

COMMONWEALTH OF PENNSYLVANIA
EMERGENCY OPERATIONS PLAN
ANNEX E
RADIOLOGICAL EMERGENCY RESPONSE TO
NUCLEAR POWER PLANT INCIDENTS

1. GENERAL

- A. This Annex is issued under the authority of and in accordance with the provisions of the Pennsylvania Emergency Management Services Code (35 Pa. C.S.), as amended. This Annex supersedes the previously distributed editions and changes.
- B. This document for response to nuclear power plant incidents is an Annex to the Commonwealth of Pennsylvania Emergency Operations Plan (EOP). Several items in this Annex are also contained in the EOP. They are included herein to provide clear guidance in one document for the preparation of supporting nuclear power plant incident plans and response procedures and to meet Federal regulatory requirements.
- C. Plans and response procedures upgrading is a continuing process. Concurrence with, or approval of, State agency, risk and support County, Municipal, school district and designated institution emergency operations plans (EOP) by the Pennsylvania Emergency Management Agency (PEMA) is based upon the concept of compliance with this Annex and organizational and operational elements considered vital to protection of the health and safety of the public.
- D. Fixed nuclear facilities are stationary installations that use or produce radioactive materials in their normal operations. Commercial nuclear power plants are one of the many different types of fixed nuclear facilities. Some Federal regulations and other documents use both of the above terms in reference to commercial nuclear power facilities. In Annex "E," the term Nuclear Power Plant will be used to refer to the facility.
- E. This Annex will be reviewed and certified annually; changes will be published as required. Changes will be disseminated under the Governor's promulgation of the Commonwealth's Emergency Operations Plan.

2. PURPOSE

- A. Establish policies and procedures for preparedness and emergency response to nuclear power plant incidents.

- B. Provide guidance for standardized, integrated and coordinated emergency response planning efforts by Federal, State, County and Municipal governments, school districts, designated institutions and commercial nuclear power plant facilities.
- C. Identify authorities and assign emergency technical and operational responsibilities and designate lines of communication for planning and response procedures.
- D. Provide for a coordinated notification system for the public.
- E. Provide the State organization for direction, control, coordination and support of radiological emergency response operations.
- F. Provide emergency response procedures and planning for protective action by the public within the plume exposure pathway emergency planning zone (EPZ) of the five nuclear power plants within Pennsylvania.
- G. Provide emergency response procedures for protective measures to be used for agricultural, dairy and food product control within the 50-mile ingestion exposure pathway EPZ of the five nuclear power plants inside the boundaries of Pennsylvania.
- H. Designate criteria governing the relaxation of protective actions in the plume and ingestion EPZ.
- I. Outline the scope of recovery operations and identify activities (long and short term) required to return affected offsite areas to their pre-incident condition.
- J. Provide coordination of planning and radiological emergency response operations with contiguous States and the Federal government.
- K. Assure that industrial and commercial resources are integrated into emergency operations plans for use during response activities.
- L. Establish requirements for and procedures to conduct drills and exercises.
- M. Establish requirements for and procedures to implement a public education program.
- N. Make provisions for nuclear power plant incident response training of State, County and Municipal personnel assigned to emergency management agencies and for those who may be called upon to participate in or assist during radiological emergency response operations.

3. SITUATION AND ASSUMPTIONS

A. Situation

- (1) The Federal Emergency Management Agency (FEMA) has the lead Federal role with respect to the issuance of regulations and guidance for the development of offsite Radiological Emergency Response Procedures (RERP) and for their review and approval.
- (2) The U.S. Nuclear Regulatory Commission (NRC) exercises licensing control over nuclear power plants. It, however, has no statutory authority over State, County or Municipal governments.
- (3) The U.S. Environmental Protection Agency (EPA) is responsible for establishing protective action guides.
- (4) The Governor of the Commonwealth of Pennsylvania has statutory authority (35 Pa. C.S., as amended) over State, County and Municipal government agencies for the direction, control, coordination and support of response to radiological emergency incidents. A State of Disaster Emergency may be declared by executive order or proclamation of the Governor upon finding that a nuclear power plant incident has occurred and/or a threat to the public is imminent.
- (5) The Commonwealth's overall emergency planning effort is based on the premise that similarities among various emergencies which threaten the public require maximum standardization to the extent possible of formats, requirements and procedures. Therefore, the State and the Counties will maintain one all-inclusive Emergency Operations Plan (EOP). Within this EOP, those planning considerations with particular emphasis on RERP for nuclear power plant incidents are covered in a designated annex, specifically "Annex E," for standardization at State and risk, support and ingestion County level.
- (6) Nuclear power plant sites in Pennsylvania are:
 - a. Beaver Valley Power Station (BVPS), Beaver County.
 - b. Limerick Generating Station (LGS), Montgomery County.
 - c. Peach Bottom Atomic Power Station (PBAPS), York County.
 - d. Susquehanna Steam Electric Station (SSES), Luzerne County.

e. Three Mile Island Nuclear Station (TMI), Dauphin County.

- (7) Parts of three bordering States (Maryland, Ohio, West Virginia) are within the 10-mile radius of two of Pennsylvania's nuclear power plants (Beaver Valley, Peach Bottom). Parts of five bordering States (Delaware, Maryland, New Jersey, Ohio, West Virginia) are within the 50-mile ingestion exposure pathway emergency planning zone (EPZ) of four Pennsylvania nuclear power plants (Beaver Valley, Limerick, Peach Bottom, TMI). See maps, Appendix 24.
- (8) Parts of Pennsylvania are within the 50-mile ingestion exposure pathway EPZ of four nuclear power plants located within three bordering States (NY, NJ, Ohio). See maps, Appendix 24.
- (9) The offsite radiological consequences of an incident on the public are dependent upon the type of incident, the magnitude and height of the release, the duration and mode of discharge, population distribution, weather and topography, resources available and prior planning.
- (10) In the event of a release of radioactive material, the public could be affected by:
 - a. External exposure to airborne radio nuclides in the passing plume.
 - b. Inhalation of radio nuclides from the passing plume.
 - c. External exposure from ground contamination.
 - d. Ingestion of contaminated crops, milk or water.
- (11) Elected officials at each level of government are responsible for the health, safety and welfare of persons and the protection of property within their jurisdictions.

B. Assumptions

- (1) A nuclear power plant incident may require protective actions within the plume and/or ingestion exposure pathways.
- (2) The amount of lead time may dictate the protective action(s) to be implemented.

- (3) As a planning factor it is anticipated that persons evacuated from the plume exposure pathway EPZ will not be allowed to return to the area for at least three days.
- (4) At least 80 percent of the population within the plume exposure pathway EPZ will make independent arrangements for relocation if evacuation becomes necessary.
- (5) The Commonwealth's essential "unmet" needs will be provided from Federal resources on a timely basis.
- (6) The provisions of the Federal Disaster Relief Act of 1974 (Public Law 93-288) will apply if the nuclear power plant incident should result in a Presidential Declaration.
- (7) The nuclear power plant insurance policy will be involved in an incident which requires an evacuation.

4. CONCEPT OF OPERATIONS

A. General

The Commonwealth will, for the foreseeable future, be at least partially dependent upon energy generated by nuclear power plants. The operation of such facilities poses the possibility of incidents which could be hazardous to the health, safety and well-being of Commonwealth residents. The maintenance of high standards of safety is a paramount requirement for initiation and/or continuation of operations by nuclear power plants. The preparation and maintenance of EOPs and response procedures for adequate and timely public response to nuclear power plant incidents, covering the full range of possible eventualities, shall, therefore, be a priority responsibility of State, County and Municipal governments. Planning shall evoke the full and cooperative participation of all government agencies and volunteer organizations.

B. Direction and Control

In the event of a nuclear power plant incident requiring the implementation of the Radiological Emergency Response Annex E of the Commonwealth's EOP, the Governor will exercise directional authority and control through PEMA. The PEMA Director shall be prepared to become the Executive Officer in charge of carrying out the decisions of the Administration for direction, coordination and support of response operations of all State Departments/Agencies, Counties, Municipalities and designated institutions. The State Emergency Operations Center (EOC), Harrisburg, will be mobilized as the organization to control the State response to the emergency. If Federal assistance is required during an

incident, it will be requested by the Governor or by the PEMA Director upon authorization by the Governor. One exception to this policy deals with requests for Federal technical assistance. BRP (Bureau of Radiation Protection) does not require prior authorization by the Governor when requesting Federal technical assistance. BRP shall, however, keep PEMA informed of the status of all such requests. A State Coordinating Officer may also be designated by the Governor or his designated representative.

C. Policy and Guidance

The primary responsibility for Commonwealth emergency policy and guidance rests with the Pennsylvania Emergency Management Council. PEMA will incorporate within its notification procedures a system for relaying immediate and continuing information to the Chairman, Pennsylvania Emergency Management Council. The Chairman will notify the Governor or his designated representative. In the absence or nonavailability of the Council Chairman, PEMA will notify the Governor or his designated representative. PEMA is responsible for implementing Federal and State guidance during non-emergency times. The Director is responsible, and will be guided as a principle of State policy, to ensure that the highest standards of safety are maintained. Personnel practices, operational procedures, technical capabilities and a robust program of ongoing preparedness by all Departments and Agencies involved shall be of such rigor as to provide a substantial response capability and a consistent margin of safety.

D. Plans

The Director of PEMA has the overall authority and responsibility for radiological emergency response procedures and planning throughout the Commonwealth. Response procedures, annexes and emergency operations plans (EOPs) will be maintained current with provisions for annual review, and updating as required, and for testing during biennial exercises. These EOPs will be coordinated with involved Federal and State agencies and contiguous States, as appropriate. Mutual aid agreements between the Commonwealth and contiguous States have been developed and will be maintained.

E. Coordination

PEMA is the lead State Agency for coordination of EOPs. The PEMA Director will ensure that the EOPs of State Departments/Agencies, Counties, Municipalities, school districts and designated institutions are coordinated and in consonance with one another. Prior to finalizing program implementation, the Director will consider input of the above entities. The Director will finalize policy and program implementation in consonance with Federal and State regulatory requirements.

F. Incident Response Actions

The Emergency Classification Level Guidelines, Appendix 1, provide for response activities by the licensee, State, Counties and Municipalities for nuclear power plant incidents. The implementation of these actions will be coordinated by the State EOC and specific actions may be modified or expanded based upon the technical assessment of the incident by BRP, in conjunction with the nuclear power plant, and other influencing conditions.

G. State Emergency Operations Center (EOC) Notification Procedures

Procedures for notifying and mobilizing personnel to staff the State EOC and Regional Emergency Operations Centers will be found in the State EOC Standard Operating Procedures (SOP), a copy of which is on file in the PEMA HQ, Harrisburg. Similarly such procedures to be used by State Departments/Agencies will be found in their respective Implementing Procedures (see Appendix 22). State Departments/Agencies essential to the support of emergency response to a nuclear power plant incident are identified and tasked in this Document (see Paragraph 6, "Organization and Responsibilities," and Enclosure 2 thereto).

H. Initial Notification

- (1) PEMA will maintain a direct working relationship with each nuclear power plant operating within the Commonwealth to ensure that the initial notification of a nuclear power plant incident is made simultaneously by the plant to the State EOC and the risk Counties. This initial notification must be made within 15 minutes (or sooner if possible) after determination that events have occurred which require designation of an emergency classification level (ECL) (see Appendix 3, Attachment A). The Bureau of Radiation Protection (BRP), which is within the Department of Environmental Protection (DEP), will develop and maintain similar arrangements designed to permit rapid assessment of incident consequences.
- (2) BRP will have an effective non-duty period watch system to ensure responsible persons receive incident reports. BRP will maintain communications arrangements with the nuclear power plant, the State EOC, and appropriate Federal Departments and Agencies. Agencies in the State EOC will maintain communications with FEMA, other Federal Departments and Agencies, State Departments/Agencies, contiguous States and affected Counties as required.

**Change 4
March 2002**

I. Activation of Notification and Alert Systems

Upon receipt of the initial incident ECL notification, BRP will contact the designated technical element at the nuclear power plant involved to determine the nature and extent of the incident and advise the State EOC. Based upon BRP's technical assessment of the incident, the State EOC will notify the risk Counties and, if appropriate, the contiguous States (see Appendix 2). In coordination with the State EOC, the risk Counties will activate their siren systems when: (1) the release of emergency information will reassure the public of their safety; (2) the public is to be informed of a plant status; (3) specific actions, to include protective actions, are to be taken by the public. (See Appendix 3.)

J. Incident Assessment

The Director of PEMA will activate necessary response mechanisms based upon the nuclear power plant incident assessment and the advice of BRP. In the absence of such advice from BRP, action will be based upon the Director's assessment or judgment of existing conditions in coordination with the nuclear power plant. Recommendations or directions for public response will be disseminated by the Director of PEMA following consultations with the Pennsylvania Emergency Management Council Chairman or the Governor. If the decision is made to direct the evacuation of an area, the entire EPZ (360 degrees) out to the plume exposure pathway EPZ boundary within Pennsylvania will be evacuated.

K. Incident Escalation

After initial notification of an incident has been made, any subsequent escalation to a higher emergency classification of Alert, Site Area Emergency or General Emergency will be reported by the nuclear power plant simultaneously to the State EOC and risk Counties for response action. (See Appendix 2.)

