

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

PHILADELPHIA ELECTRIC COMPANY

(Limerick Generating Station,
Units 1 and 2)

:
: Docket Nos. 84-50-3528 11:59
: 50-353

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RESPONSE OF PENNSYLVANIA EMERGENCY MANAGEMENT AGENCY
TO LIMERICK ECOLOGY ACTION'S SECOND SET OF INTERROGATORIES
AND REQUEST FOR PRODUCTION OF DOCUMENTS ON
OFF-SITE EMERGENCY PLANNING CONTENTIONS

INTERROGATORIES

1. Provide a copy of all information relating to the PennDOT traffic analysis done for the Limerick Plume EPZ (cited by PEMA as the source for traffic flow estimates indicated on Limerick Plume EPZ maps).

Provide all information that was used to determine the vehicle number and time estimates shown on these maps. (Provide a copy of the actual study.)

Answer: PEMA provided to the Pennsylvania Department of Transportation 1980 Census figures for municipalities within the plume exposure pathway EPZ. Using these figures and based upon an average of three persons per car, the Department of Transportation estimated the number of vehicles evacuating from each municipality. Using assumptions that were developed for the evacuation of the EPZ around other nuclear plants within Pennsylvania, the Department of Transportation then determined what, in their opinion, were the best main evacuation routes to be used. Documentation of these assumptions and any other relevant information will be provided in a supplemental response.

2. Provide a map of the Limerick Plume EPZ that reflects any changes made after the EPZ was slightly extended in February 1984. Please discuss how these changes were determined.

Answer: Draft copies of the revised map are being printed for use during the July 25, 1984 Exercise but they are not currently available. A finalized version of the map will not be printed until after the exercise. As soon as it is available a copy will be mailed to the Service List. The original map was a composite of the Berks, Chester and Montgomery County maps. The cartographers apparently neglected to compensate for this in developing the scale shown on the original map. The correct scale should have been 1 (1 mile equals .588 inches). Consequently, the circle depicting the ten mile EPZ on the original map (dated June 1983) was approximately a quarter mile smaller than it should have been. The EPZ as defined in the county plans is shown as the white area on the Evacuation Plan Map and follows political subdivision boundaries or recognized landmarks. The defined EPZ exceeds the ten mile circle depicted on the June 1983 map by considerably more than a quarter mile in Chester County and the error had no impact on the established EPZ. This was not true, however, for Berks and Montgomery Counties since the additional quarter mile could have affected the EPZ boundaries shown for several municipalities. When PEMA's February 24, 1984 letter (copy attached) to the Licensing Board and Service List was prepared, there was a possibility that the EPZ could change in these two counties. The two counties investigated the matter with the municipalities involved and it was subsequently decided by the counties that no change in the EPZ as defined was needed. The new map will reflect a ten mile circle in consonance with the correct scale.

3. Provide all information relating to traffic flow and congestion to the following areas below. Please indicate what analysis has been made to consider these impacts during a radiological emergency.

3a. Valley Forge National Park and King of Prussia area (unless provided in answers to first set of interrogatories).

Answer: See "Response of Pennsylvania Emergency Management Agency to Limerick Ecology Action's First Set of Interrogatories and Request for Production of Documents on Off-site Emergency Planning Contentions," and specifically responses to interrogatories 51.6 through 51.11, 51.22 through 51.26 and 51.28.

3b. Marsh Creek State Park and Hopewell Village area.

Answer: In addressing the items to be considered in the Evacuation Time Estimate Study, PEMA requested HMM Associates to consider traffic flow and congestion in Marsh Creek State Park and the Hopewell Village area. PEMA will supplement the response to this interrogatory upon completing its review of the HMM study and after discussion with the Pennsylvania Department of Transportation.

3c. Route 100 South from Pottstown to Exton Mall.

Answer: PEMA will provide a response to this interrogatory upon completing its review of the HMM study and after discussion with the Pennsylvania Department of Transportation.

4. Has PEMA conducted any surveys or studies to determine the effect that spontaneous evacuation outside the Plume EPZ may have on traffic congestion backing up into the EPZ? Has this impact on evacuation times been considered? If yes, please provide any details available. If not, explain why this has not been considered by PEMA.

Answer: PEMA has not conducted any surveys or studies to determine the effect that spontaneous evacuation outside the EPZ may have on traffic congestion backing up into the EPZ. The impact has, however, been considered and it could conceivably impinge upon the flow of traffic if the traffic control points did not function properly. A complete survey of the area outside the EPZ would be an enormous undertaking but perhaps a sampling could be made. PEMA, however, is not in a position to undertake such a project.

5. Has PEMA completed its review of PECO's May 1984 Evacuation Time Estimate Study? Please provide any comments that PEMA has made about this study, including all correspondence exchanged during the development of the study.

Answer: PEMA has not completed its review of the May 1984 Final Draft of the HMM Evacuation Time Estimate. PEMA did hold meetings with HMM Associates to discuss the scope and content of the study. HMM subsequently held meetings with the three risk counties to determine their input. See attached copy of March 8, 1984 letter from Robert D. Klimm, HMM Associates, to Ralph Hippert, PEMA.

