance for emergencies shall also be identified. The special qualifications of the persons shall be described.

6. A description of the local offsite services to be provided in support of the licensee's emergency organization.

7. Identification of, and assistance expected from, appropriate State, local, and Federal agencies with responsibilities for coping with emergencies.

8. Identification of the State and/or local officials responsible for planning for, ordering, and controlling appropriate protective actions, including evacuations when necessary.

2. Comply. Section 6.2. Figure 3-2 and Section 7 describe communications.

Comply. Section 5 describes all positions and functions.

Comply. Sections 5.3.2.1 through 5.3.2.5. Section 5.3.3.1 Sections 5.3.4 through 5.3.4.4.

Comply. Sections 5.3.2.1 through 5.3.2.5.

Comply. Sections 5.3.3 through 5.3.3.6.

Comply. Sections 5.3.3.1, 5.3.3.2, 5.3.3.3, and 5.3.3.6 describe the responsibilities of these agencies.

B. Assessment Actions

1. (The means to be used for determining the magnitude of and for continually assessing the impact of the release of radioactive materials shall be described,) (including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies,) (and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety.)

1. Comply. Section 6.2.1.

2. Comply. Table 4-2.

3. Comply. Table 6-2 and Section 6.4.1.2.a.

1.a. The emergency action levels shall be based on in-plant conditions and instrumentation in addition to onsite and offsite monitoring.

Comply. Table 6-2 and Table 4-2

1.b. These emergency action levels shall be discussed and agreed on by the applicant and State and local governmental authorities and approved by NRC.

This will be done.

1.c. They shall also be reviewed with the State and local governmental authorities on an annual basis.

Emergency Action Levels will be discussed with State and County emergency management officials annually.

C. Activation of Emergency Organization

1. The entire spectrum of emergency conditions that involve the alerting or activating of progressively larger segments of the total emergency organization shall be described.

Comply. Table 4-2, Section 4.2, and Section 6.1.

2. The communication steps to be taken to alert or activate emergency personnel under each class of emergency shall be described.

Comply. Table 4-2, Figure 5-3. Section 7 describes communication equipment.

3. Emergency action levels (based not only on onsite and offsite radiation monitoring information but also on readings from a number of sensors that indicate a potential emergency, such as the pressure in containment and the response of the Emergency Core Cooling System) for notification of offsite agencies shall be described.

Comply. Table 4-2, and Section 4.1.

4. The existence, but not the details, of a message authentication scheme shall be noted for such agencies.

Comply. Section 6.1.

5. The emergency classes defined shall include:

Comply. Section 3.2

5.a. notification of unusual events,

5.b. alert,

5.c. site area emergency, and

5.d. general emergency.

These classes are further discussed in NUREG-0654; FEMA-REP-1.

D. Notification Procedures

1. Administrative and physical means for notifying local, State, and Federal officials and agencies and agreements reached with these officials and agencies for the

Comply. Table 4-2 and Section 7 and Figure 5-3 describe the administrative and physical means. Sections 5.3.3.1 and 5.3.3.6 describe

prompt notification of the public and for public evacuation or other protective measures, should they become necessary, shall be described. This description shall include identification of the appropriate officials, by title and agency, of the State and local government agencies within the EPZs.

2. Provisions shall be described for yearly dissemination to the public within the plume exposure pathway EPZ of basic emergency planning information, such as the methods and times required for public notification and the protective actions planned if an accident occurs, general information as to the nature and effects of radiation, and a listing of local broadcast stations that will be used for dissemination of information during an emergency.

2.a. Signs or other measures shall also be used to disseminate to any transient population within the plume exposure pathway EPZ appropriate information that would be helpful if an accident occurs.

3. A licensee shall have the capability to notify responsible State and local governmental agencies within 15 minutes after declaring an emergency.

3.a. The licensee shall demonstrate that the State/local officials have the capability to make a public notification decision promptly on being informed by the licensee of an emergency condition.

public notification and protective action responsibilities.

Comply. Sections 8.4 and 8.5. Section 5.3.3.1.

Under review.

Comply. Section 7 describes communication equipment.

County and State capabilities will be demonstrated during exercises.

Section 6.4.1.2.b.

3.b. By July 1, 1981, the nuclear power reactor licensee shall demonstrate that administrative and physical means have been established for alerting and providing prompt instructions to the public within the plume exposure pathway EPZ. The design objective shall be to have the capability to essentially complete the initial notification of the public within the plume exposure pathway EPZ within about 15 minutes. The use of this notification capability will range from immediate notification of the public (within 15 minutes of the time that State and local officials are notified that a situation exists requiring urgent action) to the more likely events where there is substantial time available for the State and local governmental officials to make a judgment whether or not to activate the public notification system. Where there is a decision to activate the notification system, the State and local officials will determine whether to activate the entire notification system simultaneously or in a graduated or staged manner. The responsibility for activating such a public notification system shall remain with the appropriate government authorities.

E. Emergency Facilities and Equipment

Adequate provisions shall be made and described for emergency facilities and equipment, including:

1. Equipment at the site for personnel monitoring;

Comply. Section 6.4.1.1.e. and Appendix E.

2. Equipment for determining the magnitude of and for continuously assessing the impact of the release of radioactive materials to the environment;

Comply. Sections 6.2.1 and 6.2.3.

3. Facilities and supplies at the site for decontamination of onsite individuals;

Comply. Section 6.5.2 and Appendix E.

4. Facilities and medical supplies at the site for appropriate emergency first aid treatment;

Comply. Section 6.5.2.

5. Arrangements for the services of physicians and other medical personnel qualified to handle radiation emergencies on-site;

Comply. Sections 5.3.2.1, 5.3.2.2, and 5.3.2.4

6. Arrangements for transportation of contaminated injured individuals from the site to specifically identified treatment facilities outside the site boundary;

Comply. Sections 5.3.2.1 and 5.3.2.5.

7. Arrangements for treatment of individuals injured in support of licensed activities on the site at treatment facilities outside the site boundary;

Comply. Sections 5.3.2.1 and 5.3.2.2.

8. A licensee onsite technical support center and a licensee near-site emergency operations facility from which effective direction can be given and effective control can be exercised during an emergency;

Comply. Sections 7.1.2 and 7.1.3.

9. At least one onsite and one offsite communications system; each system shall have a backup power source.

Comply. Sections 7.2 through Section 7.2.7. Figure 7-2 and Table 7-2.

All communication plans shall have arrangements for emergencies, including titles and alternates for those in charge at both ends of the communication links and the primary and backup means of communication. Where consistent with the function of the governmental agency, these arrangements will include:

a. Provision for communications with contiguous State/local governments within the plume exposure pathway EPZ. Such communications shall be tested monthly.

Comply. Figure 7-2 and Section 8.1.2.5.a.

b. Provision for communications with Federal emergency response organizations. Such communications systems shall be tested annually.

Comply. Figures 7-2 and 5-3. Sections 8.1.2.5.b and 8.1.2.5.d.

c. (Provision for communications among the nuclear power reactor control room, the onsite technical support center, and the near-site emergency operations facility;) (and among the nuclear facility, the principal State and local emergency operations centers, and the field assessment teams.) (Such communications systems shall be tested annually.)