L. BRP and PEMA Liaison to the Nuclear Power Plant (EOF)

Following occurrence of an incident classified as, or escalating to an Alert, Site Area Emergency or General Emergency, the nuclear power plant will activate its Emergency Operations Facility (EOF). BRP and PEMA will dispatch State liaison personnel to the EOF at the Alert ECL as do the power plants and establish telephone and/or radio communication between the EOF and the BRP and the operations staff at the State EOC. The BRP liaison personnel will coordinate technical data with BRP staff at the State EOC. PEMA liaison personnel will coordinate operational aspects of the response with the Situation Analysis Cell at the State EOC.

M. Communication Failure

In the event of a communications failure between the risk Counties and the State EOC (PEMA/BRP), coordination responsibility will be assumed by the County in which the nuclear power plant is located, known as the parent County, until communications have been restored. Should protective actions become necessary during this period, the risk and support Counties as coordinated by the parent County will take the actions deemed appropriate and necessary for protection of public health and safety, as recommended by the power plant officials and/or NRC and BRP staff working at the power plant site, and consistent with Emergency Classification Level Guidelines (see Appendix 1).

N. Nuclear Power Plant Contingency

In a worst case situation at a nuclear power plant involving actual or imminent core degradation or potential loss of containment, the plant's initial notification may be to declare a General Emergency, including a recommendation of protective actions to be taken. This classification could be announced bypassing all lesser classifications, e.g., Alert and Site Area Emergency. Under this circumstance, upon receiving an initial notification from the plant of a General Emergency, the risk Counties, as well as the State EOC, have the authority to advise the public to take protective action.

O. County Response

Each risk County, in coordination with the State EOC, is responsible for implementing its RERP to provide protection for the health, safety and welfare of persons within the County. The response activities of Municipalities will be coordinated by the respective County as detailed in Annex E to the County EOP.

P. Evacuation Routes

Main evacuation routes to be used, if necessary, by citizens of risk Counties are shown on the respective Evacuation Plan Maps in Appendix 24. Evacuation will be based upon private transportation augmented as necessary by mass transit means available.

Q. American Red Cross (ARC)

The ARC will be represented at the State EOC by an Emergency Preparedness Liaison Officer (EPLO) who will coordinate the activities of its chapters designated to provide mass care and attendant services for evacuees. The ARC EPLO will report to the State EOC at the Alert ECL.

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R. Mass Care of Evacuees (also known as Congregate Care)

Each County with a mass care responsibility, in coordination with PEMA, is responsible for developing an SOP that includes procedures for operating reception centers, mass care centers and monitoring/decontamination centers.

S. Premature Release of Information

All Counties and Municipalities within the notification chain should be aware of potential harm caused by premature release of information. The overriding consideration, however, must be the assurance of public safety. Leadership at all levels must balance the impact of premature dissemination of information against the requirements of public safety.

T. Public Forums

It is recognized that the effective execution of off-site response procedures associated with nuclear power plants depends upon the public's understanding of the procedures and their workability. Therefore, it is vitally important that public issues and concerns be addressed on a continuing basis and that ample opportunity be afforded for the populace to seek clarification of any problem. County and Municipal governments are encouraged to conduct public forums for the purpose of disseminating and explaining provisions of EOPs. Participation by PEMA should be invited to the degree desired and necessary.

U. Training and Exercises

The PEMA Director is responsible for ensuring that comprehensive and effective refresher training is provided to all elements involved in emergency operations. A biennial full-participation exercise will be conducted in conjunction with each of the five nuclear power plants within the Commonwealth to test the integrated capabilities of the plant, State, County and Municipal government RERPs. The State will also participate with nuclear power plants in required partial participation exercises. Provisions will be made for evaluation, critique, and necessary revisions to individual RERPs. The public will be advised when these exercises are to be conducted (see Appendix 18). PEMA will arrange an orientation for the news media in advance of each nuclear power plant's biennial exercise.

V. Ingestion Exposure Pathway Emergency Planning Zone

- (1) Potentially contaminated areas within the 50-mile Ingestion Planning Zone will be sampled and if contaminated areas are identified, protective actions will be taken to place restrictions, appropriate for protecting the public health, regarding the use of contaminated food or water (see Appendix 7).

- (2) Other areas in the 50-mile Ingestion Planning Zone will also be sampled to ensure that they are not contaminated.
- (3) Protective actions will:
 - a. require modifications of food production, processing, and distribution cycle pathways in affected areas both within and outside of the ingestion exposure pathway EPZ.
 - b. be based upon known releases to the environment, radiological measurements, laboratory analyses, and integrated dose projections.
 - c. not be taken without verification of the measured levels for both preventive or emergency protective actions and a consideration of the health, economic, and social impacts of such actions.

W. Recovery

The Director of PEMA, following consultation with the Pennsylvania Emergency Management Council Chairman, will coordinate the transition into recovery operations by adjustments in staffing and department and agency missions as indicated in Appendix 15.

5. DIRECTION, COORDINATION AND SUPPORT

A. General

- (1) Direction and control of emergency response in the event of a natural or man-caused disaster is the responsibility of the elected officials at the lowest level of government affected by the disaster. Within the Commonwealth, the lowest level of government is the Municipality as defined in paragraph 13 of this document. The Municipality discharges this responsibility through its emergency management agency and by response operations implemented in accordance with the Municipal EOP, as prepared in consonance with the corresponding County EOP. These EOPs are mandated by the Emergency Management Services Code as amended (35 Pa. C.S., Sections 7101-7707), hereafter referenced as the Act, as specifically set forth in Section 7503(l). The authority for exercise of Municipal direction of emergency response operations is found in Section 7504(a) of the Act.

- (2) A primary purpose of the Act is to provide for coordination of emergency response operations by the respective levels of government (i.e., State, County and Municipal). In order to accomplish this coordination, the Act mandates in Section 7504(a) that if two or more political subdivisions (Municipalities) within a County are affected, the County will exercise responsibility for coordination and support of the Municipal response. If two or more Counties are affected, PEMA will exercise responsibility for coordination and support of the overall response operation.
- (3) PEMA, as the lead emergency management agency for the Commonwealth, has been granted powers and authority under the Emergency Management Services Code to respond to disaster emergencies. Upon the Governor's executive order or proclamation of a State of disaster emergency, the PEMA Director shall be prepared to become the Executive Officer in charge of carrying out the decisions of the Administration for direction, coordination and support of response operations of all State Departments/Agencies, Counties, Municipalities and designated institutions.

B. Response to Nuclear Power Plant Incidents

- (1) An effective response to a nuclear power plant incident requires an integrated effort by the affected risk Municipalities, risk and support Counties, school districts, volunteer organizations and the Commonwealth.
- (2) Emergency response to an incident at any of the five nuclear power plants within Pennsylvania will always involve two or more Counties and more than two Municipalities.
- (3) The overall responsibility for direction and coordination of offsite response operations in the event of a nuclear power plant incident will therefore be exercised by PEMA in accordance with the referenced provisions of the Act. This direction and coordination will be exercised by PEMA through the State EOC, the respective County elected officials and their emergency management agencies.
- (4) The State EOC has responsibility for the direction and coordination of risk Counties' response operations. The State Regional EOCs are responsible for the coordination and support of reception and mass care operations and monitoring/decontamination centers provided by support Counties.
- (5) County elected officials, through their County emergency management agency, are responsible for the coordination and support of response by risk Municipalities within their respective Counties.

(6) Contingencies

- a. If a County is unable to respond to a nuclear power plant incident due to personnel or operational shortfalls, or requests direct operational assistance from the State, the provisions of Section 7313(7) and 7504(b) will be invoked automatically and the State will become immediately responsible for the coordination and support of response activities within the affected County.
- b. If a Municipality is unable to respond to a nuclear power plant incident due to personnel or operational shortfalls or requests direct operational assistance from the County, the provisions of Section 7504(b) will be invoked automatically and the County will become immediately responsible for the coordination and support of response activities within the affected Municipality.
- c. The above actions are required to ensure that the health and safety of persons within the County and Municipality will be protected. PEMA may, if necessary, direct the County to discharge this responsibility in accordance with the authority granted to PEMA by Section 7313 of the Act.

- (7) To discharge the responsibilities specified herein, it is essential that the State and each risk County have contingency procedures to be implemented in the event that a risk County or Municipality fails to respond to an actual incident or to participate in a Federally-required exercise.

6. ORGANIZATION AND RESPONSIBILITIES

A. Organization

- (1) In an emergency situation, many governmental and volunteer organizations are mobilized to implement specific emergency response activities. The PEMA staff is augmented by representation as requested from the participating emergency response organizations. This augmented staff will operate the State EOC to provide a timely, coordinated and comprehensive response to emergencies.
- (2) The emergency management organization is shown in Enclosure 1.

B. Responsibilities

- (1) Responsibilities common to State Departments/Agencies designated in this Basic Document, paragraphs 6.B.(2) through 6.B.(24) are to:

- a. Develop and maintain plans and/or response procedures to support offsite radiological emergency response operations involving each nuclear power plant.
- b. Identify critical functions and activities to ensure adequate operational capacity during incidents.
- c. Establish procedures for the rapid notification and assembly of key personnel and utilization of equipment and other resources.
- d. Coordinate with PEMA and the appropriate County or Counties in planning and preparing for possible relocation or transfer of Department/Agency activities from within the plume exposure pathway EPZ to locations outside the EPZ.
- e. Maintain resource inventories of critical personnel, equipment and supplies, and be prepared to support the efforts of other State Departments/Agencies and County governments, in coordination with PEMA.
- f. Minimize use of commercial communications systems during an incident.
- g. Participate in radiological emergency response exercises and drills conducted by PEMA (see Appendix 18).
- h. Maintain records and reports acquired during incidents and exercises, prepare after-action reports and participate in critiques as appropriate.
- i. Develop procedures for responding to and recovery from incidents impacting on the economy or population within the Department/Agency's area of concern, to include conducting economic, social, environmental, psychological, or physiological studies, as appropriate and necessary.
- j. Encourage the participation of business, industry, governmental and volunteer agencies in supporting all levels of government in the development of overall planning and enhanced response and recovery capabilities.
- k. Provide to PEMA a copy of the Department/Agency's plan and/or response procedures pertaining to response to a nuclear power plant incident.

1. Ensure that emergency planning required by legislation or Departmental/Agency regulation, i.e., schools, nursing homes, other special facilities, etc., is adequately executed and is being performed in a timely manner by assuring that the Department/Agency develops a system/procedure to confirm that adequacy and frequency of review.

(2) Department of Aging (DOA)

- a. Coordinate the emergency response of Area Agencies on Aging for the special care and transportation of older persons during a nuclear power plant incident.
- b. Coordinate with Area Agencies on Aging when implementing emergency management procedures in affected areas and encourage Area Agencies on Aging to coordinate responses to nuclear power plant incidents with the appropriate County emergency management agency.
- c. Provide an Emergency Preparedness Liaison Officer (EPLO) and support personnel, as required, to the State EOC upon request by PEMA.

(3) Department of Agriculture (AG)

- a. Serve as the State Coordinating Agency with the U.S. Department of Agriculture (USDA), PEMA, BRP and the Department of Health concerning issues relevant to the agricultural community. In this regard, emergency response operations will be coordinated through the State EOC by the Pennsylvania Department of Agriculture and the State Emergency Board, supported by personnel from the USDA component of the Federal Radiological Monitoring and Assessment Center (FRMAC).
- b. Develop and issue guidance to Counties and the agricultural community concerning response procedures and actions necessary to evaluate and prevent radioactive contamination of agricultural, dairy and food products. Control and effect appropriate disposition of such products should they become contaminated.
- c. Implement preventive and protective actions within the ingestion exposure pathway EPZ of nuclear power plants (see Appendices 7 and 24).

- d. Maintain a site-specific list and location map of food and foodstuff processors handling agricultural, dairy and other food products grown or raised within the plume and ingestion exposure pathway EPZs of nuclear power plants located within or beyond the boundaries of the Commonwealth.
- e. Develop Department plans and/or response procedures to implement control of the processing or use of the above products should they become contaminated during an incident.
- f. Maintain a site-specific, list and map of the location of dairy herds within the ingestion exposure pathway EPZ of nuclear power plants located within or beyond the boundaries of the Commonwealth.
- g. Maintain information on alternative sources of food supply, both public and private sectors, for potential use during an incident.
- h. If and as requested by the ARC, activate an Emergency Government Donated Food Distribution Coordination Office to support feeding of evacuees at mass care centers.
- i. Provide field personnel, either internally or with USDA assets, for sampling agricultural, dairy and food products for BRP analysis and in support of BRP radiological monitoring efforts.
- j. Coordinate with BRP and the Department of Health in the collection and disposition of contaminated commodities and food products in accordance with recommended limits of radioactivity established by the Federal Food and Drug Administration (FDA).
- k. Establish and maintain liaison, through Regional Offices, with the County Food and Agriculture Council/County Emergency Board for each Pennsylvania County within the plume and ingestion exposure pathway EPZs of nuclear power plants located within or beyond the boundaries of the Commonwealth.
- l. Coordinate with PEMA on results of USDA assessments of crop losses resulting from an incident.
- m. Coordinate with PEMA on the development and distribution to the agriculture community of information concerning radiological emergency response procedures, preventive and emergency protective actions to be taken in the ingestion pathway EPZs.