6. Does PEMA have any information available to determine the number of farmers who would be eligible to be designated as emergency workers in the event of a radiological emergency at Limerick? Provide a status report on the progress made in training farmers who reside within the EPZ.

Answer: The Pennsylvania Department of Agriculture maintains a list of farmers with dairy herds in the area surrounding Limerick. That Department does not currently maintain a list of farmers who have other types of livestock. It is PEMA's understanding that the

U.S. Department of Agriculture's County Agents maintain information as to various types of farmers within the county. PEMA does not, however, have the information readily available. See also response to interrogatory 9.

7. Does PEMA have any information relating to possible accident scenarios which could result in radiation releases that might prevent farmers from being designated as emergency workers, or any other circumstances that might limit farmer access to the EPZ?

Answer: The designation of farmers as emergency workers is independent of scenarios and of corresponding off-site consequences. Farmers are classified as emergency workers so as to inable them to accumulate more radiation dose than the population at large in their efforts to tend to livestock and to protect that investment following reactor accidents. Severe accidents are possible, the off-site consequences of which would severely restrict or even prohibit farmers' return to some farms in the EPZ. These possibly include the more severe release categories (BWR 1-3) from the Reactor Safety Study, WASH 1400.

8. Does PEMA intend to present any witnesses on LEA-22? If yes, please provide information about the subject matter to be covered in any such testimony, and any information about witness credentials currently known by PEMA.

Answer: PEMA has not yet thoroughly reviewed contention LEA-22. PEMA, therefore, can not identify particular witnesses or subject matter of testimony on that contention. PEMA intends to seek witnesses on this contention from appropriate Commonwealth agencies and the three risk counties.

9. Provide a detailed explanation of the training being offered to farmers within the EPZ. When and where have these sessions been held? Who has conducted them? How many farmers have participated? Specifically explain what farmers are being told about the "risks" of exposure to radiation if they chose to remain in the EPZ during a radiological emergency. What role has PEMA played in determining the content of training sessions? Have PEMA representatives attended these training sessions? How is the effectiveness of such training evaluated?

Answer: Training by Energy Consultants, Inc., has been made available to farmers in the plume exposure pathway EPZ. It is PEMA's understanding that this training will continue to be made available to farmers requesting same. Farmers are trained in the use of the three pieces of dosimetry referenced in the risk county plans for emergency workers. The training provided by Energy Consultants, Inc. has been scheduled in coordination with the county coordinators. PEMA does not have specific information as to when the training was conducted or how many farmers participated; such detailed information is maintained at the county level. PEMA provided guidance in the development of the course content and furnished "train-the-trainer" instruction for the instructors. PEMA has not attended these training sessions. An evaluation of the effectiveness of this training can be made through conduct of the exercise. Farmers are informed in their training of the "risks" of exposure if they choose to remain within the EPZ. PEMA has been advised that in Chester County pre- and post-testing was used to determine the effectiveness of the instruction.

10. In the event of a radiological emergency, where is a farmer supposed to obtain dosimetry and KI supplies? What arrangements have been

made for decontamination of farmers? What about pets and livestock?

Answer: The dosimetry and KI distribution points for farmers who wish to reenter the EPZ as emergency workers to tend their livestock will be found in the respective risk county plans.

As with other emergency workers, farmers would be decontaminated, if necessary, at decontamination stations outside of the EPZ as identified in the risk county plans. PEMA has been advised by the Pennsylvania Department of Agriculture that there are currently no plans for decontamination of pets and livestock.

Dated: July 16, 1984

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DOCKETED
USNRC

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

'84 JUL 18 AM 11:59

In the Matter of)

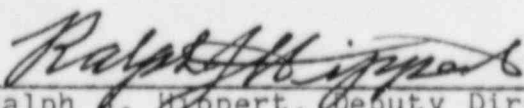
Philadelphia Electric Company)
(Limerick Generating Station,)
Units 1 and 2))

Docket Nos. 50-352
50-353

AFFIDAVIT OF RALPH J. HIPPERT

I, Ralph J. Hippert, being duly sworn, state as follows:

1. At present I am the Deputy Director, Office of Plans and Preparedness, Pennsylvania Emergency Management Agency.
2. I contributed to and supervised the responses to Limerick Ecology Action's Interrogatories 1-10.
3. I hereby certify that the answers are true and correct to the best of my knowledge.



Ralph J. Hippert, Deputy Director
Office of Plans and Preparedness
Pennsylvania Emergency Management
Agency

Subscribed and Sworn to before me
this _____ day of July 1984



Notary Public

CARL C. KUEHN II, Notary Public
Indiana, Indiana County, Pa.
My Commission Expires April 29, 1985

my commission expires: _____

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DOCKETED
USNRC

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

'84 JUL 18 P12:00

In the Matter of)

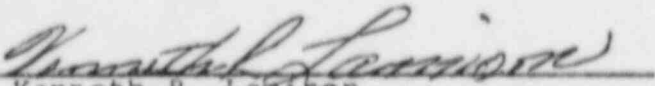
Philadelphia Electric Company)
(Limerick Generating Station,)
Units 1 and 2))

Docket Nos. 50-352
50-353


AFFIDAVIT OF KENNETH R. LAMISON

I, Kenneth R. Lamison, being duly sworn, state as follows:

1. At present I am the Director, Office of Response and Recovery, Pennsylvania Emergency Management Agency.
2. I contributed to the response to Limerick Ecology Action's Interrogatory 4.
3. I hereby certify that the answers are true and correct to the best of my knowledge.