1. Comply. Figure 7-2.

2. Comply. Figure 7-2 and Section 7.2.7.

3. Comply. Sections 8.1.2.5.a, 8.1.2.5.c, and 8.1.2.5.e.

d. (Provisions for communications by the licensee with NRC Headquarters and the appropriate NRC Regional Office Operations Center from the nuclear power reactor control room, the onsite technical support center, and the near-site emergency operations facility.) (Such communications shall be tested monthly.)

1. Comply. Figure 7-2. USNRC ENS and HPN circuits.

2. Comply. Section 8.1.2.5.d.

F. Training

The program to provide for (1) the training of employees and exercising, by periodic drills, of radiation emergency plans to ensure that employees of the licensee are familiar with their specific emergency response duties and (2) the participation in the training and drills by other persons whose assistance may be needed in the event of a radiation emergency shall be described. This shall include a description of specialized initial training and periodic retraining programs to be provided to each of the following categories of emergency personnel:

Comply. Section 8 and Table 8-1.

- | | |
|---|---|
| a. Directors and/or coordinators of the plant emergency organization; | <u>Comply.</u> Table 8-1 (items 1 and 9). |
| b. Personnel responsible for accident assessment, including control room shift personnel; | <u>Comply.</u> Table 8-1 (item 2). |
| c. Radiological monitoring teams; | <u>Comply.</u> Table 8-1 (items 2 and 3). |
| d. Fire control teams (fire brigades): | <u>Comply.</u> Table 8-1 (item 4). |
| e. Repair and damage control teams; | <u>Comply.</u> Table 8-1 (item 4). |
| f. First aid and rescue teams; | <u>Comply.</u> Table 8-1 (item 5). |
| g. Medical support personnel; | <u>Comply.</u> Table 8-1 (item 7). |
| h. Licensee's headquarters support personnel; | <u>Comply.</u> Table 8-1 (items 9, 10, and 11). |
| i. Security personnel. | <u>Comply.</u> Table 8-1 (item 8). |

In addition, a radiological orientation training program shall be made available to local services personnel, e.g., local Civil Defense, local law enforcement personnel, local news media persons.

Comply. Sections 8.4 and 8.5.

(The plan shall describe provisions for the conduct of emergency preparedness exercises.) (Exercises shall test the adequacy of timing and content of implementing procedures and methods, test emergency equipment and communication networks, test the public notification system, and ensure that emergency organization personnel are familiar with their duties.)

1. Comply. Section 8.1.2.

2. Comply. Section 8.1.2.

Each licensee shall exercise at least annually the emergency plan for each site at which it has one or more power reactors licensed for operation.

Comply. Sections 8.1.2.1 and 8.1.2.2

Both full-scale and small-scale exercises shall be conducted and shall include participation by appropriate State and local government agencies as follows:

Comply. Sections 8.1.2.1 and Section 8.1.2.2.

1. A full-scale exercise which tests as much of the licensee, State, and local emergency plans as is reasonably achievable without mandatory public participation shall be conducted;

a. For each site at which one or more power reactors are located and licensed for operation, at least once every five years and at a frequency which will enable each

State and local government within the plume exposure pathway EPZ to participate in at least one full-scale exercise per year and which will enable each State within the ingestion pathway to participate in at least one full-scale exercise every three years.

b. For each site at which a power reactor is located for which the first operating license for that site is issued after the effective date of this amendment, within one year before the issuance of the operating license for full power, which will enable each State and local government within the plume exposure EPZ and each State within the ingestion pathway EPZ to participate.

PECo recognizes the need to perform this exercise.

2. The plan shall also describe provisions for involving Federal emergency response agencies in a full-scale emergency preparedness exercise for each site at which one or more power reactors are located and licensed for operation at least once every 5 years;

Comply. Section 8.1.2.1.

3. A small-scale exercise which tests the adequacy of communication links, establishes that response agencies understand the emergency action levels, and tests at least one other component (e.g., medical or offsite monitoring) of the offsite emergency response plan for licensee, State, and local emergency plans for jurisdictions within the plume exposure pathway EPZ shall be conducted at each site at which one or more power reactors are located and licensed for operation each year a full-scale

Comply. Sections 8.1.2.2 and 8.1.2.3.

exercise is not conducted which involves the State(s) within the plume exposure pathway EPZ.

All training, including exercises, shall provide for formal critiques in order to identify weak areas that need corrections. Any weaknesses that are identified shall be corrected.

Comply. Section 8.1.2.

G. Maintaining Emergency Preparedness

Provisions to be employed to ensure that the emergency plan, its implementing procedures, and emergency equipment and supplies are maintained up to date shall be described.

Comply. Sections 8.2 and 8.3.

H. Recovery

Criteria to be used to determine when, following an accident, reentry of the facility would be appropriate or when operation could be resumed shall be described.

Comply. Section 6.4.1.1.g. Section 9. Section 5.4 describes the organization which would determine such criteria under existing condition.

QUESTION 810.1

As per Regulatory Guide 1.70, provide curves for thyroid doses of 5, 25, 150, and 300 REM in Appendix B.

RESPONSE

As indicated in Figure B-1 Sheet 1, provided in Appendix B of the Limerick Emergency Plan, the thyroid doses do not exceed 5 rem for any location outside the plant enclosures, either onsite or off-site. The requested thyroid dose curves therefore cannot be calculated. However, thyroid dose curves for 1 rem and .5 rem have been provided at distances from 200 to 700 meters (within the exclusion area boundary) to indicate the extent of the post design basis accident (DBA) loss of coolant accident (LOCA) thyroid doses. These low thyroid doses are due to the fact that the Limerick plant has been designed with a reactor enclosure recirculation filtration system in addition to the standby gas treatment system (SGTS) in order to minimize iodine releases following a postulated DBA LOCA. The thyroid dose curves indicate that the thyroid dose Protective Action Guide limits would not be exceeded for a DBA LOCA and evacuation would not be necessary. However, protective actions may be required for the potential whole body doses as indicated on Figure B-1 Sheet 2 of Appendix B.

THIS EMERGENCY PLAN SET HAS BEEN
UPDATED TO INCLUDE REVISIONS
THROUGH 5 DATED 03/83

QUESTION 810.2

Review of Section 13.3 Appendix A cannot be completed until after the information identified as "later" in Exhibits A-1 through A-5 is submitted. Either provide this information or a schedule for submittal of this information.

RESPONSE

Exhibits A-1 through A-5 of the Limerick Generating Station Emergency Plan are reserved for Letters of Agreement with State and County emergency management agencies. It is appropriate to finalize these agreements in conjunction with the State and County emergency plans which form the basis for the agreements. Therefore, Philadelphia Electric Company expects to submit the letters of agreement as an Emergency Plan revision in the first quarter of 1984 as the State and County plans enter the Federal Emergency Management Agency Regional Assistance Committee (FEMA RAC) review process.

QUESTION 810.2

Review of Section 13.3 Appendix A cannot be completed until after the information identified as "later" in Exhibits A-1 through A-5 is submitted. Either provide this information or a schedule for submittal of this information.