- n. Provide an EPLO and supporting Emergency Response Team (ERT) members to the State EOC upon notification of an Alert or higher classification by PEMA.
- o. Provide a liaison representative to the specified State Regional EOC upon request from PEMA.

(4) Department of Banking

- a. Provide assistance in supply of general or specialized information concerning banks and other financial institutions and agencies.
- b. Provide an EPLO and support personnel, as required, to the State EOC, upon request by PEMA.
- c. For detailed responsibilities, see Appendix 19.

(5) Department of Community and Economic Development

- a. Provide assistance to business, industrial and commercial organizations in matters relating to the temporary or permanent relocation of establishments and facilities adversely affected by a nuclear power plant incident.
- b. Conduct analyses of the economic disruption to business, industrial and commercial establishments resulting from an incident, to include resultant unemployment and loss of income.
- c. Evaluate the need for emergency temporary housing for individuals or communities relocated as a result of a nuclear power plant incident.
- d. Conduct analyses of the need for and coordinate the implementation of Commonwealth plans and programs for the long-range economic recovery of an area affected by the incident.
- e. Provide an EPLO and support personnel, as required, to the State EOC, upon request by PEMA.

(6) Department of Conservation and Natural Resources (DCNR)

- a. Develop and maintain procedures to notify visitors to State parks and forests within the approximate ten mile EPZs of the nuclear power plants in the event of an incident.

- b. Be prepared to participate in the State Recovery Task Force in the wake of a nuclear power plant incident to include the identification of potential temporary housing sites.
 - c. Provide EPLOs and supporting ERT members to the State EOC upon notification of an Alert or higher classification by PEMA.
- (7) Department of Corrections (DOC) |
 - a. Develop and maintain plans for the evacuation of State correctional institutions as a result of a nuclear power plant incident.
 - b. Assist risk Counties, if requested, in the development of response procedures and/or plans for the evacuation and relocation of persons held in County correctional institutions as a result of an incident.
 - c. Provide an EPLO and support personnel, as required, to the State EOC, upon request by PEMA.
- (8) Department of Education (ED) |
 - a. Identify and maintain a list of all educational institutions (public and private) within the plume exposure pathway EPZs. Ensure that the need and responsibility for maintaining response procedures for reaction to a nuclear power plant incident are understood and accepted by district superintendents and school/institution administrators.
 - b. Assist district school superintendents and educational institution administrators (public and private) in the development of uniform emergency procedures for response to an incident at a nuclear power plant.
 - c. Assist the district school superintendents and educational institution administrators (public and private), in coordination with PEMA and the respective County emergency management agency, in the development of Radiological Emergency Response Procedures and/or Plans. Ensure that procedures are established for disseminating this information to students and parents.
 - d. Ensure that uniform and acknowledged procedures exist for sheltering or evacuating students and closing and reopening schools during an incident at a nuclear power plant.

- e. Assist the County emergency management agency in risk and support Counties in arranging for the use of school facilities as reception centers and/or mass care centers and participate in assuring cooperation between Counties, volunteer agencies and school administrators in operation of such centers.
- f. Assist school districts in developing response procedures and/or plans for utilization of school buses for school evacuation.
- g. Develop, in coordination with PEMA, BRP and the Department of Health, educational programs concerning nuclear radiation hazards, their effects and protective measures for inclusion in the public school curriculum.
- h. Provide an EPLO and supporting Emergency Response Team (ERT) members to the State EOC upon notification of an Alert or higher classification by PEMA.

(9) Department of Environmental Protection (DEP) |

- a. Take water samples from appropriate public reservoirs, water intake points, water treatment plants, ground water and surface water.
- b. Maintain procedures for timely notification of downstream water companies regarding contamination of water resources.
- c. Conduct or arrange laboratory analyses to detect radiation contamination of dairy and other agricultural products, food products from processor and retail establishments, and public water supplies.
- d. Provide an EPLO and supporting ERT members to the State EOC upon notification of an Alert or higher classification by PEMA.
- e. Provide a liaison representative to the specified State Regional EOC upon request from PEMA. |
- f. Advise on the adequacy of sanitary water, sewer and food handling facilities at mass care centers
- g. Bureau of Radiation Protection (BRP)

- 1) Develop and maintain an appendix to Annex E which establishes procedures required to meet the evaluation criteria and planning standards in NUREG-0654, FEMA-REP-1, Revision 1 related to incident assessment and radiological protection.

- 2) Conduct incident assessment, evaluate protective actions that might be taken and make recommendations to the State EOC.
- 3) Develop and issue guidance to limit the radiological exposure of emergency workers during an incident. Ensure that dose records are maintained, collected, analyzed and acted upon as required.
- 4) Provide, in coordination with PEMA, technical guidance and assistance to State agencies, County and Municipal governments regarding radiation detection, hazards of radiation exposure, decontamination and protective actions.
- 5) Coordinate with PEMA and the Departments of Health and Agriculture regarding the interrelationship of their respective incident response procedures and responsibilities.
- 6) Plan and coordinate the placement of offsite monitoring devices and interpret radiological monitoring measurements.
- 7) Develop procedures for augmentation by Federal radiation regulating, monitoring and protection agencies and coordinate assistance from them.
- 8) Advise risk and support Counties, through the State EOC, regarding a need for the monitoring of evacuees at mass care centers.
- 9) Provide to the State EOC periodic evaluations of the situation and estimates of the radiation dose for the populace within the plume exposure pathway EPZ, on identified hot spots within the ingestion exposure pathway EPZ and on food chains within the ingestion exposure pathway EPZ.
- 10) Maintain a watch system for non-duty hours to ensure that responsible persons within BRP can be contacted by PEMA to activate the response mechanism in the event of an incident.
- 11) Establish criteria for reentry, for return, and relaxing protective actions. Make recommendations to the State EOC for transmittal to the Governor for ultimate decision relative to implementation of the recommendations.
- 12) Develop, in coordination with PEMA and the Department of Health, public education material to explain to the populace

the nature of radiation, hazards involved and protective actions that can be taken to alleviate these hazards.

- 13) Obtain meteorological data from the plant during an incident and provide to the State EOC.
- 14) Establish and maintain contact with counterpart agencies in contiguous States regarding response to nuclear power plant incidents affecting more than one State.
- 15) Provide a technical staff representative to the Commonwealth Emergency News and Information Center who can explain technical nuclear power plant data and incident status in non-technical language.
- 16) In the event of a nuclear power plant incident, provide a liaison representative to the EOF at the declaration of Site Area Emergency.
- 17) Upon notification by PEMA of Alert or higher emergency classification level, provide an EPLO and supporting ERT members to the State EOC.
- 18) Provide a liaison representative to the specified Regional EOC upon request from PEMA.

(10) Fish and Boat Commission (F & BC)

- a. Upon request from PEMA, provide land or waterborne traffic access control on the Beaver, Ohio, Schuylkill or Susquehanna Rivers.
- b. Assist in evaluating the effects of a nuclear power plant incident on the environment, particularly by providing representative fish specimens for evaluation to DEP during recovery.
- c. Provide an EPLO and support personnel, as required, to the State EOC, upon request by PEMA.

(11) Game Commission

- a. Assist in evaluating the effects of a nuclear power plant incident on the environment by providing representative game specimens to DEP for evaluation during recovery.

- b. Provide an EPLO and support personnel, as required, to the State EOC, upon request by PEMA.

(12) Department of General Services (DGS)

- a. Provide, procure or assist in the procurement of facilities, equipment, materials and supplies required by Commonwealth agencies for emergency operational purposes.
- b. Provide for the resource and facility support requirements of Federal support agencies.
- c. Provide, through the Telephone Technology Services Division, for telephone communications support to Federal and State agencies.
- d. Arrange for the installation of dedicated lines at the State EOC, Harrisburg, and State Regional EOCs upon request by PEMA.
- e. Provide an EPLO and support personnel, as required, to the State EOC, upon request by PEMA.

(13) Secretary for Public Information

- a. Establish policies and guidance for the development and implementation of public education and information programs by Commonwealth agencies.
- b. Support the operation of a rumor control telephone center operated by the Governor's Office/Governor's Action Center.
- c. Ensure the establishment of the Commonwealth Emergency News and Information Center (CENIC) in the vicinity of the State EOC, as a principal point of coordination for the State department/agency representatives during an incident. The PEMA Press Secretary will open the CENIC office upon activation of the EOC.
- d. Coordinate the use of public information personnel from selected State agencies in support of PEMA's role as supervisor of the Commonwealth Emergency News and Information Center during a nuclear power plant incident.

(14) Department of Health (DOH)

- a. Develop and maintain a comprehensive State Emergency Medical Plan and/or response procedures to nuclear power plant incidents.

- b. Coordinate with Federal health authorities, PEMA, BRP and Department of Agriculture to assess radiation hazards to the public and develop corresponding health related guidance for incident response.
- c. Support the Counties and Municipalities with technical advice and identification and coordination of medical resources in the event of an incident.
- d. Procure and stockpile a thyroid-blocking agent. In coordination with PEMA, develop procedures for distributing the agent to designated emergency workers and institutional personnel.
- e. Develop and provide an advisory to emergency workers and institutionalized individuals regarding the use of potassium iodide (KI) in conjunction with the State EOC and BRP.
- f. Maintain current site-specific lists of medical facilities having the capability of evaluating, handling and treating contaminated/irradiated individuals. These medical facilities should be located at least 20 miles from the nuclear power plant sites.
- g. Compile and maintain a current listing of Statewide ambulance resources that could be made available for use in evacuation of hospitals, nursing homes and mobility impaired individuals living at home, and for use in transporting offsite radiation victims to treatment facilities.
- h. Establish and maintain contact with hospitals within the plume exposure pathway EPZ and advise them, in conjunction with PEMA, regarding their respective radiological emergency response plans.
- i. Cooperate with State hospital associations and other medical organizations in developing procedures for preventing adverse effects that may result from radiation exposure.
- j. Develop and implement a uniform Statewide system for recording and protection of confidentiality of the contamination data and the treatment of individuals exposed to radiation to include:
 - 1) Location and time of incident
 - 2) Radiation exposure data

- 3) Contamination status
- 4) Treatment status
- 5) Release status
- 6) Protection of data

k. In coordination with BRP and PEMA:

- 1) Issue guidelines for radiation detection and measurement systems used by ambulance services and hospital emergency departments.
- 2) Issue guidelines concerning the levels of radiation exposure related to the health and safety of ambulance services, hospital and other health care personnel.
- 3) Develop public education material to explain to the populace the health hazards of radiation exposure and what can be done medically to eliminate or lessen the hazards and to treat individuals exposed to them.

l. Coordinate the medical response to incidents with affected contiguous States.

m. Provide an EPLO and supporting ERT members to the State EOC upon notification of Alert or higher emergency classification level by PEMA.

n. Provide a liaison representative to the specified State Regional EOC upon request from PEMA.

(15) Department of Insurance

- a. Maintain contact with American Nuclear Insurers (ANI) and Mutual Atomic Energy Liability Underwriters (MAELU), the companies which provide liability coverage for the nuclear power plant operators.
- b. Provide an Emergency Preparedness Liaison Officer (EPLO) and support personnel, as required, to the State EOC upon request by PEMA.

(16) Department of Labor and Industry (L & I)

- a. Provide unemployment compensation to eligible individuals who become temporarily unemployed due to a nuclear power plant incident and, in coordination with the Department of Community and Economic Development, analyze the impact of an incident on employment.
- b. Conduct analyses, in coordination with the Department of Community and Economic Development, of the economic disruption to industrial activity resulting from an incident.
- c. Through the Office of Employment Security recruit labor that may be needed for clean-up work necessitated by an incident.
- d. Provide an EPLO and support personnel, as required, to the State EOC, upon request by PEMA.

(17) Department of Military and Veterans Affairs (DMVA)

- a. Develop and maintain an operations plan to support State and County emergency response actions within the plume exposure pathway EPZ of each nuclear power plant.
- b. Plan for the use of National Guard units tasked to support risk Counties, upon request, with traffic control, security (to include access control), search and rescue, emergency transportation, and emergency clearing of roads and evacuation. Augmentation requests by State agencies and Counties will be processed through the State EOC. Approved requests will be forwarded to DMVA by the State EOC (see Appendix 13).
- c. Plan for the commitment, if requested, of additional National Guard forces to augment units in support of risk Counties.
- d. Assist the State Police and Counties, upon request by the State EOC, with traffic control, access control and security of designated areas within the plume exposure pathway EPZ.
- e. Provide air and ground transportation assets, upon request of the State EOC, to supplement County and Municipal resources required for evacuation.
- f. Establish emergency fuel distribution points and provide road clearance equipment for use along main evacuation routes in coordination with the Pennsylvania Department of Transportation.