Kenneth R. Lamison

Director
Office of Response and Recovery
Pennsylvania Emergency Management
Agency


Subscribed and Sworn to before me
this _____ day of July 1984


Notary Public

CARL C. KUEHN II, Notary Public
Indiana, Indiana County, Pa.
My Commission Expires April 29, 1995

My commission expires: _____

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DOCKETED
JAN 84

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

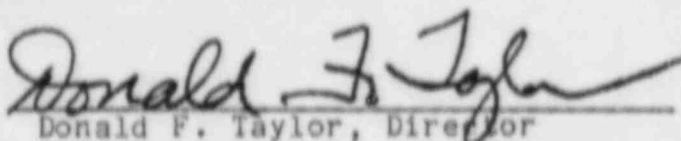
84 JUL 18 P12:00

In the Matter of)
)
Philadelphia Electric Company) Docket Nos. 50-352
(Limerick Generating Station,) 50-353
Units 1 and 2))

AFFIDAVIT OF DONALD F. TAYLOR

I, Donald F. Taylor, being duly sworn, state as follows:

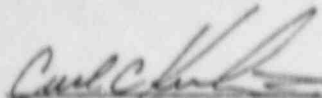
1. At present I am the Director, Office of Training and Education, Pennsylvania Emergency Management Agency.
2. I contributed to the responses to Limerick Ecology Action's Interrogatories 6, 9.
3. I hereby certify that the answers are true and correct to the best of my knowledge.



Donald F. Taylor, Director
Office of Training and Education
Pennsylvania Emergency Management
Agency



Subscribed and Sworn to before me
this day of July 1984


Notary Public

CARL C. KUDZIN II, Notary Public
Indiana, Indiana County, Pa.

My commission expires: My Commission Expires April 29, 1985

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DOCKETED
USNRC

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

'84 JUL 18 P12:00

In the Matter of)

Philadelphia Electric Company)
(Limerick Generating Station,)
Units 1 and 2))

Docket Nos. 50-352
50-353

AFFIDAVIT OF ROBERT C. FURRER

I, Robert C. Furrer, being duly sworn, state as follows:

1. At present I am a Management Analyst, Bureau of Administrative Services, Pennsylvania Department of Agriculture. I serve as Emergency Management Coordinator for the Agriculture Department.
2. I contributed to the responses to Limerick Ecology Action's Interrogatories 6, 9, 10.
3. I hereby certify that the answers are true and correct to the best of my knowledge.

Robert C Furrer

Robert C. Furrer
Bureau of Administrative Services
Pennsylvania Department of Agriculture

Subscribed and Sworn to before me
this 13 day of July 1984

Darwin J. Moyer
Notary Public

DARWIN J. MOYER, NOTARY PUBLIC

My Commission Expires April 2, 1988

My commission expires ~~Harrisburg, PA~~ Dauphin County

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DOCKETED
USNRC

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

'84 JUL 18 P12:00

In the Matter of)

Philadelphia Electric Company)
(Limerick Generating Station,)
Units 1 and 2))

DOCKETING & SERVICE
BRANCH
Docket Nos. 50-352
50-353

AFFIDAVIT OF MARGARET A. REILLY

I, Margaret A. Reilly, being duly sworn, state as follows:

1. At present I am Chief, Division of Environmental Radiation, Bureau of Radiation Protection, Pennsylvania Department of Environmental Resources.
2. I contributed to the responses to Limerick Ecology Action's Interrogatories 7.
3. I hereby certify that the answers are true and correct to the best of my knowledge.

Margaret A. Reilly

Margaret A. Reilly, Chief
Division of Environmental Radiation
Bureau of Radiation Protection
Pennsylvania Department of
Environmental Resources

Subscribed and Sworn to before me
this 13 day of July 1984

Joyce Stare
Notary Public

My commission expires: _____

JOYCE STARE, Notary Public
Harrisburg, Pa.
My Commission Expires Nov. 15, 1984



PENNSYLVANIA EMERGENCY MANAGEMENT AGENCY
P.O. BOX 3321
HARRISBURG, PENNSYLVANIA 17105



February 24, 1984

Lawrence Brenner, Esq.
Administrative Judge
U.S. Nuclear Regulatory
Commission
Washington, DC 20555

Dr. Peter A. Morris
Administrative Judge
U.S. Nuclear Regulatory
Commission
Washington, DC 20555

Dr. Richard F. Cole
Administrative Judge
U.S. Nuclear Regulatory
Commission
Washington, DC 20555

In the Matter of
Philadelphia Electric Company
(Limerick Generating Station, Units 1 and 2)
Docket Nos. 50-352, 50-353

Dear Administrative Judges:

On December 6, 1983 we wrote to the Board, with copies to the service list, regarding our review of the draft off-site Radiological Emergency Response Plans for Limerick Generating Station and their subsequent distribution by Philadelphia Electric Company to the Board, the intervenors and the City of Philadelphia. In a continuing effort to keep the Board apprised regarding the status of these plans, PEMA wishes to inform you of a recently discovered error on the Evacuation Plan Map which we published in June 1983.