RESPONSE

Exhibits A-1 through A-5 of the Limerick Generating Station Emergency Plan are reserved for Letters of Agreement with State and County emergency management agencies. It is appropriate to finalize these agreements in conjunction with the State and County emergency plans which form the basis for the agreements. Therefore, Philadelphia Electric Company expects to submit the letters of agreement as an Emergency Plan revision in the first quarter of 1983 as the State and County plans enter the Federal Emergency Management Agency Regional Assistance Committee (FEMA RAC) review process.

QUESTION 810.3

The review of Section 13.3 cannot be completed until after Appendix G is available. Provide this information or a schedule for submittal of this information.

RESPONSE

| Appendix G of the Limerick Generating Station Emergency
| Plan is reserved for applicable State and County
emergency plans and the PECO Corporate Communications
Plan. State and County plans will undergo review by the
Federal Emergency Management Agency Regional Assistance
Committee (FEMA RAC) in accordance with 44 CFR Part 350.
Therefore, Philadelphia Electric Company expects to
submit the applicable State and County plans as an
Emergency Plan revision after the FEMA RAC review is
completed in the first quarter 1984. Philadelphia
Electric Company expects to submit the PECO Corporate
Communications Plan as an Emergency Plan revision in the
third quarter of 1982.

QUESTION 810.4

Individuals at the State and local level responsible for making protective action recommendations should be identified and indication should be given as to 24-hour per day manning of communication links.

RESPONSE

Individuals at the State and local level responsible for making protective action recommendations will be identified when the applicable State and local plans are finalized. These plans should be finalized first quarter 1984.

QUESTION 810.5

The offsite interface for each organization and suborganization should be clearly indicated for the following:

(a) protective action decision making, (b) coordinating of monitoring results, and (c) coordinating onsite and offsite evacuation.

This should include a block diagram that shows these interfaces with onsite centers.

RESPONSE

(a) Protective action decision making rests primarily with the Office of the Governor of Pennsylvania. Communication links between the Bureau of Radiation Protection office and the site emergency facilities provide the capability for data transmission to the Bureau and dialogue on appropriate protective action recommendations. As prescribed in the Pennsylvania State Plan, the Bureau passes protective action recommendations on to the Pennsylvania Emergency Management Agency which is responsible for making a recommendation to the Governor, and for directing the counties to implement the Governor's recommendation. The Emergency Director and Site Emergency Coordinator are the primary licensee contacts with the Bureau. This may be delegated to the Dose Assessment Team.

As the State plans are finalized first quarter 1984, the interfaces will be addressed more specifically. Figure 3.2 provides a block diagram indicating the basic interface.

- (b) The licensee Field Survey Teams feed survey data to the Emergency Operations Facility. The Bureau office receives data from their own survey teams. The communication links indicated in 810.5(a) enable exchange of survey data between the Bureau and the EOF. The Field Survey Team or Dose Assessment Team participate in this exchange.

As the State plans are finalized first quarter 1984, the interfaces will be addressed more specifically. Figure 3.2 provides a block diagram indicating the interfaces.

- (c) Onsite evacuation is controlled by LGS personnel. LGS personnel will inform offsite officials of plans to evacuate the site. Since offsite evacuation is controlled by other agencies, the onsite and offsite evacuations are conducted independently except for the exchange of information which would occur between utility and state representatives at the EOF. This exchange allows coordination of the on-site and off-site evacuation.

Sections 5.2.1.1 and 5.2.1.2 address utility personnel responsible for on-site protective actions including evacuation. The State plan when finalized will address personnel responsible for off-site evacuation.

QUESTION 810.6

All of the steps required to implement protective action decisions should be clearly specified.

RESPONSE

The Bureau of Radiation Protection is responsible for recommending protective actions to the Pennsylvania Emergency Management Agency. Any emergency situation would be expected to develop gradually. The rate of escalation from class to class permits time to establish contact with the Bureau of Radiation Protection. Contact will normally be via telephone. Direct dialogue occurs when the Bureau representatives arrives on site and is party to any briefing sessions convened by the Site Emergency Coordinator. Plant status, projected doses, meteorology and other pertinent information are evaluated. Licensee recommendations are expressed. The Bureau eventually decides which PECO recommended protective actions are appropriate and so informs PEMA. PEMA then discusses these with the Governor who makes a decision. Then PEMA contacts the counties with the protective action recommendation.

For the situation when a General Emergency is declared immediately without previous escalation from lower level emergencies, the Emergency Director provides protective action recommendations directly to the county EOC's, as well as to the Commonwealth, when the initial prompt notification is made.

Section 6.4 indicates notification, assembly and accountability of personnel in a protective action. Step by step implementation is delineated in emergency procedures submitted in December 1983.

QUESTION 810.7

Copies of the final State and local plans should be provided in accordance with 10 CFR 50.47, including State plans (Md., N.J., Delaware) dealing with the ingestion pathway protective responses.

RESPONSE

Copies of the final State and local plans are expected to be available in the first quarter of 1984 and will be incorporated into the LGS plan when received.

QUESTION 810.8

Copies of letters of agreement with PEMA & BRP, Montgomery Co. of Emergency Preparedness, Chester Co. Dept of Emergency Services, Berks Co. Emergency Management Agency, States of Md., N.J., and Delaware, GE, and Bechtel should be provided.

RESPONSE

Letters of agreement with the various agencies and contractors will be provided as the agencies plans are finalized and agreements can be obtained. Letters of agreement with contractors will be incorporated into the Emergency Plan in the first quarter of 1984.

QUESTION 810.9

All agreements should be reviewed and certified as current.

RESPONSE

All agreements will be reviewed, made current, and incorporated into the Emergency Plan in the first quarter of 1984.

QUESTION 810.10

The relationship between the working level emergency organization and the normal plant staff should be specified.

RESPONSE

Working level emergency personnel report to the Emergency Director. The normal shift staff report through the Shift Superintendent to the Emergency Director. The Emergency Director, who is the Station Superintendent, can draw additional resources from plant staff who are not assigned specific emergency duties. Section 5.1 has been changed to reflect this.

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QUESTION 810.11

Clarify how the TSC, OSC, and EOF are activated and who has responsibility for the function within each emergency facility.

RESPONSE

| The TSC, OSC, and EOF activation are addressed in
| procedures submitted in December, 1983.

QUESTION 810.12

Section 3.4.3 of the Plan indicates that for a Site or General Emergency the VP, Electric Production Dept. will activate the PECO HQ Emergency Control Center. Clarify who is onsite (Corporate Recovery Manager) in the EOF within 1 hr. Also specify the criteria for the transfer of overall responsibility for the direction and control of the integrated emergency response effort from the control room to the EOF and how this transfer of responsibility is indicated to all appropriate officials (onsite - offsite).

RESPONSE

Refer to Appendix I, Table I-1 for definition of who is onsite at the EOF within 1 hour.

The transfer of responsibility from the control room to the TSC is as shown in Section 5.2.1.2. The transfer of responsibility from the TSC to the EOF is shown in a revised Section 5.2.1.3.

QUESTION 810.13

Section 5.1 of the Plan indicates that the minimum shift complement per unit will consist of nine operating members. However, the applicant should clarify how this correlates with Table B-1 of NUREG-0654, elaborate on the 30-60 min augmentation capabilities, and clarify the .5-8 hr augmentation sited in Figure 5-5.