- g. Provide equipment and personnel to augment or reestablish communications systems of PEMA and/or County upon request.
- h. Assist in medical evacuations.
- i. Provide assets to airlift key State and emergency management personnel to incident sites.
- j. Provide an EPLO and supporting ERT members to the State EOC upon notification of an Alert or higher classification by PEMA.
- k. Provide a liaison officer to the specified State Regional EOC upon request through the DMVA Emergency Preparedness Liaison Officer at the State EOC.
- l. Provide a liaison representative to each specified risk County EOC to coordinate potential National Guard support for the respective Counties. The DMVA EPLO located at the State EOC is responsible for initial notification and dispatch of the liaison representative. County requests for support will be channeled from the DMVA liaison representative, in coordination with PEMA County liaison officer, to the DMVA EPLO at the State EOC.

(18) Pennsylvania Emergency Management Agency (PEMA)

- a. Serve as the lead State agency for coordination of emergency planning and for direction and coordination of response operations.
- b. Develop and maintain Annex E, "Radiological Emergency Response Procedures (RERP) to Nuclear Power Plant Incidents," to the Commonwealth Emergency Operations Plan. Review annually and update as necessary.
- c. Coordinate State department/agency planning in support of the State plan.
- d. Assist risk/support Counties and risk schools and colleges in the development of their Radiological Emergency Response Procedures (RERP).
- e. Review and revise, if necessary, the risk and support County RERPs to ensure they:
 - 1) are in consonance with Annex E of the Commonwealth EOP.

- 2) comply with Federal government guidance for radiological response.
- f. Review Municipal, risk school district and college plans for consistency with their respective County RERP.
- g. Coordinate, in cooperation with applicable State departments/agencies and the American Red Cross, the resource management of available State equipment and supplies to satisfy unmet needs of risk and support Counties.
- h. Maintain listings of the reported unmet needs from risk and support Counties. Allocate State resources and request assistance from FEMA to make up shortfalls.
- i. Establish and maintain agreements with contiguous States, volunteer organizations and the nuclear power plants to provide for coordination and integration of emergency response planning and operations.
- j. Provide for the exchange of information during an incident with the nuclear power plants, Federal agencies, State agencies, contiguous States, and affected Counties.
- k. Establish initial and escalation notification procedures to include a 24-hour response capability by PEMA.
- l. Receive protective action recommendations from the affected nuclear power plant management. Evaluate the potential for effective implementation based upon existing offsite readiness conditions. In coordination with BRP, recommend concurrence or non-concurrence to the Governor and upon his directional authority to the State EOC, direct and coordinate implementation of the actions.
- m. In coordination with PennDOT, review and evaluate evacuation time estimate studies prepared by the utilities or their consultants to ensure that evacuation, if recommended, is a feasible protective action and can be successfully implemented. Take action to reduce response times as much as possible and participate in the updating of the time estimate studies.
- n. Coordinate briefings for the State spokesperson(s), based on concurrence with the Governor's Press Secretary, to provide timely dissemination of emergency information regarding incident status and response actions to the media and public.
- o. Coordinate activities with County public information officers.

- p. Inform affected Counties of projected exposure rates provided by BRP in case of a radiological contaminant or radiation release from a nuclear power plant.
- q. Augment Federal and State communications with equipment maintained by PEMA.
- r. Develop requirements and procedures in coordination with BRP, for the distribution, storage, repair and use of radiological contaminant monitoring and dosimetry resources.
- s. In coordination with the Pennsylvania Army National Guard, provide for emergency fuel allocation to assure availability to support an evacuation, if necessary, during a nuclear power plant incident.
- t. Ensure that meteorological data provided by BRP is forwarded expeditiously to risk Counties.
- u. Coordinate security arrangements for restricted access areas with PSP and the National Guard, to include the designation of restricted access areas and entrance and exit controls. The State EOC will coordinate the activation of the access control points.
- v. Serve as the lead State agency for the direction and coordination of recovery decisions made by the Governor.
- w. Provide for a State-County-facility conference to be held with the respective risk Counties at each nuclear power plant in conjunction with the annual and biennial exercises to acquaint news media personnel serving the area with emergency plans and points of contact (see Appendix 16).
- x. Conduct a biennial exercise with each nuclear power plant and the Counties, Municipalities, school districts and other organizations involved to evaluate radiological emergency response procedures, plans and capabilities (see Appendix 18).
- y. Conduct periodic communications, radiological monitoring, decontamination and health physics drills, as appropriate, with Federal emergency response organizations, contiguous States, State agencies and Counties within the plume exposure and ingestion exposure pathway EPZs.
- z. Participate in the annual exercise and communications drills conducted by each nuclear power plant.

- aa. Conduct training for emergency management personnel in radiological emergency response procedures and operations (see Appendix 17).
- bb. Serve as the lead State agency, within the overall policy guidance established by the Secretary for Public Information, and in coordination with BRP and the Department of Health, in developing and implementing a public education program regarding the nature of radiation, its hazards and their effects and protective actions that can be taken.
- cc. Develop, in coordination with the Secretary for Public Information, and present a public information program to keep the populace advised regarding the status and scope of radiological emergency response plans at the State, County and Municipal levels. Updated information should be disseminated at least annually by brochures, calendars and/or telephone directory emergency pages.
- dd. Develop procedures, in coordination with the Department of Health and the affected County emergency management agencies, for distribution of a thyroid-blocking agent to designated emergency workers and institutional personnel.
- ee. Activate the State emergency operations center Harrisburg and, as appropriate, at the State Regional EOCs in Indiana, Harrisburg and Hamburg, when a nuclear power plant incident is assigned an emergency classification of Alert or higher.
- ff. When an incident is assigned an emergency classification of Alert or higher:
 - 1) Notify State departments/agencies, as appropriate.
 - 2) Coordinate with the Public Utility Commission (PUC) to insure notification of railroads which normally schedule freight and passenger rail traffic throughout the plume exposure pathway EPZ.
 - 3) If a decision is made to restrict air space, coordinate with the PennDOT Bureau of Aviation to assure notification and control of aircraft over the incident site and through the plume exposure pathway EPZ.
 - 4) Coordinate with the Fish and Boat Commission to assure public notification and control of the waterways near the

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incident site and to prevent passage through the plume exposure pathway EPZ.

- 5) Verify that the State Regional EOCs are prepared to coordinate and support reception, mass care operations and fulfillment of unmet needs.
- 6) Send a liaison officer to the EOCs of the risk Counties involved, the Emergency Operation Facility (EOF) of the affected power plant, and the EOC(s) of affected contiguous State(s) (see Enclosure 1, Tab B).
- 7) Deploy a media liaison team to the affected utility's emergency news center.
- 8) Confirm that liaison representatives from DMVA, PSP, PennDOT and Red Cross have been notified by their respective State EPLOs to report to specified risk Counties.

(19) Pennsylvania State Police (PSP)

- a. Assist risk Counties in developing traffic control and security aspects of radiological emergency response planning.
- b. Review and approve in coordination with PEMA and PennDOT, the Traffic Control Points (TCPs) designated by risk and support Counties. Approve the Access Control Points (ACPs) designated around the perimeter of the plume exposure pathway EPZ. Provide PSP personnel to man assigned TCPs and ACPs. With assistance from the National Guard, the PennDOT and in coordination with PEMA, implement procedures to control the orderly movement of people from the plume exposure pathway EPZ if evacuation becomes necessary.
- c. Plan, in coordination with PEMA, the National Guard, BRP and the risk Counties, entrance and exit control via access control points and security of designated areas within the plume exposure pathway EPZ of a nuclear power plant. Implement controls as directed by PEMA.
- d. Assist PEMA, the PennDOT and the Turnpike Commission in the development and continuing analyses of projected traffic flow and road/highway capacities. This includes consideration of potential restrictions to the use of Turnpike routes to transient traffic and the closing of specific parts of the Turnpike, if necessary during a nuclear power plant incident (see Appendix 20). Assist in the selection of

major evacuation routes for evacuees and coordinate any potential restrictions to use of the major/alternate evacuation routes.

- e. Conduct traffic surveillance, in coordination with the Department of Transportation, to ensure that roads and highways designated as major evacuation routes are open and capable of handling the projected and actual traffic loads. Keep PEMA advised of proposed changes or rerouting of the traffic flow.
- f. Augment communication systems of PEMA and risk or support Counties upon request.
- g. Assist risk Counties, upon request, in providing security for prisoners being moved to other detention centers during an evacuation.
- h. Assist the Department of Corrections, upon request, in providing security for transfer of inmates from State correctional institutions within the EPZ to other designated facilities during an evacuation.
- i. Respond to calls for assistance from a nuclear power plant in the event of acts of terrorism or sabotage.
- j. Provide airlift and highway escort for movement of key emergency management personnel and critical support equipment to the incident site or the plant's Emergency Operations Facility (EOF).
- k. Provide road and/or aerial delivery of control PRD's from risk Counties to PEMA, within capabilities.
- l. Provide an EPLO and supporting ERT members to the State EOC upon notification of an Alert or higher emergency classification level by PEMA.
- m. Provide a liaison representative to the specified State Regional EOC upon request from PEMA.
- n. Provide a liaison representative to each specified risk County EOC to coordinate PSP support for the respective Counties. The PSP EPLO located at the State EOC is responsible for initial notification and dispatch of the liaison representatives. County requests for support will be channeled from the PSP liaison representatives, in coordination with the PEMA liaison officer, to the PSP EPLO at the State EOC.

(20) Public Utility Commission (PUC)

- a. Evaluate the impact of a nuclear power plant incident on the consumer service area. Ensure the continued and equitable provision of power to the affected area.
- b. Assist in the identification of resources for essential and priority transport of materials and equipment required in response to an incident.
- c. Through Conrail, Amtrak, and other railroads and in coordination with PEMA, plan for access control of freight and passenger rail traffic into the plume exposure pathway EPZ.
- d. During duty hours and upon assignment of an Emergency Preparedness Liaison Officer (EPLO) to the State EOC, notify railroads of an incident assigned an emergency classification level of Alert or higher.
- e. Provide an EPLO and supporting ERT members, as required, to the State EOC, upon request by PEMA.

(21) Department of Public Welfare (DPW)

- a. Develop, maintain and implement radiological emergency response procedures in coordination with PEMA for the protection, evacuation and care of patients/residents in State hospitals and facilities operated by the Department which are located within the plume exposure pathway EPZ of a nuclear power plant.
- b. Provide emergency public welfare assistance in the event of an emergency.
- c. Provide mental health and special care advice and assistance for State and County counseling programs for persons adversely affected by the incident.
- d. Provide for the care of destitute children.
- e. Develop and implement specialized State mental health and human care service programs to alleviate recovery problems associated with an incident.
- f. Provide an EPLO and supporting ERT members to the State EOC upon notification of an Alert or higher emergency classification level by PEMA.

(22) Department of Transportation (PennDOT)

- a. Coordinate with PEMA, the Turnpike Commission and the PSP in the development and continuing analyses of projected traffic flow and road/highway capacities and the selection of major evacuation routes for evacuees. This includes consideration of potential restrictions to the use of Turnpike routes to transient traffic and the closing of specific parts of the Turnpike, if necessary, during a nuclear power plant incident (see Appendix 20). Also consider potential restrictions to the use of major routes, i.e., landslides, snow and adverse weather, provisions for clearing these restrictions, and the identification of alternate evacuation routes.
- b. Conduct traffic surveillance, in coordination with the PSP, to ensure that roads and highways designated as major evacuation routes are open and capable of handling the projected and actual traffic loads. Keep PEMA advised of proposed changes or rerouting of the traffic flow.
- c. Provide for the clearance of obstacles (i.e., landslides, snow, wrecked or stalled vehicles) to traffic flow on main evacuation routes. This effort will be augmented by National Guard equipment and operating personnel, as required.
- d. Develop and maintain an inventory of Statewide commercial and Commonwealth transportation assets and, in coordination with PEMA, plan for the allocation and utilization of these resources for evacuation of risk Counties.
- e. Maintain liaison with the Federal Aviation Administration (FAA) through the Bureau of Aviation and PEMA regarding air traffic control in the event of an incident.
- f. Provide an EPLO and supporting ERT members to the State EOC upon notification of an Alert or higher emergency classification level by PEMA.
- g. Provide a liaison representative to the specified State Regional EOC upon request by PEMA.
- h. Provide a liaison representative to each specified risk County EOC to coordinate PennDOT support for the respective Counties. The PennDOT EPLO located at the State EOC is responsible for initial notification and dispatch of the liaison representatives. County requests for support will be channeled from the PennDOT liaison representative, in coordination with the PEMA liaison officer, to the PennDOT EPLO at the State EOC.

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(23) Turnpike Commission

- a. Coordinate with PEMA, PennDOT and the PSP in the development and continuing analyses of projected traffic flow and Turnpike vehicle capacities and the selection of major evacuation routes and traffic control points impacting upon the Turnpike. This includes consideration of potential restrictions to the use of Turnpike routes to transient traffic and the closing of specific parts of the Turnpike, if necessary, during a nuclear power plant incident (see Appendix 20).
- b. Provide for the clearance of obstacles (i.e., landslides, snow, wrecked or stalled vehicles) to traffic flow on Turnpike evacuation routes.
- c. Augment the State EOC emergency communication capability, as required by PEMA for incidents, exercises and tests, provided for in 35 Pa. C.S., as amended.
- d. Provide an EPLO and support personnel, as required, to the State EOC, upon request by PEMA.