The map is a composite of the Berks, Chester and Montgomery County maps but the cartographers apparently neglected to compensate for this in developing the scale shown on the Evacuation Plan Map. The correct scale is one (1) mile equals .588 inches. Consequently, the circle depicting the ten-mile EPZ is approximately a quarter mile smaller than it should be. The EPZ, as determined by the municipalities, counties and PEMA, is shown as the white area on the map and follows political subdivision boundaries or recognizable landmarks. A review of the map indicates that our defined EPZ exceeds the ten-mile circle by considerably more than a quarter mile in Chester County and the error thus has no impact. This is not, however, true for Berks and Montgomery Counties since the additional quarter mile affects the EPZ boundaries now shown for several municipalities.

It is our intention to republish the maps and ensure that any necessary changes are made in the plans of the affected counties and municipalities. We will not know the extent of these changes until the EPZ can be redefined for Berks and Montgomery Counties. Philadelphia Electric Company's consulting firm, Energy Consultants Inc., is currently working with these counties and their involved municipalities to determine how the

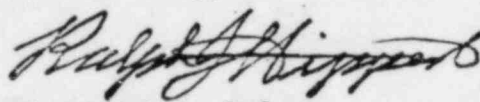
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Administrative Judges
February 24, 1984
Page Two

EPZ boundaries should now be established to compensate for the quarter mile extension of the ten-mile circle that appears on the June 1983 maps.

Although it is indeed regrettable that the error occurred, it is, however, fortunate that it was discovered before the July 25, 1984 exercise and while the plans are still in draft form. We cannot at this time provide a date as to when the necessary changes will be completed, but please be assured that we will endeavor to republish the map and have necessary changes made in the plans as quickly as possible. Region III of the Federal Emergency Management Agency has also been informed of the error and the action being taken.

Sincerely,


for

Adolph L. Belser

Director

Office of Plans and Preparedness

ALB/RJH:jmb (Tel: 717-783-8150)

cc: Attached List

bcc: Roberta Kankus
James Asher



HMM Associates
336 Baker Avenue
Concord, Massachusetts 01742
(617) 371-1692

HMM Ref. No. 83-620

March 8, 1984

Mr. Ralph Hippert
PENNSYLVANIA EMERGENCY MANAGEMENT AGENCY
Room B-151
Transportation and Safety Building
Forester Street
Harrisburg, PA 17102

Dear Mr. Hippert:

Enclosed, for your review, is a memorandum summarizing the key issues discussed at the meeting of county officials on February 29, 1984 in Montgomery County. These issues are primarily the same as the ones we discussed at your office on February 23, 1984. I will be contacting your office early next week to discuss any comments you may have, particularly concerning the assumptions to be used for the evacuation time estimate study.

Feel free to contact me if you have any questions.

Very truly yours,

Robert D. Klimm

RDK/ch

Enclosure

MEMORANDUM

DATE: March 6, 1984

TO: Montgomery County Office of Emergency Preparedness;
Chester County Department of Emergency Services;
and Berks County Emergency Management Agency

FROM: Robert Klimm, HMM Associates *RK*

SUBJECT: Summary of Initial Meeting on Limerick Generating Station Evacuation
Time Estimate Study

On February 29, 1984 a meeting was held at the Montgomery Office of Emergency Preparedness, 100 Wilson Boulevard, Eagleville, PA, to review the methodology and discuss assumptions and data inputs to be used in the Limerick Evacuation Time Estimate Study. The following were in attendance at this meeting:

Chester County Department of Emergency Services

M. Jay Groce, III

Mark A. Force

George L. Hughes

Pennsylvania Emergency Management Agency

D. Lamison

Sam Boyle

John L. Shannon

Philadelphia Electric Company

Robert Logue

Robbie Kankus

Mike Mezias

Russ Hamilton

Berks County Emergency Management Agency

Bob Reber

Montgomery County Office of Emergency Preparedness

Lin Bigelow

Sam Tabak

Tim Hasson

Energy Consultants Inc.

Henry Tamanini

HMM Associates

Robert Klimm

The purpose of this memorandum is to summarize the major assumptions and data inputs proposed for use in the evacuation time estimate study, as discussed during the February 29, 1984 meeting. In order to insure concurrence on the various site-specific assumptions required for the analysis, I will be contacting each county office within a week to further discuss these items. If necessary, a meeting can be scheduled, locally, to address any comments which may come up.