RESPONSE

Figure 5.5 is not intended as a schedule of augmentation. It is to show personnel and facilities that would be utilized within a time frame based on time for call-out and transit in unfavorable weather and traffic conditions. Refer to Appendix I, Table I.1 for comparison to Table B-1, NUREG-0654.

QUESTION 910.14

The Plan indicates that Federal assistance can be requested through the Site Emergency Coordinator and for the Emergency Control Officer. However, this Section should be expanded to include information requested in NUREG-0654, Criteria c.1.b, c.1.c, and c.2.b.

RESPONSE

The Emergency Plan will be changed to reflect Criteria c.1.b, c.1.c, and c.2.b in a later revision when information regarding the resources to be expected and the off-site governmental emergency operations centers are finalized. This change is expected in the first quarter of 1984.

QUESTION 810.15

The Plan should identify radiological laboratories and their general capabilities and expected availability to provide emergency radiological monitoring and analysis services.

RESPONSE

The Plan will include a description of the on-site chemical laboratories and counting room capabilities as these facilities are equipped. Contracted services for analytical analysis will be identified when determined.

This information will be incorporated into the Emergency Plan in the first quarter of 1984.

QUESTION 810.16

Additional information should be provided for the following EALS:

- (a) unusual event - items 2, 3a, 5
- (b) alert - items 1a, 5, 6, 15
- (c) site - items 1, 10, 13a & b, 18
- (d) general - items 1a & b

RESPONSE

- | a) Item 2 - Will be completed when LGS Technical Specifications are completed.
- | Item 3a - See Table 4-2 IV.a.
- | Item 5 - Will be completed when LGS Technical Specifications are completed.
- | Item 6 - See Table 4-2 V.f.

- | Item 15 - Will be completed when LGS Technical Specifications are completed.

- | c) Item 1 - See Table 4-2 V.e.
- | Item 10 - See Table 4-2 IV.c.
- | Item 13a - Will be completed later.
- | Item 13b - See Table 4-2 IV.c.
- | Item 18 - See Table 4-2 VIII.a.

- | d) Item 1a - Will be completed later.
- | Item 1b - See Table 4-2 IV.d.

QUESTION 810.17

The following areas need to be addressed.

- (a) unusual event - items 4, 9, 12, 13, 14e, 15
- (b) alert - items 4, 7, 8, 9, 10, 14, 16, 17b, 18d & e, 19, 20
- (c) site - items 2, 9, 12, 13c, 14, 15b & c, 16, 17
- (d) general - items 2, 3, BWR-sequences, 6a-d, 7

RESPONSE

a) Item 4 - Exceeding technical specifications in these areas may result in a reactor shutdown, which is an existing EAL addressed in Table 4.2, Item Ia.

Item 9 - Exceeding technical specifications in these areas may result in a reactor shutdown, which is an existing EAL in Table 4.2, Item Ia.

Item 12 - Security threats, attempted entry or attempted sabotage are handled as per the security plan. See paragraph 2.2.1.

Item 13a - See Table 4.2, Item XIIa.

b - Item b is not applicable as these phenomena do not constitute a plausible threat.

c - See Table 4.2, Item XII b.

d - See Table 4.2, Item XII d.

Item 14e - Rapid plant shutdown causes unusual event notification in accordance with Item I b of Table 4.2, Item Ib.

Item 15 - See category I in Table 4.2 and FSAR Section 6.7.

b) Item 4 - This item was appropriately omitted because LGS has a MSIV Leakage Control System.

Item 7 - See item VII d in Table 4.2.

| Item 8 - See Item VII e in Table 4.2.

| Item 9 - See PSAR Section 15.3.3.

| Item 10 - See Table 4.2, Item XIV a.

| Item 14 - Loss of all or most annunciators is caused by loss of DC power which is covered in a conservative fashion in Table 4.2, Item VII c.

| Item 16 - An ongoing security compromise is handled as per the security plan. See Section 2.2.1.

| Item 17b - Item b is not applicable as these events do not constitute a plausible threat.

| Item 18d - See revised Table 4.2, Item X c.

| Item 18e - This is not included as this highly unlikely event would only initiate an alert if damage occurs which is covered by other EALS in the turbine enclosure.

| Item 19 - Table 4.2 Item IVb and Vg.

| Item 20 - See Table 4.2, Item VIII d.

| c) Item 2 - See Table 4.2, Item III c.

| Item 9 - See Table 4.2, Item II b.

| Item 12 - Loss of all or most annunciators is caused by a loss of DC power which is covered in Item VII d of Table 4.2.

| Item 13 c - See Items III c in Table 4.2 for a more conservative response.

| Item 14 - An ongoing adversary event which threatens imminent loss of physical control of the plant will be handled as per the security plan. See Section 2.2.1.

| Item 15b - Item b is not applicable as these events do not constitute a plausible threat.

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| Item 15c - See item XII f in revised Table 4.2.

| Item 16a & b - See item Xc in Table 4.2.

| Item 17 - See Note 1 on Table 4.2 and Item IIIc.

| d) Item 2 - See items III d and IV d in Table 4.2.
| EALs chosen for General Emergency encompass these
| conditions.

Item 3 - An adversary event resulting in the loss
of physical control of the plant will be handled as
per the security plan. See Section 2.2.1.

| Item 6a - See Items III d and IV d in Table 4.2.
EALs chosen for General Emergency encompass these
conditions.

| Item 6b - See Item V.h. in Table 4.2.

| Item 6c - See Item V.h. in Table 4.2.

| Item 6d - See Item V.h. in Table 4.2.

Item 7 - EALs chosen for General Emergency are
sufficient to satisfy this Item.

QUESTION 810.18

Section 6.1 of the Limerick Plan states that the initial notification is made by the shift supervision to PEMA, the risk counties and other response agencies depending on the classification of the event. However, the time frame in which this notification is done is not specified i.e., the time frame for notifying protective action decision makers and providing them with protective action recommendations. The applicant should demonstrate that these officials will be notified within 15 minutes.

RESPONSE

Section 6.1, Paragraph 3 indicates that notification will be done within 15 minutes of the classification of the event.

QUESTION 810.19

Section 6.1 of the Plan states that emergency teams are activated by telephone after duty hours. However, the Plan does not specify how this is done - e.g., activation of call lists or a fan-out system. The applicant should elaborate on the system used and provide for an annual test of the off-duty personnel call-in system.

RESPONSE

| The method of activation is described in procedures
| submitted in December, 1983. Activation and
notification networks will be tested in the annual drill
as described in Section 8.1.22.

QUESTION 810.20

Revise the sample formats for initial and followup messages to contain a section for possible protective action recommendations as per E.3. of NUREG-0654 and 50.47(5) of 10 CFR 50.

RESPONSE

Exhibit F-3 provides for making protective action recommendations in accordance with NUREG-0654, Section E-3 and 50.47(5) of 10 CFR 50.

QUESTION 810.21

Provide a complete description of the administrative and physical means for prompt alerting and notification of the public within the plume EPZ in sufficient detail to allow for evaluation against the criteria set forth in Appendix 3 of NUREG-0654.