(24) County Government

- a. Risk County
 - 1) Develop and maintain a comprehensive, site-specific Annex for risk County Radiological Emergency Response Procedures (RERP) to a nuclear power plant incident(s). This Annex, organizationally, will become Annex E to the Generic County Emergency Operations Plan (EOP). The risk County Annex E will be in accord with and meet the requirements of Annex E, "Radiological Emergency Response to Nuclear Power Plant Incidents," to the State Emergency Operations Plan (EOP). Review annually the risk County Annex E, "Radiological Emergency Response Procedures (RERP) to a Nuclear Power Plant Incident(s)," update as needed and coordinate changes with PEMA.
 - 2) Identify County emergency organizations and personnel resources and task them to develop capabilities in support of the RERP.
 - 3) Identify personnel to staff and augment the County emergency management agency. Assign functional responsibilities essential to planning, implementation of the RERP and activation of the EOC if an incident should occur. Sufficient personnel must be identified to staff all functional positions on a 24-hour basis.

- 4) Establish, equip and maintain an EOC with alternate power source and back up communications.
- 5) Develop a system for rapidly notifying County and Municipal government heads, key EMA staff, emergency forces, volunteer organizations, school districts, private schools and colleges, hospitals, nursing homes, other special needs facilities and County detention facilities.
- 6) Develop provisions for the notification of transient population and the hearing-impaired. Develop provisions for the notification of non-English speaking persons if such populations comprise 5% of the total County risk population of voting age.
- 7) Verify, in coordination with the utility, that the public alert system within the approximate 10-mile plume exposure pathway EPZ is operable on a 24-hour basis.
- 8) Coordinate with and assist district school superintendents and private school administrators in the development of their respective emergency response procedures and plans.
- 9) Assist hospitals, nursing homes, and other special needs facilities to develop their procedures for protective response. Review these procedures for adequacy and to ensure consonance with the County RERP. Ensure that Municipalities develop procedures for assisting special needs individuals.
- 10) Coordinate with PEMA regarding procedures for the evacuation of hospitals and institutions operated by the Department of Public Welfare.
- 11) Coordinate development of plans for the evacuation of County-operated prison and detention facilities and review these plans to verify consonance with the County RERP.
- 12) Coordinate with business, industry and recreational facilities in the development of their emergency response procedures and plans.
- 13) Coordinate with PEMA to verify that power plant plans for the evacuation and reception of on-site personnel do not conflict with County evacuation procedures.

- 14) Coordinate selection of feeder evacuation routes, traffic control points/access control points and recommended changes in main evacuation routes with PEMA, the PSP and the Department of Transportation.
- 15) Provide list of local towing service firms in County resource manual.
- 16) Coordinate with PEMA and respective support Counties to identify:
 - (a) Traffic control points
 - (b) Reception centers
 - (c) Mass care centers
 - (d) Central resource receiving point(s)
- 17) Coordinate procedures, in conjunction with PEMA, with designated support Counties for the movement and reception of evacuees.
- 18) Establish and train the requisite number of monitoring/decontamination teams for any monitoring/decontamination centers located within the risk County plus monitoring/decontamination station(s) for emergency workers.
- 19) Prepare response procedures for distribution or pre-distribution of radiological equipment. If not pre-distributed, provide for distribution to risk Municipalities and support agencies at an Alert declaration. Provide for processing of control PRD's (see Appendix 5).
- 20) Prepare response procedures for the distribution of a thyroid-blocking agent (procured by the Commonwealth) to off-site emergency workers and institutionalized personnel in coordination with PEMA and the Department of Health.
- 21) If appropriate, establish, with the assistance of the Red Cross, mass care facilities for evacuees in the risk County support area.
- 22) Maintain response procedures for the radiological monitoring and decontamination of evacuees at mass care centers within the risk County, if any.

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- 23) Provide for radiological emergency response training, in coordination with PEMA, of County and Municipal personnel who would be utilized for emergency operations during an incident.
- 24) Disseminate, following PEMA approval, public information material to the permanent and transient population, which would include but not be limited to information concerning:
 - (a) The plume exposure pathway EPZ
 - (b) Main evacuation routes
 - (c) Reception centers and mass care centers
 - (d) Protective actions
 - (e) Contact points for additional information
 - (f) Special arrangements for persons with disabilities
 - (g) Educational information on radiation
 - (h) The ingestion exposure pathway EPZ
- 25) Assist the utility and PEMA in developing and updating the above material annually.
- 26) Prepare and maintain, in coordination with PEMA, emergency instructions and information concerning protective actions; establish procedures for transmittal of this information to the public through the Emergency Alert System (EAS).
- 27) Prepare for opening a County rumor control center that will coordinate information exchange among Counties and the State and keep the public informed.
- 28) Participate in a State-County-nuclear power plant news media conference held with risk Counties around the respective nuclear power plant in conjunction with the biennial exercise; assist PEMA and the nuclear power plant in meeting annual media briefing requirements.

- 29) Conduct periodic communications drills; participate in drills and exercises held by PEMA and the nuclear power plants and in Federally required biennial exercises.
- 30) Participate in off-site training provided by the nuclear power plants as specified in Appendix 9.
- 31) Maintain a current listing, with copy to PEMA, of unmet personnel and equipment needs.
- 32) Designate and develop procedures for operation of a central resource receiving point.
- 33) Provide security for areas where the public is taking shelter or has evacuated, in coordination with PEMA, the PSP and the National Guard.
- 34) If County EOC is within the 10-mile EPZ, designate the location of alternate EOC.
- 35) Prepare detailed procedures for the controlled reentry of emergency workers into the evacuated area in coordination with National Guard, BRP, PSP and PEMA.
- 36) Maintain records and reports acquired during an incident, prepare after-action reports and participate in critiques.
- 37) Prepare for Ingestion Planning Zone activities in conjunction with the County Emergency Board (CEB).
- 38) Coordinate response procedures for nuclear power plant incidents with the risk Municipalities within the County. Assist in the development of risk Municipal emergency operations plans to include:
 - (a) Maintenance of or transition to the generic Municipal all-hazard emergency response plan.
 - (b) Provisions for and equipping an emergency operations center (EOC) with an alternate power source; designation of a qualified emergency management coordinator and a staff to operate the center, on a 24-hour basis, when mobilized.

- (c) Initial and refresher training of the Municipal EMA staff and other emergency workers.
- (d) Provisions for a system of rapidly notifying Municipal government heads, key EMA staff, emergency workers and volunteer support organizations.
- (e) Designation of a line of succession for Municipal officials.
- (f) Providing route alerting teams to supplement, as necessary, the siren system to alert special needs populations residing in the Municipality.
- (g) Maintaining a current list of the names and addresses of homebound and handicapped persons with special medical and transportation requirements, persons with hearing impairment and non-English speaking persons.
- (h) Provisions for transportation pick-up points for the evacuation of persons within the Municipality without their own transportation means.
- (i) Provisions that dosimetry, other radiological equipment and a thyroid-blocking agent are properly secured and ready for issue (if pre-distributed) and to provide for the processing of the control PRD.
- (j) Location of Municipal traffic control points (TCPs) and access control points (ACP).
- (k) Designation of Municipal evacuation routes.
- (l) Designation of a central Municipal resource receiving point.
- (m) A Municipal resource listing of items required to support the plan.
- (n) Maintaining a current listing, with a copy to County, of unmet personnel and equipment needs.
- (o) Procedures to facilitate return of evacuees after return is authorized by the Governor.

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- (p) Participation in drills and exercises conducted by the County, PEMA and the nuclear power plants to meet Federal and State exercise requirements.

b. Support County

- 1) Develop and maintain a comprehensive site specific EOP Annex for support County Radiological Emergency Response Procedures (RERP) to a nuclear power plant incident(s). This support County Annex, organizationally, will become Annex E to the generic County EOP. The support County Annex E will be in accord with and meet the requirements of Annex E, "Radiological Emergency Response to Nuclear Power Plant Incidents," to the State Emergency Operations Plan (EOP). Review annually the Generic Support County Annex E "County Radiological Support Procedures for Nuclear Power Plant Incidents," update as needed and coordinate changes through the PEMA Regional Offices.
- 2) Establish, equip and maintain an EOC with an alternate power source and back up communications.
- 3) Coordinate procedures, keeping PEMA Regional Offices informed, with:
 - (a) Designated risk Counties for the movement and reception of evacuees.
 - (b) The Red Cross for staffing and operation of mass care centers.
- 4) Identify County and emergency organizations and personnel resources and task them to develop procedures in support of Annex E to the County EOP.
- 5) Develop procedures for notifying, on a 24-hour basis, County and Municipal government heads, emergency management agency staff, emergency forces, the Red Cross, volunteer organizations, school districts, private schools and colleges, hospitals, nursing homes, and businesses and industries involved in the County support activities.
- 6) Identify and coordinate with the PEMA Regional Offices, the location within the support County of:
 - (a) Traffic control points

- (b) Reception centers
 - (c) Mass care centers
 - (d) Monitoring/decontamination centers
 - (e) Central resource receiving point(s)
- 7) Coordinate the release of information to the news media with the PEMA Press Secretary.
 - 8) Prepare and coordinate emergency public information announcements for the general population in regards to evacuation traffic passing through the County.
 - 9) Coordinate recommendations for changes in main evacuation routes and traffic control points with the PEMA Regional Offices and the risk Counties.
 - 10) Establish and train the requisite number of monitoring/decontamination teams for monitoring/decontamination centers within the County.
 - 11) Provide monitoring and decontamination of evacuees at mass care center locations within the County (see Appendix 5).
 - 12) Designate and be prepared to operate a central resource receiving point.
 - 13) Maintain a current listing, with copy to the PEMA Regional Offices, of unmet personnel and equipment needs.
 - 14) Prepare response procedures for distribution of radiological equipment (see Appendix 5).
 - 15) Be prepared to assist in coordinating the reentry of evacuees with the PEMA Regional Offices and the risk Counties.
 - 16) Maintain records and reports acquired during an incident, prepare after-action reports and participate in critiques.
 - 17) Participate in drills and exercises conducted by PEMA, the nuclear power plants and the Federal government.

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- 18) Prepare for Ingestion Planning Zone activities in coordination with the County Emergency Board (CEB).

c. Ingestion County

- 1) Emergency Operations Plan - Develop and maintain a comprehensive EOP for ingestion County radiological emergency response procedures to a nuclear power plant incident as Annex E to the generic EOP.
- 2) Emergency Operations Center - Establish, equip and maintain an EOC to support response to a nuclear power plant incident.
- 3) Coordination - Coordinate response procedures with all participating agencies at the Federal, State and local levels.

(25) American Red Cross (ARC)

- a. Staff and manage mass care centers, as required, in coordination with the risk and/or support County Emergency Management Agencies (EMA) (see Appendix 10).
- b. Coordinate with the Volunteer Organizations Active in Disasters (VOAD) during nuclear power plant incidents to ensure efficient utilization of available staff and resources.
- c. Coordinate with the risk or support EMA and the administrators of the facilities designated as mass care centers to obtain written agreements regarding utilization of the facilities.
- d. Maintain records and accountability of resources expended and costs accrued.
- e. Maintain a listing of available staff and volunteer workers and provide them necessary training.
- f. Participate in radiological emergency response exercises and drills conducted by PEMA (see Appendix 18).
- g. Provide an EPLO and supporting ERT members to the State EOC, upon notification of an Alert classification or higher by PEMA. (See Enclosure 1, Basic Document.)
- h. Provide a liaison representative to the specified State Regional EOCs, upon request from the PEMA Regional Director.

- i. Provide a liaison representative to each specified risk County EOC to coordinate Red Cross support for the respective Counties. The Red Cross EPLO located at the State EOC is responsible for verifying that the liaison representative has been notified of the emergency. County requests for support will be channeled from the Red Cross liaison representative, in coordination with the PEMA liaison officer, to the Red Cross EPLO at the State EOC.

7. COMMUNICATIONS

The communications systems and capabilities that will be used in response to a nuclear power plant incident are discussed in Appendix 8.

8. NUCLEAR POWER PLANTS

Responsibilities of the nuclear power plants are specified in Appendix 9.

9. FEDERAL GOVERNMENT SUPPORT

- A. Federal Government response and offsite support to the Commonwealth, its Counties and Municipalities in the event of an incident at a nuclear power plant within Pennsylvania will be in accordance with the Federal Radiological Emergency Response Plan (FRERP) and the Federal Response Plan. Radiological monitoring and assessment support activities by the Department of Energy (DOE), the Environmental Protection Agency (EPA) and other Federal agencies are outlined in the Federal Radiological Monitoring and Assessment Plan (FRMAP). While the latter is a separate plan, it is an integral part of the FRERP.
- B. A general scheme for the management of the total Federal response to a radiological emergency is shown in Enclosure 4. The Federal role is to assist the States during the emergency. In order to do this, the Federal response is divided into technical and non-technical support. FEMA coordinates non-technical support while the Lead Federal Agency (LFA) (the agency controlling or having regulatory authority over the facility in which the incident occurred or the radioactive material involved in the incident) coordinates the technical support. The technical support for a nuclear power facility is separated into onsite and offsite support, with DOE coordinating the Federal offsite radiological monitoring and assessment activities in support of the State during the early phase. During

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the intermediate and long-term phases, the EPA assumes this role. The FRERP primarily addresses this offsite portion of the larger Federal response.