The following summarizes these data inputs and assumptions:

1. Introduction

In November of 1980, the U.S. Nuclear Regulatory Commission (NRC) and the Federal Emergency Management Agency (FEMA) published a revised version of NUREG-0654 entitled Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants. NUREG-0654 requires that each nuclear power plant licensee's offsite emergency plan contain time estimates for evacuation within the Plume Exposure Emergency Planning Zone (EPZ). Appendix 4 of NUREG-0654 provides detailed guidance on what must be included in an evacuation time estimate study.

In response to NUREG-0654, Philadelphia Electric Company has retained HMM Associates of Concord, Massachusetts, to develop the evacuation time estimates for the Limerick Generating Station (LGS) EPZ in Limerick, Pennsylvania.

The evacuation time estimates will be developed using existing population data and the NETVAC computer simulation model. The NETVAC program was developed specifically to provide evacuation time estimates and related information for use in emergency planning. Evacuation times will be estimated for various areas, times, and weather conditions, as suggested by Appendix 4 of NUREG-0654, Rev. 1. These evacuation times represent the time required for completing the following actions:

1. public notification;
2. preparation and mobilization; and
3. actual movement out of the EPZ (i.e., on-road travel time, including delays associated with vehicle queueing).

2. Evacuation Roadway Network

As indicated at the February 29th meeting, the evacuation roadway network to be used in the evacuation time estimate study will be consistent with that identified in the current county emergency response plans. Routings from the various townships will also be the same as that presented in the county plans, as summarized below:

MONTGOMERY COUNTY

Collegeville Borough:

- o Local routes to Rt. 422 East to PA Turnpike to Exit 27 to Willow Grove Industrial Park

Douglass Township:

- o Local routes to Rt. 100 North to Rt. 29 North to Emmaus High School Complex

Green Lane Borough:

- o Local routes to Rt. 63 East to Rt. 113 North to County Line Plaza

Limerick Township:

- o Local routes to Rt. 422 East to PA Turnpike to Exit 27 to Willow Grove Industrial Park

Lower Frederick Township:

- o Local routes to Rt. 29 North to Perkiomenville Rd. to Rt. 63 East to Rt. 113 North to County Line Plaza

Lower Pottsgrove Township:

- o Local routes to Rt. 663 North to Rt. 309 North to Southern Lehigh School Complex

Lower Providence Township:

- o Local routes to Rt. 363 South to PA Turnpike to Exit 28 to Neshaminy Mall

Lower Salford Township:

- o Local routes to Rt. 113 North to County Line Plaza

Marlborough Township:

- o Local routes to Rt. 63 East to Rt. 113 North to County Line Plaza

New Hanover Township:

- o Local routes to Rt. 663 North to Rt. 309 North to Southern Lehigh School Complex

Perkiomen Township:

- o Local routes to Rt. 29 South to Rt. 113 North to Rt. 73 East to Rt. 202 North to Montgomery Mall

Pottstown Borough - NE:

- o Local routes to Rt. 663 North to Rt. 309 North to Southern Lehigh School Complex

Pottstown Borough - NW:

- o Local routes to Rt. 100 North to Rt. 29 North to Emmaus High School Complex

X Pottstown Borough - SW:

- o Local routes to Rt. 422 West to Reading Mall

Pottstown Borough - SE:

- o Local routes to Rt. 724 West to Cumru Elementary School

Royersford Borough:

- o Local routes to Main St. to Lewis Rd. to Walnut St. to Township Line Road to Rt. 422 East to PA Turnpike to Exit 27 to Willow Grove Industrial Park

Schwenksville Borough:

- o Local routes to Rt. 73 East to Rt. 202 North to Montgomery Mall

Skippack Township:

- o Local routes to Rt. 113 North to Rt. 73 East to Rt. 202 North to Montgomery Mall

Trappe Borough:

- o Local routes to Rt. 113 North to Rt. 73 East to Rt. 202 North to Montgomery Mall; or
- o Local routes to Rt. 422 East to PA Turnpike to Exit 27 to Willow Grove Industrial Park

Upper Frederick Township:

- o Local routes to Rt. 63 South to Rt. 113 North to County Line Plaza

Upper Pottsgrove Township:

- o Local routes to Rt. 100 North to Rt. 29 North to Emmaus High School Complex

Upper Providence Township:

- o Local routes to Black Rock Rd. to Egypt Rd. to Rawlings Rd. to Audubon Rd. to Rt. 363 South to PA Turnpike to Exit 27 to Neshaminy Mall

Upper Salford Township:

- o Local routes to Rt. 63 East to Rt. 113 North to County Line Plaza

X West Pottsgrove Township:

- o Local routes to Rt. 422 West to Reading Mall

CHESTER COUNTY

Charlestown Township:

- o Local routes to Rt. 29 South to Rt. 202 South to West Goshen Shopping Center

East Coventry Township:

- o Local routes to Rt. 23 West to Morgan Corporation

East Nantmeal Township - West:

- o Local routes to Rt. 401 West to Rt. 23 West to Morgan Corporation

East Nantmeal Township - East:

- o Local routes to Rt. 100 South to Rt. 113 South to Downingtown High School

East Pikeland Township:

- o Local routes to Rt. 113 South to Gordon Drive to Rt. 100 South to Exton Mall

East Vincent Township:

- o Local routes to Rt. 23 East to Rt. 113 South to Gordon Drive to Rt. 100 South to Exton Mall

North Coventry Township - North:

- o Local routes to Rt. 724 West to Cumru Elementary School

North Coventry Township - South:

- o Local routes to Rt. 100 South to Rt. 23 West to Morgan Corporation

Phoenixville Borough - North:

- o Local routes to Rt. 23 East to Rt. 202 South to West Goshen Shopping Center

Phoenixville Borough - South:

- o Local routes to Rt. 29 South to Rt. 202 South to West Goshen Shopping Center

Schuylkill Township - East:

- o Local routes to Rt. 23 East to Rt. 202 South to West Goshen Shopping Center

Schuylkill Township - West:

- o Local routes to Rt. 29 South to Rt. 202 South to West Goshen Shopping Center

South Coventry Township - North:

- o Local routes to Rt. 23 West to Morgan Corporation

South Coventry Township - South:

- o Local routes to Rt. 100 South to Rt. 113 South to Downington High School

Spring City Borough:

- o Local routes to Rt. 724 East to Rt. 113 South to Gordon Drive to Rt. 100 South to Exton Mall

Upper Uwchlan/Uwchlan Township:

- o Local routes to Rt. 100 South to Rt. 113 South to Downington High School

Warwick Township:

- o Local routes to Rt. 23 West to Morgan Corporation

West Pikeland Township:

- o Local routes to Rt. 13 South to Gordon Drive to Rt. 100 South to Exton Mall

West Vincent Township:

- o Local routes to Rt. 100 South to Rt. 113 South to Downington High School

BERKS COUNTY

Amity Township:

- o Local routes to Rt. 662 North to Oley Valley High School; or
- X o Local routes to Rt. 662 South to Rt. 442 West to Reading Mall.

Boyertown Borough:

- o Local route to Rt. 73 West to Oley Valley High School

Colebrookdale Township:

- o Local routes to Rt. 73 West to Oley Valley High School; or
- o Local routes to Rt. 100 North to Emmaus High School

Douglass Township:

- o Local routes to Rt. 662 North to Oley Valley High School; or
- o Local route to Rt. 562 West to Rt. 662 North to Oley Valley High School

Earl Township:

- o Local routes to Rt. 562 West to Rt. 662 North to Oley Valley High School

Union Township:

- o Local routes to Rt. 724 West to Cumru Elementary School

Washington Township:

- o Local routes to Rt. 100 North to Emmaus High School

For traffic flow simulation purposes, several additional "entry" links will be added to the network. These additional links will not alter the existing, designated evacuation routings, but will allow for a more detailed assessment of potential traffic problems during an evacuation, particularly in the more dense areas of the EPZ (i.e., Pottstown).

During the weeks of February 27 to March 2, and March 5 to March 9, roadway field data will be collected for the entire evacuation network. These include operational data, such as travel speeds and traffic control; as well as geometric data such as lane widths, lateral clearances and lane configurations.

3. Population Data

Federal guidance (NUREG-0654) indicates that three population categories should be considered for the evacuation time estimate analysis: permanent residents, transients and persons in special facilities (such as schools, medical facilities, nursing homes, etc.). Population data will be developed for 1980 conditions using the following sources:

- o Permanent residents: Data presented in the current County/local plans, and 1980 Federal Census of Housing data.
- o Transient population: (a) Work Force - Data presented in County/local plans and available from ECI, supplemented by HMM's surveys as required; (b) Recreational - Data available from County/local plans, and discussions with local/state emergency preparedness officials, (c) Overnight accommodations (i.e., hotels/motels) - Data to be developed from information available from ECI, supplemented with Chamber of Commerce data.
- o Special Facility: Data to be used is that contained in the current County and local plans, supplemented with data available from ECI.

4. Proposed Vehicle Demand Data and Occupancy Assumptions

Vehicle occupancy assumptions which will be used to estimate total vehicle demand are as follows:

Permanent Residents - 3 persons per vehicle.

Transient - 1 Vehicle/employee
1 Vehicle/campsite
1 Vehicle/hotel-motel room

Special Facilities - Vehicle demand to be developed based upon identified transportation resources, County/local plans, and data previously collected by ECI.

5. Evacuation Analysis Cases

Pursuant to NUREG-0654 guidance, evacuation time estimates will be prepared for the area within approximately 2 miles of the LGS; for areas approximating 90° sectors from 0-5 miles, and 0-10 miles of the plant; and for the entire EPZ. It is anticipated that the sector areas will be defined to correspond to various combinations of Townships within the EPZ.

The proposed analysis cases for the evacuation time estimate study are summarized in Table 1. This table also indicates the population categories to be included in each analysis case.