RESPONSE

The administrative and physical means for prompt alerting and notification of the public are presently under development. Details regarding these will be provided in the first quarter of 1984.

QUESTION 810.22

Provide sample formats of written messages intended for release to the public in the event of a serious emergency. These messages should cover such items as those stated in Criterion E.7 of NUREG-0654.

RESPONSE

Written news releases of a serious emergency at the Limerick Generation Station will follow this format:

Philadelphia Electric Company declared a general emergency at its Limerick Generating Station at _____ (time) today. A general emergency is the most serious of the four classifications of emergencies that can occur at nuclear plants.

The Company has notified the proper federal, state and local authorities of the emergency. The Pennsylvania Emergency Management Agency has advised the Company that it will order the sounding of alert sirens and will broadcast instructions for protective action to the public over the Emergency Broadcast Systems.

The following stations in the Limerick area will broadcast the instructions: _____

Limerick Generating Station is in the Montgomery County near Pottstown, Pa.

Information will be provided to the State to allow them to develop the messages which direct the public to take protective action.

QUESTION 810.23

Specify the organizational titles and alternates for both ends of the communication links which would be involved in initiating emergency response actions, and to indicate that such stations will be manned 24 hours per day and provided with the appropriate communication with backups, (i.e., delineate all the steps followed from the initial notification of PEMA to activation of the public warning system and provide public information messages on a range of protective actions).

RESPONSE

Sections 5.2.1, 5.2.1.1, 5.2.1.2 describe the titles and alternates for those personnel involved at the site in initiating emergency response actions. Information relating to State and local agency titles will be incorporated into the Emergency Plan when those local plans are finalized in the first quarter of 1984.

| The steps to be followed are described in implementing
| procedures submitted in December, 1983.

QUESTION 810.24

Provide a coordinated communication link for fixed and mobile medical support facilities.

RESPONSE

Arrangements for fixed and mobile medical support facilities have not been finalized. When finalized, communication links will be developed and a description provided in the Emergency Plan. These actions are planned for the second quarter 1984.

Fixed medical facilities are contacted initially by normal facilities telephone lines. Follow-up is done in the same manner. Mobile medical communications is to the dispatcher by normal telephone lines. The mobile medical facilities would communicate with their dispatcher by their pre-established method.

If necessary, off-site radio communications are available to Montgomery County and could be used if normal telephone lines were unavailable.

QUESTION 810.25

Provide communication between the EOF and local EOCs.

RESPONSE

| Communications links between the EOF and local EOCs have
| been designed. Descriptions of the communications
| equipment and the links were provided in Section 7.1 in
| December 1983.

Communications between the EOF and the Montgomery County EOC is by dedicated telephone switch. Additionally, normal telephone lines are available as a backup. Section 7.1 of the Plan describes the available communications systems. Figure 7-2 indicates the possible links between the EOF and off-site EOCs. Notification to Berks and Chester counties is done by PEMA using their communications systems. However, if communications were necessary from the EOF the dedicated telephone switch would be used.

QUESTION 810.26

Provide sufficient information to demonstrate compliance with the guidance of Criterion G.1 and G.2 of NUREG-0654 (i.e., an example of the information to be transmitted annually to the public, explaining the rationale for protective actions). Commit that information will be distributed on an annual basis.

RESPONSE

Section 3.2, Appendix G-9, discusses the distribution of this information.

Brochures will be prepared for the Limerick Generating Station in a cooperative effort among the Pennsylvania Emergency Management Agency, Philadelphia Electric Company and the Pennsylvania Counties of Montgomery, Berks and Chester.

These brochures will be reviewed annually by the state, the counties and the Company and will be reviewed as necessary.

The brochures will be mailed by the Company to all households in the ten mile Emergency Planning Zone.

When these brochures are available, a copy will be included in the Plan.

QUESTION 810.27

Elaborate on method used for annual dissemination of information to transients within the plume EPZ.

RESPONSE

Brochures will be distributed to all hotels, motels, public gathering places and camp grounds in the EPZ with the recommendation that a copy be placed in all rooms and that copies be made available for anyone visiting the area.

Advertising these instructions in telephone books is under consideration.

| QUESTION 810.28

| Indicate how the exchange of information will be
| coordinated between the applicant's spokespersons and
| the respective spokespersons for offsite organizations.
| Also there should be coordinated arrangements for
| dealing with rumors.

| RESPONSE

| Representatives of the states of Pennsylvania, the
| Nuclear Regulatory Commission and the three EPZ counties
| will be invited to participate in news conferences at
| the Company headquarters, 2307 Market Street,
| Philadelphia. Working space will be made available for
| these government representatives in the Company
| headquarters. These representatives will coordinate
| responses to rumors in these facilities.

| Sections 6.5 and 7.0, and Appendix G-9, describe the
| operations of the emergency news center and coordination
| of information. Appendix G-9 (Sections 8.0, 10.0, and
| 11.0) discusses coordination of information.

QUESTION 810.29

Indicate the site that will be used by the news media during an emergency.

RESPONSE

News Conferences will be held in Room G-1 in the basement of the Company headquarters, 2301 Market Street, Philadelphia, Pa. Section 6.5 discusses the Emergency News Center.

QUESTION 810.30

The applicant's Plan does not contain enough information to evaluate the EOF, TSC and OSC against NUREG-0696. The applicant should submit additional information on these facilities by letter for specific ERF review and the Plan should be expanded to fully describe the TSC, OSC and EOF to include a schedule for full operation of the final centers.

RESPONSE

A letter will be submitted containing additional information on these facilities.

The plan will be expanded when final information is available on these facilities. This will include a schedule for full operation.

Additional information available at this time is provided below.

1. EOF

The EOF will have facilities for: management of overall licensee emergency response, coordination of radiological and environmental assessment, determination of recommended public protective actions, and coordination of emergency response activities with Federal, State and Local agencies.

Additional information on the EOF is contained in the December 6, 1982 letter from J. S. Kemper to A. Schwencer, NRC.

a. Location

The Emergency Operations Facility (EOF) is located at Philadelphia Electric Company's Plymouth Service Building which is approximately 17 miles from the plant. The building is framed steel construction with concrete floors and metal decking. Interior walls are of masonry and dry wall construction.

b. Size

The EOF facility is of sufficient size to house 50 persons and equipment required to perform their specific functions. Space is provided for NRC personnel, State and Local officials, Company personnel, records, storage and equipment.

c. Communications

The EOF shall have reliable voice communications facilities to the TSC, the control room, NRC, and State and Local emergency operations centers.

d. Equipment

The EOF will have radiological monitoring equipment providing information for dose assessment. In addition, equipment to monitor plant conditions will be available.

e. Schedule

The EOF construction was completed in the last quarter of 1983. Equipment installation is continuing and will be completed the second quarter 1984.