- C. DOE maintains a capability to respond to any radiological incident throughout the nation:
- (1) Aircraft of the Aerial Measuring System (AMS) are maintained to be ready to provide remote sensing equipment to map large areas that may have been affected by an accidental release. A computer-based system, the Atmospheric Release Advisory Capability (ARAC), uses actual weather and terrain data to predict on a Regional scale the transport, diffusion, and deposition of any radioactivity released to the environment. AMS has rotary and fixed wing aircraft equipped with gamma ray and neutron detectors located at Andrews Air Force Base, Maryland and other more distant locations.
 - (2) The Atmospheric Release Advisory Capability (ARAC) is an atmospheric modeling system based at Lawrence Livermore National Laboratory (LLNL). It is linked by real time to the National Weather Service and the USAF Global Weather Control. ARAC input can be a unit source term or a more refined one, plus local meteorological and topographical conditions. ARAC can predict the atmospheric diffusion of a plume of released material as influenced by the previous mentioned conditions using a suite of computer codes and models ranging from simple Gaussian to complex three dimensional particle-in-cell models. The radionuclide concentration patterns are then projected into both external and internal dose patterns for use by the FRMAC organization in providing assessments to concerned State and local agencies and AMS monitoring and sampling aircraft. Two levels of advisories are issued by ARAC, level one and level two. Level one is an early forecast of significance out to about 5 to 10 kilometers from the site that is available within 3 to 5 minutes after receipt of input data. The level two advisories are calculated by the use of validated State-of-the-art numerical modeling techniques appropriate for magnitude of the problem, the complexity of the meteorology and topography and the availability of input data. Level two advisories may consist of predicted concentration patterns, estimated exposure rate patterns, dose projections, and predicted ingestion pathway concentrations. These advisories are available within 30 to 40 minutes after the receipt of input data. State and local officials should use this information to determine the areas where the greatest concentration of radio iodine could potentially be deposited.
 - (3) The DOE Radiological Assistance Program (RAP) has been in operation for over 25 years. Its function is to respond, on an emergency basis, with appropriate scientific and medical advice and technical assistance to

incidents involving loss of control over radioactive materials. The DOE provides appropriate radiological advice and assistance as needed from its operations offices and national laboratories to minimize injury and protect public health and safety. It is initiated upon request from any agency, organization, or individual who has knowledge of a possible hazardous incident involving radioactive material.

- D. The FDA Total Diet Study is conducted by FDA's Center for Food Safety and Applied Nutrition and consists of collecting a representative sample of foods in a typical diet at varying locations throughout the country. Samples are composited into food categories, including dairy products, at FDA's Kansas City District Laboratory. Subsequently, composites are sent to FDA's Winchester Engineering and Analytical Laboratory (WEAC) for determination of commonly appearing radionuclides such as tritium and Sr-90, as well as gamma emitters like Cs-137 and K-40, which are readily detected by simple gamma scan.
- E. The EPA milk monitoring net is a part of the EPA's Environmental Radiation Ambient Monitoring System (ERAMS). ERAMS maintains a continuing surveillance of radioactivity in the United States to identify the accumulation of long-lived radionuclides in the environment. However, ERAMS is also designed to provide short term evaluation of large scale environmental nuclear releases, such as from fallout or a nuclear power plant accident. These are composite samples based on the volume of milk sold by various processors in a sampling station area. Gamma analyses are performed on milk samples as soon as they are received. Results of the analysis of Iodine-131 content are available within hours.
- F. Although it is not feasible to have sufficient computer based gamma counting systems available near each reactor site to respond to emergency situations, there are mobile systems which can be brought to an accident site. The NRC has five mobile systems, one in each of its Regions. A sixth system is operated by the EPA in Montgomery, AL. A seventh mobile system, containing two GeLi detector systems, operates out of the Idaho National Engineering Laboratory. All seven of these mobile systems have ongoing functions in research and surveillance programs.
- G. The Federal Emergency Management Agency (FEMA) will establish a Disaster Field Office (DFO) to serve as the central point for overall coordination of actions, information and recommendations of Federal agencies among themselves and with those of the Commonwealth. The Senior FEMA Official (SFO), Federal Coordinating Officer (FCO) and representatives of other Federal agencies will be located in this Office. (See Appendix 23 for the support services provided to Federal agencies by Pennsylvania.)

10. TRAINING

Comprehensive radiological emergency response training programs for State, County and Municipal agencies, as well as organizations having response roles for nuclear power plant incidents, are discussed in Appendix 17.

11. EXERCISES AND DRILLS

Exercises and drills conducted to test the effectiveness of State and County radiological emergency response procedures and Municipal and school district emergency operations plans are discussed in Appendix 18.

12. REFERENCES

- A. U.S. Nuclear Regulatory Commission and the Federal Emergency Management Agency, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," NUREG-0654, FEMA-REP-1, Rev. 1, November 1980.
- B. Code of Federal Regulations, Title 10, Parts 50 and 70.
- C. Code of Federal Regulations, Title 44, Parts 350 and 351.
- D. Federal Emergency Management Agency, "Federal Radiological Emergency Response Plan," September 1985.
- E. Federal Emergency Management Agency, "Federal Response Plan," April 1992.
- F. Federal Emergency Management Agency, Region III, "Emergency Response Team Plan," October 1983.
- G. Federal Emergency Management Agency, "Guidance on Offsite Emergency Radiation Measurement Systems, Phase 1 - Airborne Release," FEMA-REP-2, July 1987.
- H. Federal Emergency Management Agency, "Guidance on Offsite Emergency Radiation Measurement Systems, Phase 2 - The Milk Pathway," FEMA-REP-12, September 1987.
- I. Federal Disaster Relief Act of 1974 (P.L. 93-288) as amended.

- J. Facility Emergency Plans:
- (1) First Energy Nuclear Operating Company Plan for the Beaver Valley Power Station, Units 1 and 2.
 - (2) Exelon Nuclear Plan for the Limerick Generating Station, Units 1 and 2 and Peach Bottom Atomic Power Station, Units 2 and 3.
 - (3) PPL Susquehanna LLC Emergency Plan for the Susquehanna Steam Electric Station, Units 1 and 2.
 - (4) AmerGen Energy Company Emergency Plan for the Three Mile Island and Oyster Creek Nuclear Stations.
- K. Pennsylvania Emergency Management Services Code (35 Pa.C.S.), as amended.
- L. Pennsylvania Code, Title 4, Part 1, Chapter 3, Subchapter C, "Emergency Management Responsibilities of Departments and Agencies."
- M. Commonwealth of Pennsylvania, Emergency Operations Plan with changes as officially issued.
- N. Commonwealth of Pennsylvania, Disaster Recovery Plan.
- O. Pennsylvania Emergency Management Agency Directive No. D90-1 (Draft) "Mass Care Service".
- P. Pennsylvania Emergency Incident Reporting System (PEIRS).

13. DEFINITIONS AND TERMS

- A. Access Control Points (ACP) - Manned posts established primarily by State or Municipal police, augmented as necessary by the National Guard, around the perimeter of the plume exposure pathway EPZ for the purpose of controlling access into the area.
- B. Acknowledge(ment) - Timely affirmation by the addressee of receipt of a message or announcement.
- C. Activate - To start or place into action an activity or system.
- D. Alert - A warning signal by sound, indicating imminent danger or risk. (For use in context with this document: The siren alert signal - a three to a five minute steady tone signifying that the general public in the risk emergency planning zone (EPZ) should tune in to Emergency Alert Stations (EAS) on their radios or TV sets for an

important message. Note: Not to be confused with the "Alert Classification" used by nuclear power plants.)

- E. Area Kit - Dosimetry that is placed on a location where emergency workers will be in close proximity to each other during the entire mission and adequate control of exposure can be effected for all emergency workers by a dosimeter strategically placed in the work area. Area kits may be required in multiple locations within a facility. An area kit consists of one PRD, two 0-20R direct reading dosimeters and one CD V-750 charger.
- F. Central Resource Receiving Point - A pre-designated location suitable for the reception and distribution of supplies and equipment. These facilities are designated and operated by the respective risk and support Counties.
- G. Control - To exercise authority with the ability to influence actions, to compel or hold in restraint. (For use in context with 35 Pa. C.S. and clarifies and strengthens the role of the Governor by granting him authority to issue executive orders and disaster proclamations which have the force and effect of law when dealing with emergency disaster situations and controlling operations.)
- H. Controlled Entry Points (CEPs) - Locations through which authorized access to and egress from exclusionary and restricted zones can be accomplished.
- I. Coordination - Arranging activities of equal or similar importance to harmonize in a common effort. (For use in context with this document: authorizing and/or providing for coordination of activities relating to emergency disaster prevention, preparedness, response and recovery by State, local governments and Federal agencies; for nuclear power plant operations/incidents in which the Commonwealth and its political subdivisions participate.)
- J. Deploy - To move to an assigned location.
- K. Disaster Field Office - The office established in or near the designated area to support Federal and State response and recovery operations. The DFO houses the Federal Coordinating Officer (FCO) and the Emergency Response Team (ERT), and where possible, the State Coordinating Officer (SCO) and support staff.
- L. Direction - Providing authoritative guidance, supervision and management of activities/operations along a prescribed course to reach an attainable goal. (For use in context with this document: promulgation of Annex E to the Commonwealth EOP, which establishes standardized policies, guidance and radiological emergency response procedures for nuclear power plant incidents; supplemented by correspondence and verbal discourse.)

- M. Emergency Alert System (EAS) Announcements - Official announcements made at the County level for the specific purpose of providing information, instructions or directions from the County Commissioners, or their designated official representative, to the permanent and transient residents of the County. Announcements are made over the legally designated EAS network. Priorities for EAS announcements are specified in law; first priority to the Federal government, second priority to County governments, and third priority to State governments. Restriction on use of EAS announcements does not preclude appropriate use of newspapers, radio and television for public information Statements.
- N. Emergency Classification Level (ECL) - Four emergency levels have been identified to classify incidents at nuclear power plants. From the least serious to most serious they are: Unusual Event, Alert, Site Area Emergency and General Emergency. (Note: Site Area Emergency or General Emergency ECLs are not to be confused with a "Declaration of Disaster Emergency" made by the Governor in accordance with 35 Pa. C.S.) Within each class, there are specific emergency responses necessary to ensure that public health and safety are protected. Descriptions of the four ECLs are as follows:
- (1) Notification of Unusual Event (NOUE) - One or more unusual events are in process or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.
 - (2) Alert - Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any releases are expected to be limited to small fractions of the Environmental Protection Agency (EPA) Protective Action Guideline exposure levels.
 - (3) Site Area Emergency (SAE) - Events are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public. Any releases are not expected to exceed EPA Protective Action Guideline exposure levels except near site boundary.
 - (4) General Emergency (GE) - Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.
- O. Emergency Management - The judicious planning, assignment and coordination of all available resources in an integrated program of prevention, mitigation, preparedness, response and recovery for emergencies of all kind, whether from enemy attack, man-made or natural sources.

- P. Emergency Operations Center (EOC) - A facility that is the primary base of emergency operations for organizations responding to incidents at nuclear power plants.
- Q. Emergency Planning Zone (EPZ) - A generic area defined around a nuclear power plant to facilitate offsite emergency planning and develop a significant response base. It is defined for the plume and ingestion exposure pathways.
- R. Emergency Preparedness Liaison Officer (EPLO) - A person designated by the Secretary/Director of a Commonwealth Department/Agency who will represent the Department/Agency in the State EOC with authority to respond to the directions of the Governor or the Executive Officer in charge of carrying out the decisions of the Governor and coordinating the response activities of all Departments/Agencies and utilization of their resources.
- S. Emergency Response Team (ERT) - An interagency team, consisting of the lead representative from each Federal department or agency assigned primary responsibility for an ESF and key members of the FCO's staff, formed to assist the FCO in carrying out his/her coordination responsibilities. The ERT provides a forum for coordinating the overall Federal response, reporting on the conduct of specific operations, exchanging information and resolving issues related to ESF and other response requirements. ERT members respond to and meet as requested by the FCO. The ERT may be expanded by the FCO to include designated representatives of other Federal departments and agencies as needed.
- T. Emergency Worker - An individual who has an essential mission within or outside the plume exposure pathway emergency planning zone to protect the health and safety of the public who could be exposed to ionizing radiation from the plume or from its deposition. Some examples of emergency workers are: radiation monitoring personnel; traffic control personnel; evacuation vehicle drivers; fire and rescue personnel, including ambulance crews; medical facilities personnel; emergency operations center personnel; personnel carrying out backup alerting procedures; and essential services or utility personnel.
- U. Essential Public Services - That group of operating systems which together form the basic framework for societal support. These include fire, police, EMS, water and sewage treatment, gas and electric utilities, trash removal, telephone and mail service, social services (visiting nurses, meal delivery to the homebound, etc.) and road clearance.
- V. Exclusionary Zone - That Region, usually within the plume EPZ, in which the full extent of radiological contamination has not been verified. (In the early stages of the incident, this may include the entire plume EPZ.) Emergency workers will be the only personnel authorized access to exclusionary zones.