Fair weather refers to conditions where roadways are clear and dry and visibility is not impaired. Adverse weather during summer periods is defined as a rainstorm condition where visibility is impaired and roadway capacities are reduced by 20 percent. Adverse weather during winter periods is defined as a snowstorm condition where roadway capacities are reduced by 30 percent.

The various population components which will be incorporated in the evacuation analysis are summarized below:

1. Winter Day: This situation represents a typical day period during the winter when school is in session and the work force is at full daytime levels. Assumptions on the population levels for this condition include the following:
 - o Permanent residents within the EPZ will evacuate from their place of residence;
 - o Major work places are fully staffed at typical daytime levels;

TABLE 1
EVACUATION ANALYSIS CASES (Proposed)

| Population Segment | Fair Weather | | | Adverse Weather | | Adverse Weather |
|----------------------------|----------------|------------------|----------------|--------------------------------|-----------------------|--------------------------|
| | Winter Weekday | Winter Weeknight | Summer Weekend | Winter Weekday (Moderate Snow) | Summer Weekend (Rain) | Other* (Flooding, Icing) |
| <u>Permanent Residents</u> | X | X | X | X | X | |
| <u>Seasonal Residents</u> | | | X | | X | |
| <u>Transient</u> | | | | | | |
| - Work Force | X | X | X | X | X | |
| - Recreational | | | X | | X | |
| - Overnight Accommodations | X | X | X | X | X | |
| <u>Special Facilities</u> | | | | | | |
| - Schools | X | | | X | | |
| - Nursing Homes | X | X | X | X | X | |
| - Hospital | X | X | X | X | X | |
| <u>Analysis Area</u> | | | | | | |
| o 0-2 Mile N | X | X | X | X | X | |
| o 0-2 Mile S | X | X | X | X | X | |
| o 0-2 Mile E | X | X | X | X | X | |
| o 0-2 Mile W | X | X | X | X | X | |
| o 0-5 Mile N | X | X | X | X | X | |
| o 0-5 Mile S | X | X | X | X | X | |
| o 0-5 Mile E | X | X | X | X | X | |
| o 0-5 Mile W | X | X | X | X | X | |
| o 0-10 Mile N | X | X | X | X | X | |
| o 0-10 Mile S | X | X | X | X | X | |
| o 0-10 Mile E | X | X | X | X | X | |
| o 0-10 Mile W | X | X | X | X | X | |
| o Full EPZ | X | X | X | X | X | |

* To be developed based upon discussions with County/State Emergency Preparedness Officials.

- o The LGS site employment is at a typical daytime level;
- o Schools are in session;
- o Hospitals and nursing homes are full;
- o Hotel and motel facilities are fully occupied; and
- o Recreational facilities are at winter daytime levels.

2. Winter Night: This situation reflects a typical night period when permanent residents are home and the work force is at night-time levels. Assumptions on the population levels for this condition include the following:

- o Permanent residents within the EPZ will evacuate from their place of residence;
- o Major work places are at typical night-time levels;
- o The LGS site employment is at a typical night-time level;
- o Schools are closed;
- o Hospitals and nursing homes are fully occupied at night-time levels; and
- o Hotel and motel facilities are fully occupied.

3. Summer Weekend: The summer weekend situation represents a daytime period when permanent residents are home and major workplaces are at typical weekend levels. Assumptions on the population levels for this condition include the following:

- o Permanent residents within the EPZ will evacuate from their place of residence;

- o Seasonal residents will evacuate from their place of residence;
- o Major work places are at typical weekend levels;
- o The LGS site is at an estimated weekend level;
- o Schools are closed;
- o Recreational facilities are at a peak weekend level;
- o Hospitals and nursing homes are fully occupied; and
- o Hotel and motel facilities are fully occupied.

6. Notification/Preparation/Mobilization Time Distributions

Initial Notification

The EPZ surrounding the Limerick Nuclear Generating Station will have a notification system consistent with NUREG-0654/ FEMA-REP-1 Appendix 3 guidelines. This system will be used by County and local officials to alert the population to turn on their radios and television sets. Pursuant to NUREG 0654 guidance, notification messages will commence on the designated television and EBS radio stations virtually immediately. The system will have the capability for providing both an alert signal and an informational or instructional message to the population within the EPZ, within 15 minutes.

Evacuation Preparation Times and Departure Distributions

It is assumed that no vehicles will begin to evacuate during the 15-minute initial notification period. It is also assumed that there would be a minimum preparation/ mobilization time of 15 minutes for all population sectors. Accordingly, in the model simulations no vehicles begin to evacuate until 30 minutes following the initial notification. Network loading distribution assumptions for the permanent population, transient population, and special facilities are described below:

Permanent Population

Permanent residents with access to automobiles will take varying amounts of time to begin evacuating. Some persons would leave as quickly as they could; most would take some time to prepare, pack valuables and clothes and then depart; and some would take added time to secure property before departing. In addition, actual departing and preparation times may vary according to the perceived severity of a particular evacuation order.