2. TSC

The Technical Support Center (TSC) will provide plant management and technical support to plant operations personnel during emergency conditions, relieve the reactor operators of peripheral duties and communications not directly related to reactor system manipulations, prevent congestion in the control room and perform EOF functions for the Alert Emergency class and General Emergency class until the EOF is functional.

a. Location

The TSC is located in a two story building on the plant site, east of the water treatment facility. The building is framed steel construction with precast concrete exterior wall panels, concrete floors and metal decking. Interior walls are of masonry and dry wall construction.

b. Size

The TSC facility is of sufficient size to house 25 persons and equipment required to perform their specific functions. Space is provided for NRC personnel, Company personnel, records, storage, communications and kitchen area.

c. Habitability

The facility provides the same radiological habitability as the control room under accident conditions. The ventilation system includes HEPA and charcoal filters. Monitoring systems will be provided in the TSC to continuously indicate airborne radioactivity concentration.

d. Communications

The TSC shall have reliable voice communications to the control room, the OSC, the EOF and the NRC.

e. Equipment

Equipment to provide information for dose assessment and plant conditions assessment will be provided.

f. Schedule

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The facility construction was completed in 1983. Equipment installation is continuing and will be completed second quarter 1984.

3. OSC

Section 7.1.4 in the LGS EP, Rev. 7 describes the Operations Support Center.

The facility should be completed by March 1984.

QUESTION 810.31

Specify the time required to achieve operational readiness of the emergency response facilities.

RESPONSE

| Procedures submitted in December, 1983 delineate the
| steps to achieve operational readiness. The time to
| achieve operational readiness will be tested after
| completion of the facilities in the second quarter of
| 1984.

QUESTION 810.32

The applicant's Plan does not contain enough information to evaluate onsite monitoring systems against criteria H.5.a of NUREG-0654. The monitors identified should include those used for obtaining Emergency Action Levels for the appropriate initiating conditions listed in Appendix 1 of NUREG-0654.

RESPONSE

| Instruments and their location pertinent to the EALs are
| identified in an implementing procedure submitted in
| December, 1983.

Section 7.3 provides information concerning the geophysical phenomena monitors (Criteria H.5.a of NUREG 0654) including meteorological data, hydrological data (river flow, liquid discharges) and seismic (accelographs and seismic switches). Section 7.3 references the sections of the FSAR where the instrumentation is described.

QUESTION 810.33

Include provision for obtaining offsite information regarding geophysical phenomena as specified in criteria H.6.a of NUREG-0654.

RESPONSE

See FSAR Sections 2.3.2, 2.3.3.2.4, 2.4.3.5.1 and 3.7.4 for site and regional geophysical data.

In addition, wind speed, wind direction and temperature are continuously recorded from the site meteorology stations and the National Weather Service. Water temperature and flow are available from USGS gauging stations on the Schuylkill. Seismic monitoring is by triaxial accelerograph and response spectrum analyzer located in the plant.

QUESTION 810.34

Finalize plans and provide sufficient information to establish that there is offsite dosimetry and that it will meet the requirements of the NRC Radiological Assessment Branch Technical Position for the Environmental Radiological Monitoring Program.

RESPONSE

Refer to ER-OL Section 6.1.5 for the requested information.

QUESTION 810.35

Provide information pertaining to meteorological capabilities addressed in the criteria set forth in Appendix 2 to NUREG-0654 by adopting the interim compensatory measures. The Plan must be revised to address the long term measures described in Appendix 2 of NUREG-0654 to include a schedule for full operational capability and how topographical influences and change in meteorological conditions will be considered.

RESPONSE

| The RMMS will be installed during 1984. Section 6.2 has
| been revised to include information on the RMMS.

QUESTION 810.36

Make provisions to inspect, inventory and operationally check emergency equipment/instruments at least once each calendar quarter and after each use. Also, make provisions to calibrate equipment at intervals recommended by the equipment supplier(s).

RESPONSE

Section 8.3 discusses on inventories and operational checks of equipment/instruments.

Equipment will be calibrated at intervals recommended by the suppliers.

QUESTION 810.37

Explain how offsite monitoring results will be coordinated with offsite officials in accordance with NUREG-0654, criteria H.12.

RESPONSE

See response to Question 810.5(b).

The Emergency Operations Facility serves as the central location for coordinating response activities between site and off-site groups. Support activities, field surveys, environmental sampling and analyses, dose projection calculations and communicating with the Bureau of Radiation Protection are some of the major functions coordinated in the Emergency Operations Facility.

QUESTION 810.38

Identify and establish emergency procedures based on plant system and effluent parameter values characteristic of a spectrum of off-normal conditions and accidents and identify the plant parameter values, etc. which normally correspond to NUREG-0654, Appendix 1 example initiating conditions.

RESPONSE

| Emergency procedures which address plant characteristics
| and parameters to be used to determine an off-normal
| condition were submitted in December, 1983.

QUESTION 810.39

Delineate the method and techniques used in post-accident sampling; this additional information should encompass guidance material given in NUREG-0737, Items II.B.3, II.F.1, and III.D.3.3.

RESPONSE

| The methods and techniques were described in procedures
| submitted in December, 1983.

QUESTION 810.40

Provide the methods and techniques for determining the source term of radioactive material releases within plant systems and the magnitude of radioactive material releases based on plant system parameters and effluent monitors (e.g. the relationship between containment radiation monitor(s) reading(s) and radioactive material available for release from containment).

RESPONSE

| Appendix B and Emergency Procedures provide the
| mechanism for correlating the containment high radiation
| monitor readings (R/hr) to the percent of fuel inventory
| released to the containment atmosphere as a function of
| time after plant shutdown. The percent of fuel
| inventory can be converted to radioactivity (curies) by
| multiplying by an isotopic spectrum determined by the
| post-accident sampling system (PASS). For periods when
| the PASS isotopic spectrum is not available, a default
| core activity spectrum from FSAR Table 15.6-19 can be
| used. Adjustments for isotopic decay can be made if
| desired. Section 6.2.3 has been changed to reference
| Appendix B.

QUESTION 810.41

Establish and provide the methods used to relate releases to plume center line whole body dose rates out to 10 miles under various stability classes and wind speeds.

RESPONSE

Meteorological data obtained from the redundant meteorological towers is used by the Radiation and Meteorological Monitoring System (RMMS) to calculate the atmospheric dispersion coefficients (X/Qs) for distances up to 10 miles. The methodology of Regulatory Guides 1.111 and 1.145 is used to calculate the X/Qs for each of the 16 sectors up to 10 miles. The gross activity release rate measured by the effluent monitors is connected to an isotopic release rate using an isotopic breakdown of a grab sample analyzed in the counting laboratory. This isotopic release rate, decayed during transit to the receptor location, is then used with the X/Qs and the Regulatory Guide 1.109 dose conversion factors to calculate the plume center line whole body dose rates. Dose rates are calculated using the Regulatory Guide 1.109 methodology.

The details of the methodologies are included in the documentation for the RMMS, parts of which are incorporated into the Emergency Procedures for using the RMMS during an accident.

Additional information relating to the RMMS is in Section 6.2.1 of the Plan.

QUESTION 810.42

Establish the capability of acquiring and evaluating meteorological information sufficient to meet criteria of Appendix 2 at EOF, TSC and CR. Also make suitable meteorological data processing interconnections available to the State to permit independent analysis.

RESPONSE

The meteorological system is presently being designed. The Emergency Plan will be changed to provide the requested information in the first quarter of 1984.