- W. Facility Operator - The management person responsible for the operation of a nuclear power plant.
- X. FRMAC - Federal Radiological Monitoring and Assessment Center. The facility established following an incident to support Federal agencies. DOE is the agency responsible for establishing and managing the center.
- Y. Host School - A school located outside the plume pathway EPZ in which students evacuating from risk schools can be temporarily housed.
- Z. Ingestion County - All Pennsylvania Counties are considered Ingestion Counties.
- AA. Ingestion Exposure Pathway EPZ - That area surrounding a nuclear power plant which, as a result of a release of radioactive material, is a potential source of exposure through the ingestion of water and foods, such as milk or fresh vegetables originating there. This EPZ consists of a circular area of 50 miles radius around the nuclear power plant.
- BB. Mass Care Center - Fixed facility suitable for providing emergency lodging and essential social services and capable of providing for victims of disaster left temporarily homeless. Feeding may be done within a mass care center (in suitable dining facilities) or nearby. (Also known as Congregate Care Center.)
- CC. Mobilize - To augment staff and resources in order to accomplish the mission at an indicated location on a 24-hour/day basis.
- DD. Mode of Discharge - Means or methods by which radiation or radiological contaminants are transmitted to the ground surface, surface water, the atmosphere or any combination thereof.
- EE. Municipality - For the purpose of this Annex, the terms "Municipality" or "Municipal government" are defined as referring, singularly or collectively, to cities, boroughs, townships and incorporated towns within the Commonwealth of Pennsylvania; in this Annex "Municipality" does not include Counties.
- FF. Notification - To make known or inform. For use in context with this document: to transmit emergency information and instructions to Emergency Management Agencies, staff and associated organizations and also over the Emergency Alert System to the general public immediately after the sirens have been sounded.
- GG. Notify - To inform about a condition, event or situation.

- HH. Nuclear Power Plant Incident (hereinafter called an "incident") - An incident is an event or condition at a nuclear power plant which could result in impact on public health and safety.
- II. Operational - Capable of accepting mission assignments at an indicated location with partial staff and resources.
- JJ. Parent County - The County in which the nuclear power plant is physically located.
- KK. Plume Exposure Pathway EPZ - The area surrounding a nuclear power plant which potentially is subject to radiation exposure as a result of an incident involving radioactive material emanating from the facility. Such potential exposure could involve: (a) whole body exposure to gamma radiation from the plume and from deposited materials, and (b) inhalation exposure from the passing radioactive plume. The EPZ for this pathway consists of an area of approximately ten miles in a 360 degree radius around the nuclear power plant. (The exact size and configuration of each plume exposure pathway EPZ for the respective nuclear power plant in Pennsylvania was determined in relation to local emergency response needs and capabilities as they are affected by conditions such as demography, topography, access routes, and jurisdictional boundaries. Plume exposure pathway EPZs for the nuclear power plants are shown in Appendix 24.)
- LL. Political Subdivision - Any County, city, borough, township or incorporated town within the Commonwealth.
- MM. Protective Action - An action taken to avoid or reduce a projected dose of radiation. (Sometimes referred to as a radiation exposure level or range established by appropriate Federal or State agencies beyond which protective actions should be considered.)
- NN. Projected Dose - An estimate of the radiation dose which affected individuals could potentially receive if protective actions are not taken.
- OO. Protective Action Guide (PAG) - An Environmental Protection Agency (EPA) pre-established projected radiation dose to individuals which warrants consideration of protective action.
- PP. Public Information Statements - Public announcements made by PEMA or County official spokespersons via newspapers, radio or television to explain government actions being taken to protect the public in the event of any public emergency. The purpose of the announcement is to provide accurate information, prevent panic and counteract misinformation and rumors. Reference to the emergency situation itself will be made only in the context of the reasons for governmental actions, and not to provide detailed information about it.

- QQ. Radiological Emergency Response Procedures (RERP) - Note the last "P" in the acronym RERP is "Procedures" not plan. Detailed emergency response procedures, guidance and responsibilities developed in advance by State Department/Agencies, risk and support Counties with the objectives of protection of the people from personal injury or loss of life and mitigation of damage or loss of property resulting from a nuclear power plant incident(s). (For use in context with this document: Since Annex E is a subordinate part of the overall Emergency Operations Plan (EOP), it is not considered a separate plan per se; it is a specific document (Annex) setting forth special radiological response procedures in reaction to a nuclear power plant incident(s).
- RR. Reception Center - A pre-designated site outside the plume exposure pathway EPZ through which evacuees needing mass care support will pass to obtain information and directions to mass care centers. A reception center may be located in either a risk or support County.
- SS. Recovery - The generic term used for the overall process of decontamination and/or restoration of vital services and infrastructure to allow for resumption of normal activity in areas in which protective actions have been implemented.
- TT. Recovery Operations - Activities carried out to return the offsite area around the nuclear power plant to its pre-incident condition (as nearly as possible).
- UU. Recovery Workers - Non-pregnant adults performing governmental functions or public service; farmers, institutional, industrial or commercial employees.
- VV. Reentry - The temporary return of those authorized for a prescribed period into the exclusionary or restricted zones.
- WW. Relocation - A protective action implemented during the recovery whereby evacuees or sheltered individuals residing in areas exceeding relocation PAGs are removed and/or excluded from return to restricted zones until directed by the Commonwealth and are accommodated at a new location for an extended period - months to years.
- XX. Restricted Zone - That Region expected to meet or exceed plume PAGs up to four days after termination of the incident or exceed relocation PAGs for continuous occupancy as defined in Annex E. It may also include a buffer zone to prevent radiological contaminants from being deposited in unrestricted areas.
- YY. Restoration Activities - Those actions taken to return the affected offsite area around the nuclear power plant to its pre-incident condition (as nearly as possible).

- ZZ. Return - The permanent return of citizens, businesses, governments and institutions to their dwellings, places of employment or operating sites after restricted areas have been determined by the Commonwealth to be safe for occupancy.
- AAA. Risk Counties - Those Counties located partially or wholly within the plume exposure pathway EPZ of a nuclear power plant.
- BBB. Risk School District - A school district having schools located partially or wholly within the plume exposure pathway EPZ. This includes districts having no school buildings within the EPZ but having students who reside in the EPZ.
- CCC. Route Alerting - This is a supplement to the siren system and is implemented, as necessary, in the event of siren failure or to alert persons or areas which may not be within the sound of the sirens. Route alerting is either a County or a Municipal responsibility and is accomplished by route alert teams traveling in vehicles along preplanned routes delivering the following message: "There is an emergency at the (nuclear power plant); please tune to your Emergency Alert Station."
- DDD. Selected Evacuated Residents - Relocated adults with proof of former residence who wish to retrieve personal property.
- EEE. Sheltering - Action by the public to take advantage of the protection against radiation exposure afforded by remaining indoors, away from doors and windows, during and following the passage of the radioactive plume.
- FFF. Standby - To be ready to perform but awaiting at home or other location for further instructions.
- GGG. State of Disaster Emergency - A State of disaster emergency exists whenever the Governor issues a declaration of disaster emergency. A disaster emergency shall be declared by executive order or proclamation of the Governor at any time upon finding that a disaster has occurred or that the occurrence or the threat of a disaster is imminent. The State of disaster emergency continues until the Governor finds that the threat or danger has passed and terminates it by executive order or proclamation, but no State of disaster emergency may continue for longer than 90 days unless renewed by the Governor. The terms, Declaration of Disaster Emergency or State of Disaster Emergency, are not to be confused with the emergency classification terms called Site Area Emergency and General Emergency.
- HHH. Support - To act in a secondary or subordinate role to a primary activity by providing a means of maintenance or sustainment to keep the activity from failing under stress. (For use in context to this document: providing "unmet" needs,

unforeseen requirements for supplies, equipment, services, advice, training, etc.; a support County providing mass care for a risk County.)

- III. Support County - The County or Counties either wholly or partially outside the plume exposure pathway EPZ of a nuclear power plant that, through prior arrangement, will provide support to a risk County in the event of an incident. Depending on size and location, the same County may be both a risk and support County.
- JJJ. Transportation Staging Area - A location from which transportation resources are assigned.
- KKK. Traffic Control Points (TCP) - Manned posts established at critical road junctions for the purpose of controlling or limiting traffic. TCPs are used to control evacuation movement and also to limit entry into a nuclear power plant facility when an emergency situation requires it.
- LLL. Unmet Needs - Capabilities and/or resources required to support emergency operations but neither available nor provided for at the respective levels of government.
- MMM. Verification - Follow-up by the addressee to confirm understanding of the contents of a message or announcement.

14. DISTRIBUTION

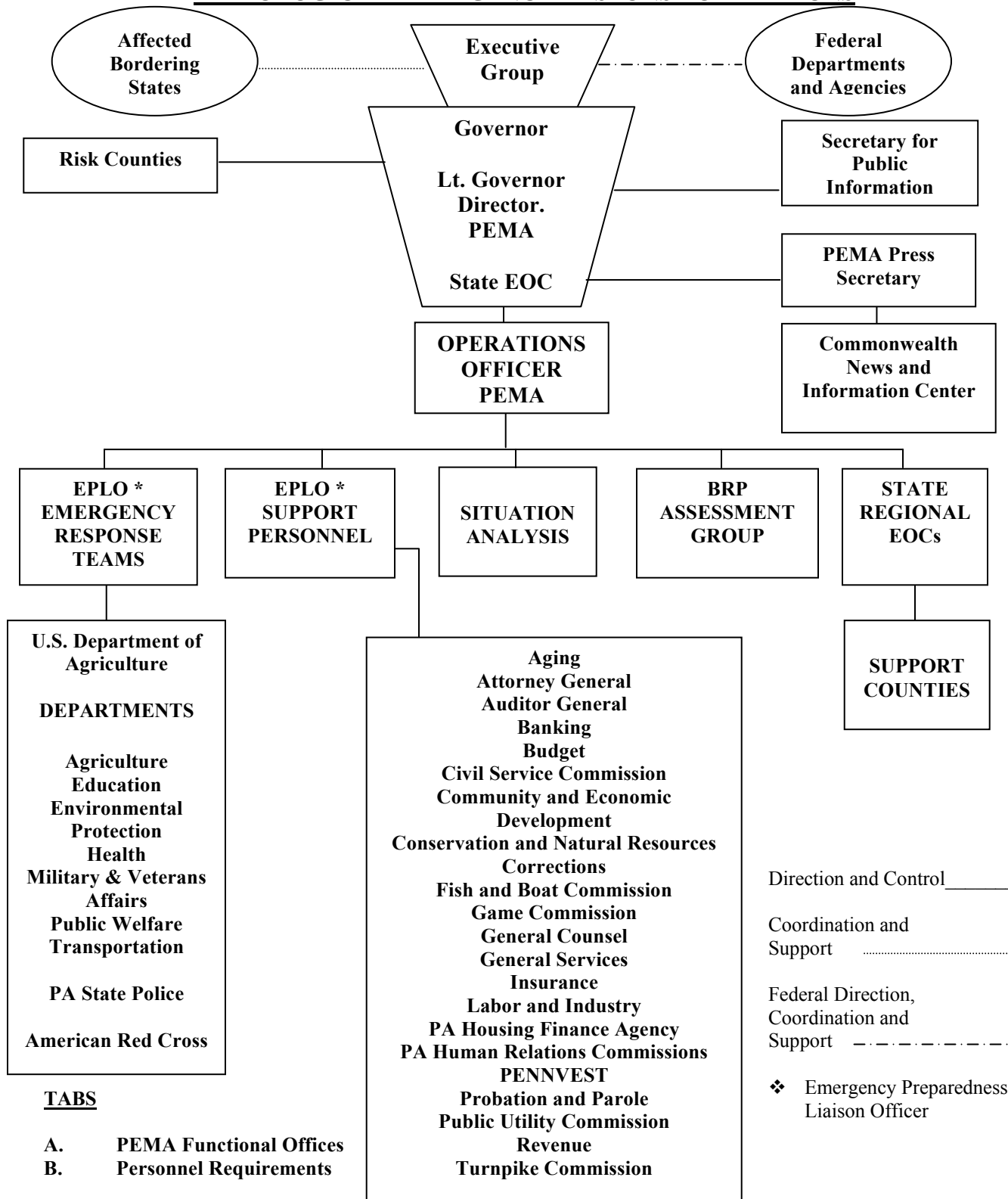
- A. Basic distribution of Annex E is as follows:
 - (1) FEMA, Region III
 - (2) Designated Commonwealth Departments and Agencies
 - (3) PEMA Regional Offices
 - (4) Risk, support and ingestion Counties
 - (5) Contiguous States
 - (6) Nuclear power plants within Pennsylvania
 - (7) State library
 - (8) American Red Cross

- B. A distribution list in conformance with paragraph A above, is maintained in a current status by PEMA. The list will include specific information as to the agency, organization and/or individual receiving a copy of the Annex and the location to which it was sent.
- C. While distribution of the Annex will be controlled, additional copies can be made available upon specific request and justification to PEMA. As copies are distributed, the name and address of the recipient will be added to the PEMA distribution list.
- D. As revisions are made, properly identified change pages will be sent to all organizations, agencies and individuals holding a copy of Annex E.