It is assumed that there would be a two-hour period over which the permanent residents would begin to evacuate. That is, permanent resident households would begin to evacuate between 30 and 150 minutes after the decision to notify the population to evacuate is made. It was further assumed that 15 percent of the permanent population would begin to evacuate between 30 and 60 minutes following the evacuation decision, 40 percent would begin to evacuate between 60 and 90 minutes, an additional 40 percent would begin to evacuate between 90 and 120 minutes, and the remaining 5 percent would begin to evacuate between 120 and 150 minutes of the decision to evacuate.

Transient Population

It is assumed that the work force would receive initial notification promptly. It is also assumed that the majority of the work force could, and would, be released expeditiously (i.e., within 30 minutes subsequent to notification). The actual preparation and mobilization time distributions to be used in the analysis will be based upon discussions with major employers in the area, and upon data already gathered by ECI.

Special Facilities

It is assumed that special facilities (i.e., schools, hospitals, nursing homes, jails) within the EPZ would also receive initial notification promptly. Preparation and mobilization times for special facilities will be based upon the existing emergency response procedures and existing transportation resources.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
PHILADELPHIA ELECTRIC COMPANY)
)
)
(Limerick Generating Station,)
Units 1 and 2))

'84 JUL 18 P12:00

Docket Nos. 50-352
50-353
DOCKETING
BRANCH

CERTIFICATE OF SERVICE

I hereby certify that copies of "Response of Pennsylvania Emergency Management Agency to Limerick Ecology Action's Second Set of Interrogatories and Request for Production of Documents on Offsite Emergency Planning Contentions" in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class, or, as indicated by an asterisk through deposit in the Commonwealth of Pennsylvania's internal mail system, this 16th day of July 1984:

Lawrence Brenner (2)
Administrative Judge
Atomic Safety and Licensing
Board
U. S. Nuclear Regulatory
Commission
Washington, D.C. 20555

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

Richard F. Cole
Administrative Judge
Atomic Safety and Licensing
Board
U. S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Mark J. Wetterhahn, Esq.
Conner and Wetterhahn
1747 Pennsylvania Avenue, N.W.
Washington, D.C. 20006

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

Peter A. Morris
Administrative Judge
Atomic Safety and Licensing
U. S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Ann P. Hodgdon, Esq.
Benjamin H. Vogler, Esq.
Counsel for NRC Staff
Office of the Executive Legal
Director
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Atomic Safety and Licensing
Appeal Panel
U. S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Frank R. Romano
61 Forest Avenue
Ambler, Pa. 19002

Robert L. Anthony
Friends of the Earth of
the Delaware Valley
P. O. Box 186
103 Vernon Lane
Moylan, Pa. 19065

Marvin I. Lewis
6504 Bradford Terrace
Philadelphia, Pa. 19107

Joseph H. White, III
15 Ardmore Avenue
Ardmore, Pa. 19003

Charles W. Elliott, Esq.
Brose and Postwistilo
1101 Building
11th & Northampton Sts.
Easton, Pa. 18042

Philadelphia Electric Company
ATTN: Edward G. Bauer, Jr.
Vice President &
General Counsel
2301 Market Street
Philadelphia, Pa. 19101

*David Wersan, Esq.
Assistant Consumer Advocate
Office of Consumer Advocate
1425 Strawberry Square
Harrisburg, Pa. 17120

Steven P. Hershey, Esq.
Community Legal Services, Inc.
Law Center West
5219 Chestnut Street
Philadelphia, Pa. 19139

Angus Love, Esq.
101 East Main Street
Norristown, Pa. 19104

Maureen Mulligan
Limerick Ecology Action
P. O. Box 761
Pottstown, Pa. 19464

Sugarman, Denworth & Hellegers
16th Floor Center Plaza
101 North Broad Street
Philadelphia, Pa. 19107

*Director, Pennsylvania
Emergency Management Agency
B-151, Transportation and
Safety Building
Harrisburg, Pa. 17120

*Thomas Gerusky, Director
Bureau of Radiation
Protection
Department of Environmental
Resources
5th Floor, Fulton Bank Bldg.
Third and Locust Streets
Harrisburg, Pa. 17120

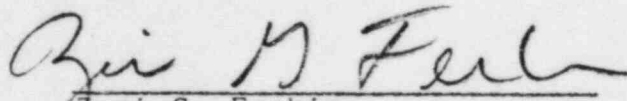
Jay M. Gutierrez, Esq.
U. S. Nuclear Regulatory
Commission
Region I
631 Park Avenue
King of Prussia, Pa. 19406

Timothy R. S. Campbell
Director
Department of Emergency Services
14 East Biddle Street
West Chester, Pa. 19380

Martha W. Bush, Esq.
Kathryn S. Lewis, Esq.
City of Philadelphia
Municipal Services Bldg.
15th and JFK Blvd.
Philadelphia, Pa. 19107

Spence W. Perry, Esq.
Associate General Counsel
Federal Emergency Management
Agency
500 C Street, S.W., Rm. 840
Washington, D.C. 20472

Gregory Minor
MHB Technical Associates
1723 Hamilton Avenue
San Jose, CA 95125


Zori G. Ferkin
Assistant Counsel
Governor's Energy Council

Date: July 16, 1984