QUESTION 810.43

.Provide for immediately estimating the distance from the site to which the EPA PAGs may be exceeded (not only to 10 miles) to include default release durations for integrating dose rates.

RESPONSE

This information will be provided in the first quarter of 1984 when development of the dose assessment system is complete.

Section 6.2.1 has been revised to incorporate information relating to the dose assessment system. Procedures for backup to the system were submitted in December, 1983.

QUESTION 810.44

Provide a specific means for determining release rate(s)/projected dose(s) if instrumentation used for assessment is offscale or inoperable. The plan should reference appropriate implementing and operating procedures which would give such detailed information as default release times, etc.

RESPONSE

| See LGS EP section 6.2.3, 6.2.3.1, 6.2.3.2, 6.2.3.3, 6.2.3.4. Procedures were provided in December, 1983.

QUESTION 810.45

Elaborate on the capability and resource for field monitoring within the plume EPZ. This section should also provide estimates of deployment time and means of transportation to be used by personnel involved in offsite radiological assessment of liquid or gaseous releases.

RESPONSE

See Emergency Plan Section 6.2 and Figure 5.2 for PECO field survey capability. Assistance in field surveys can also be requested from RMC Corporation, the EPA, the DOE Brookhaven National Laboratory and the PA BRP within the plume EPZ. See Section 6.2 for estimates of deployment time and means of transportation.

QUESTION 810.46

Provide more detailed information concerning the methodology for detecting airborne radioiodine concentration within the plume EPZ without noble gas interference and for relating measured field radiation/contamination levels to dose rates for applicable isotopes listed in Table 3 of NUREG-0654.

RESPONSE

The plume EPZ radioiodine air sampling program involves the use of a battery operated air sampler, charcoal or silver zeolite cartridge, particulate filters and the Eberline SAM-2/RD19 detector system. This system provides the capability to detect 10^{-7} uCi/cc I-131, per NUREG-0654. Silver zeolite cartridges are used to avoid significant absorption of noble gases when sampling for iodine. Further the dual channel capability of the SAM-2 is used to subtract counts attributed by energies above I-131.

QUESTION 810.47

Describe the provisions for promptly determining radioiodine release rates to include the criteria for conducting offsite monitoring and response time if the stack sampler locations are inaccessible.

RESPONSE

The computerized radiation monitoring system provides on-line input for normal range iodine releases. The high range effluent monitors are designed to provide access to the particulate and iodine sample during emergency conditions. The samples are transported to the counting lab via a dumbwaiter. After analysis, release data is manually entered into the counting lab computer which will interface with the meteorological dose model.

QUESTION 810.48

Establish and provide the method(s) for relating the various measured parameters to dose rates for key isotopes and gross radioactivity measurements. Also, provide method(s) for estimating integrated dose from projected and actual dose rates and for comparing these estimates with EPA PAGs.

RESPONSE

The various measured parameters, e.g., meteorological parameters and effluent monitor readings are automatically entered into the Radiation and Meteorological Monitoring System (RMMS). These parameters are updated continuously to insure the availability of a current data base. Parameters such as isotopic breakdown obtained from grab sample analysis is manually entered.

The meteorological data, effluent monitor readings and grab sample analysis data are used to calculate dose rates using the methodologies of Regulatory Guides 1.109, 1.111, and 1.145. Integrated doses are calculated by summing dose rates x time factors continuously. Dose projections are calculated by assuming that current release rates and meteorology are constant for a specified time into the future. Dose projections are presented graphically for comparison with EPA PAG's.

Manual entry of all parameters required by the RMMS for dose calculations is also available.

| The computer operating procedures and details for the
| use of the RMMS are included in the Systems Procedures
| which will be available in July, 1984.

QUESTION 810.49

Provide plots which show high range containment radiation monitor readings vs. time for various accident conditions (e.g., 100% release of gap activity, and 1% and 10% of release of full inventory) and incorporate these into the EALs.

RESPONSE

| The plots of containment radiation monitor readings
| versus time, and the mechanism for converting these
| readings to percent of core inventory released are
| included in Appendix B and are discussed in Section
| 6.2.3.1.

QUESTION 810.50

Specify the means and time required to warn or advise onsite individuals and individuals who may be in the owner-controlled areas.

RESPONSE

See LGS EP Section 6.4.1.16.

QUESTION 810.51

Provide more information pertaining to the accountability process for all individuals onsite to include how the 30 minute accountability goal is addressed.

RESPONSE

See Emergency Plan Section 6.4.1.1d. The implementing procedures will be written with the goal of 30 minute accountability. The implementing procedure was submitted in December, 1983.

QUESTION 810.52

Provide the information set forth in NUREG-0654, criteria J.10.a., c., d. and m.

RESPONSE

Criterion J.10.a - This data for the evacuation of the public will be developed by the State and submitted as part of their plan. The PECO. preselected radiological sampling points are being determined.

Criterion J.10.c - This area is currently being studied by the Philadelphia Electric Company.

Criterion J.10.d - This is not applicable to the licensee per NUREG-0654.

Criterion J.10.m - See revised Emergency Plan Section 6.4.1.2.c - Implementing procedures were provided in December, 1983.

QUESTION 810.53

Discuss the time required to make radioiodine measurements and how it will be assured that KI and other onsite protective measures will be taken in time to be effective.

RESPONSE

An estimated time required to make radioiodine measurements is one hour. This allows for retrieval and analysis of iodine cartridges and interpretation of field survey data. When radioiodine measurements indicate an exposure of 10 rem or more to the thyroid, the Radiation Protection Team Leader and the Personnel Dosimetry, Bioassay and Respiratory Group Leader directs administration of KI to employees and other support personnel.

A procedure describing this was submitted in December, 1983.

QUESTION 810.54

Commit to recommend protective measures (shelter or evacuation) to the offsite officials with the authority and responsibility to make protective action decisions based on:

- (a) the distance from the plant at which the EPA PAGs are exceeded,
- (b) Plant core conditions - under core melt conditions (existing or projected) recommend evacuation of 2 miles around the site and 5 miles down wind,
- (c) use of key-hole approach (not just in a down wind direction) and,
- (d) offsite factors such as evacuation time or special facilities that may effect the effectiveness of action recommended. Commit to review this methodology with offsite officials annually.

RESPONSE

Recommend protective actions to reduce whole body and thyroid dose from exposure to a gaseous plume or based on the following projected doses to the population:

Projected Dose (Rem) to the Population	Recommended Actions	Comments
Whole body 1 Thyroid 45	No planned protective actions. State may issue an advisory to seek shelter and await further instruction. Monitor environmental radiation levels.	Previously recommended protective actions may be reconsidered or terminated.
Whole body 1 to 5	Seek shelter as a minimum. Consider evac-	If constraints exist, special con-

Thyroid 5 to 25	uation. Evacuate unless constraints make it impractical. Monitor environmental radiation levels. Control access.	sideration should be given for evacuation of children and pregnant women.
Whole body 5 and above	Conduct mandatory evacuation. Monitor environmental radiation levels and adjust area for mandatory evacuation based on these levels	Seeking shelter would be an alternative if evacuation were not immediately possible.
Thyroid 25 and above	Control access.	

Protective action decisions at the time of the incident must take existing onsite and offsite conditions into consideration. Officials may implement low-impact protective actions in keeping with the principle of maintaining radiation exposures as low or reasonably achievable. A commitment to define guidelines for determining plume exposure protective action recommendations for local emergency management and civil defense agencies is provided in Section 6.5.1.2c. These recommendations are based on the distance from the plant at which the EPA PAGs are exceeded, plant core conditions and other offsite factors such as evacuation time, prevailing weather conditions and whole body and thyroid dose. Methodology will be reviewed with offsite officials annually.

QUESTION 810.55

Include the emergency exposure guidelines for individuals involved in personnel decontamination, ambulance service, and medical treatment.

RESPONSE

The emergency exposure guidelines are as follows:

Projected Dose (Rem) to the Population	Recommended Actions	Comments
Whole body 25 Thyroid 125	Control exposure of emergency team members to these levels except for life-saving missions. (Appropriate controls for emergency workers, include time limitations, respirators, and stable iodine.)	Although respirators and stable iodine should be used where effective to control dose to emergency team workers, thyroid dose may not be a limiting factor for lifesaving missions.
Whole body 75 Thyroid 375	Control exposure of emergency team members performing lifesaving missions to this level. (Control of time of exposure will be most effective.)	

(a) These actions are recommended for planning purposes. Protective action decisions at the time of the incident must take existing conditions into consideration.

| These were incorporated in a procedure submitted in
| December, 1983.

QUESTION 810.56

The applicant should elaborate on the emergency radiation protection program to include distinctions from their normal radiation protection program, how it is initiated and implemented.

RESPONSE

The major distinction between the normal and the emergency radiation protection programs is in the organization. The emergency organization arranges qualified individuals into small groups with highly specialized functions. Additional training is required to develop proficiency in these specialized area. Organization is discussed in Section 5 and training is discussed in Section 2.

Certain distinctions are made between the normal Health Physics staffing and the Emergency Health Physics staffing. The Emergency Health Physics program is initiated and implemented through emergency procedures which will be prepared for Limerick shortly before fuel loading.

QUESTION 810.57

Include specific action levels used in determining the need for decontamination and the means of decontaminating personnel wounds, supplies, instruments, and equipment.

RESPONSE

In an emergency situation, standard good practices in decontamination will be followed. Procedures similar to Peach Bottom Atomic Power Station HPO/CO's specific for decontamination will be developed and applied in emergency situations. For personnel surveys showing 100 cpm, or greater, above background (using an HP-210 or HP-260 probe) decontamination will be initiated. The materials required will be readily available at the appropriate locations and listed with other supplies. Wound decontamination is discussed in Peach Bottom procedures and equipment and tools are addressed as well. The necessary references and information will be included in the LGS Emergency Plan and procedures when the procedures are finalized shortly before fuel loading.

QUESTION 810.58

Provide more information concerning onsite contamination control measures and address the criteria for permitting return of areas and items to normal use.

RESPONSE

Standard good health physics practices shall be used in an emergency to prevent the spread of contamination until it is determined that personnel must evacuate an area.

An area may be returned to "normal" use only when area surface and airborne surveys indicate that this is possible. Until then, health physics supervision shall determine what protective actions must be taken by persons entering contaminated areas for justifiable reasons.

| Implementing procedures were provided in December, 1983.

QUESTION 810.59

Discuss the provisions for decontaminants suitable for the contamination expected - giving particular attention to radioiodine contamination of the skin.

RESPONSE

Personnel decontamination kits will be available in several predetermined places. These kits are designed to provide materials for all general types of skin and wound contamination clean-up. It is not within good ALARA practices to do an isotopic determination before personnel decontamination efforts are initiated. When an individual exceeds the 100 cpm above background guideline, decontamination will begin as soon as possible. The decontamination supplies chosen have been shown to be effective when used for all expected isotopic contaminations. In cases where it is necessary, follow up actions will include an isotopic determination. More information will be provided in the Emergency Plan when the implementing procedures are completed. Procedures and related Emergency Plan changes will be provided shortly before fuel loading.

QUESTION 810.60

Provide the following:

- (a) general plans and procedures for reentry and recovery and the means by which decisions are reached to relax protective measures,
- (b) means for informing members of the response organizations that a recovery operation is to be initiated, and
- (c) a method for periodically estimating total population exposure.

RESPONSE

- (a) See Emergency Plan Sections 6.4.1.1g and 9.0.
- (b) Recovery plans and operations will be reviewed with the appropriate recovery organizations prior to implementation. Also see Emergency Plan Section 9.0.
- (c) This information is provided in implementing procedures submitted December, 1983.

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RESPONSE

- (a) See Emergency Plan Sections 6.4.1.1g and 9.0.
- (b) Recovery plans and operations will be reviewed with the appropriate recovery organizations prior to implementation. Also see Emergency Plan Section 9.0.
- (c) This information is provided in implementing procedures submitted December, 1983.

QUESTION 810.61

Indicate that the training for offsite response organizations who may enter the site will include site access procedures.

RESPONSE

| This information is provided in the implementing
| procedures submitted December, 1983.

QUESTIONS 810.62

Specify the organization that trains first aid personnel in Red Cross Multi-Media techniques.

RESPONSE

The Nuclear Training Section of Philadelphia Electric will provide this training for on-site personnel.

QUESTION 810.63

Describe the provisions for training offsite police, local civil defense emergency service personnel, and personnel responsible for communications.

RESPONSE

Offsite personnel are trained by the Pennsylvania Emergency Management Agency in those functions required by the State and local plans.

Offsite personnel will be trained by PECO in functions required by the LGS on-site plan. This includes use of communications equipment, monitoring equipment, dose assessment activities. The procedures for training these personnel will be developed as the training needs are identified. These needs will be identified as equipment and procedures are developed.

QUESTION 810.64

Provide training to the offsite officials with authority and responsibility for protective action decision making on the basis on which applicant recommendations will be made.

RESPONSE

Personnel responsible for protective action decision making will be trained in procedures and equipment on which protective action recommendations will be made. This training will be conducted after the procedures and equipment are available in the first quarter of 1984.

QUESTION 810.65

Provide the supporting plans - i.e. Appendix G.

RESPONSE

The supporting plans will be provided in the first quarter of 1984.

QUESTION 810.66

The listing of implementing procedures should reference the corresponding section(s) of the plan to be implemented.

RESPONSE

| The requested cross-reference will be provided in the
| first quarter 1984. The procedures were submitted in
| December, 1983.

QUESTION 810.67

Provide information indicating that appropriate independent annual audits of the emergency preparedness program will be conducted.

RESPONSE

Procedures will be developed to indicate that an annual independent audit of the emergency preparedness will be conducted. These procedures will be provided for NRC review by the third quarter of 1984 in conjunction with completion of quality assurance plans and procedures.

QUESTION 810.68

Provide information indicating that the results of the independent annual EP audits, along with recommendations for improvements, will be documented, reported to appropriate licensee corporate and plant management, and involved Federal, State, and local organizations and retained for a period of five years.

RESPONSE

Procedures to distribute and retain results of annual EP audits will be completed and provided for NRC review in the third quarter of 1984 in conjunction with completion of the quality assurance plans and procedures.