ENCLOSURES

- 1. State Organization During Radiological Emergency Response Operations
- 2. Primary and Support Responsibility Chart
- 3. Abbreviations/Acronyms
- 4. Federal Response Management for a Radiological Emergency

ENCLOSURE 1
STATE ORGANIZATION DURING
RADIOLOGICAL EMERGENCY RESPONSE OPERATIONS

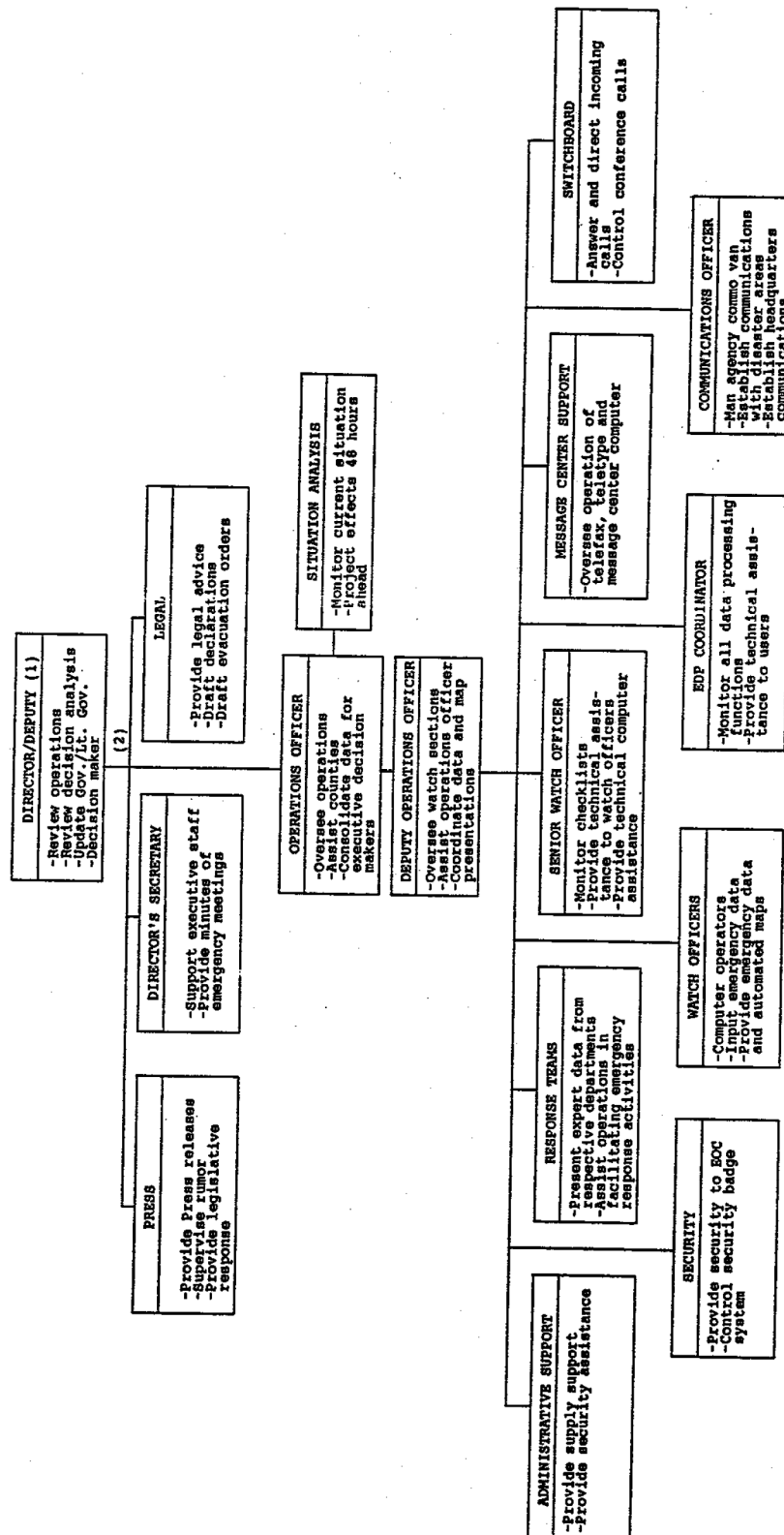


TAB A

BASIC DOCUMENT

PENA FUNCTIONAL OFFICES WITHIN THE STATE EOC

ENCLOSURE 1



- NOTES: (1) The Director or chief of each functional office on this chart will man the first shift (7:00 a.m. to 7:00 p.m.). The Deputy or assigned alternate will man the second shift (7:00 p.m. to 7:00 a.m.).
- (2) A current listing of the names and telephone numbers of personnel assigned to operate each functional office is maintained in the State EOC by FEMA.

TAB B

ENCLOSURE 1

BASIC DOCUMENT

PERSONNEL REQUIREMENTS

1. STATE EOC HARRISBURG

Emergency Preparedness Liaison Officer (EPLO)

A person designated by the Secretary/Director of a Commonwealth Department/Agency who will represent the Department/Agency in the State EOC with authority to respond to the directions of the Governor or the Executive Officer in charge of carrying out the decisions of the Governor and coordinating the response activities of all Departments/Agencies and utilization of their resources. The EPLO must have direct access to the department head (or the designated emergency interim successor) and will be in charge of the Emergency Response Team or other support personnel, as appropriate.

(1) EPLO and Emergency Response Team (ERT)

The ERT is composed of Agency/Department personnel necessary to accomplish that organization's mission in response to the incident. When the Director of PEMA activates the State EOC to respond to a nuclear power plant incident, the following Departments/Agencies will deploy the EPLO together with trained, supporting ERT members to the State EOC Harrisburg for the coordination of Department/Agency emergency response activities.

U.S. Department of Agriculture
Pennsylvania Department of Agriculture
Department of Education
Department of Environmental Protection and BRP
Department of Health
Department of Military and Veterans Affairs
Department of Public Welfare
Pennsylvania State Police
Department of Transportation
American Red Cross

The Emergency Preparedness Liaison Officer will receive the initial notification of the emergency and will be responsible for 24-hour manning of the Emergency Response Team in the State EOC. As appropriate, at least one team member on duty should be trained to operate the PEMA-furnished

computer in the designated team cubicle at the State EOC. PEMA shall conduct the training for the use of the computer.

(2) EPLO and Support Personnel

When the Director of PEMA activates the State EOC to respond to a nuclear power plant incident, the following Departments/Agencies may be required to provide, as requested by PEMA, an EPLO with support personnel when notified:

Department of Aging	Office of General Counsel
Office of Attorney General	Department of General Services
Office of Auditor General	Department of Insurance
Department of Banking	Department of Labor and Industry
Office of the Budget	Liquor Control Board
Civil Service Commission	PA Housing Finance Agency
Department of Community and Economic Development	PA Human Relations Commission
Department of Conservation and Natural Resources	PENNVEST
Board of Probation and Parole	Public Utility Commission
Department of Corrections	Department of Revenue
Fish and Boat Commission	Turnpike Commission
Game Commission	

The EPLO will receive initial notification of the emergency and will be responsible for 24-hour manning in the State EOC if necessary.

2. STATE REGIONAL EOCs

A. Liaison Representatives

- (1) When the Director of PEMA authorizes the opening of a specified State Regional EOC, the following Departments/Agencies will be prepared to provide a liaison representative to that specified State Regional EOC as requested by PEMA.

Department of Environmental Protection
Department of Health
Department of Military and Veterans Affairs
Pennsylvania State Police
Department of Transportation
American Red Cross

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- (2) Liaison representatives should be cognizant of their Department/Agency activities and capabilities in the corresponding PEMA operational Region. A 24-hour capability is required.

B. Liaison Personnel

- (1) The following Departments/Agencies may be required to provide liaison personnel to a specified State Regional EOC as requested by PEMA.

Department of Agriculture
Department of Education
Department of Labor and Industry
Department of Public Welfare
Game Commission
Fish and Boat Commission
Turnpike Commission

- (2) Liaison personnel should be cognizant of their department's activities and capabilities in the corresponding PEMA operational Region. A 24-hour capability may be required.

3. COUNTY EOC(s)

A. Liaison Representatives

The following Departments/Agencies will provide a liaison representative to the specified risk County EOC.

Pennsylvania Emergency Management Agency (State Regional Coordinator)
Department of Military and Veterans Affairs
Pennsylvania State Police
Department of Transportation
American Red Cross

B. Liaison Officers

The PEMA Director will designate a PEMA Liaison Officer (LNO) to be dispatched to the specified risk County EOCs upon notification from the nuclear power plant that the incident has been classified at the Emergency Classification Level of Alert or higher. The LNOs will be knowledgeable of PEMA's operational activities and capabilities and the Radiological Emergency Response Procedures. A capability for 24-hour LNO manning will be provided. General duties will be as follows:

- (1) Establish and maintain communications with the State EOC.

- (2) Become knowledgeable of and stay current with the operational status of the County EOC.
- (3) Provide clarification for the County EMC concerning interpretation of PEMA's response and operational procedures and guidance relative to resolution of related problem areas.
- (4) Serve as PEMA's representative to the County EOC and provide clarification, if necessary, of messages or information transmitted between the State and County EOCs.
- (5) Provide for the State EOC, as requested, the status of readiness and response actions taken by the County EMA in preparation for implementing protective actions, as necessary, during the Emergency Classification Levels of ALERT, SITE AREA EMERGENCY and GENERAL EMERGENCY.
- (6) Notify the State EOC when the County requests additional support from liaison representatives.
- (7) Attend County situation meetings and press briefings.
- (8) Maintain necessary event notes for reference in briefing the next LNO shift and for use in preparing an After Action Report.
- (9) Coordinate with the other State Agencies co-located in the County.

4. AFFECTED RISK EPZ BORDERING STATE(S)

The PEMA Director will designate a PEMA Liaison Officer (LNO) to be dispatched to the specified affected risk EPZ bordering State(s) (Maryland, Ohio, West Virginia) upon notification from the nuclear power plant that the incident has been classified at the Emergency Classification Level of ALERT. LNO personnel will come from the PEMA Regional Headquarters or the PEMA Bureau of Operations and Training. The LNOs will be knowledgeable of the State's operational activities and capabilities and the Radiological Emergency Response Plans. A capability for 24-hour LNO manning will be provided. General duties will be as follows:

- A. Establish and maintain communications with the State EOC.

- B. Become knowledgeable of and stay current with the operational status of the affected State's EOC.
- C. Provide clarification for the affected State's emergency management director concerning interpretation of the State's plans/operational procedures and guidance relative to resolution of related problem areas.
- D. Serve as the State's representative to the affected State's EOC and provide clarification, if necessary, of messages or information transmitted between the respective State's EOCs.
- E. Provide for the State EOC, as requested, the status of readiness and response actions taken by the affected State.
- F. Attend the affected State's situation meetings and press briefings.
- G. Maintain necessary event notes for reference in briefing the next LNO shift and for use in preparing an After Action Report.

5. UTILITY EMERGENCY OPERATIONS FACILITY (EOF)

Upon activation of the affected utility EOF, BRP and PEMA will dispatch State liaison personnel to the EOF and establish telephone and/or radio communication between the EOF and the BRP and PEMA operations staff at the State EOC. The BRP liaison personnel will coordinate technical data with the BRP staff at the State EOC. PEMA liaison personnel will coordinate operational aspects of the response with Situation Analysis at the State EOC. The duties of the BRP liaison officer (LNO) at the nuclear power plant EOF are published under separate cover. The duties of the PEMA LNO at the nuclear power plant EOF will be as follows:

- A. Stay abreast of information pertaining to operational matters.
- B. Upon request, consult with BRP personnel at EOF and Utility Emergency Director relative to offsite preparedness to respond to potential protective actions being considered.
- C. Advise Utility Emergency Director or his designee of offsite implications of the evacuation of non-essential onsite personnel.
- D. Obtain from Situation Analysis at State EOC information about offsite events that may be needed by BRP or Utility Emergency Director.
- E. Respond to requests for non-technical information from the State EOC.

- F. Assist BRP in providing information to State Operations Center (PEMA Director, Operations Officer, Situation Analysis, BRP staff).
- G. Maintain log of LNO activities for reference in briefing the next LNO shift and for use in preparing an After-Action Report.
- H. Provide status report of LNO activities to Situation Analysis every hour or more frequently, if necessary.

ENCLOSURE 2

BASIC DOCUMENT

PRIMARY AND SUPPORT RESPONSIBILITY CHART

LEGEND

P - Primary
S - Support
X - Emergency
Preparedness
Liaison
Officer

ERT Emergency
Response
Team

	EPLO and ERT to State EOC	EPLO and Support Personnel to State EOC	Communications	Direction and Control	Emergency Medical Services	Evacuation/Sheltering	Incident Assessment	Ingestion Exposure Control	Initial Notification	Law Enforcement	Mass Care	Protective Response	Public Alert Notification	Public Education and Information	Public Health and Sanitation	Radiological Exposure Control	Reentry	Recovery	Resource Support	Social Services	Traffic Control	Training and Exercise	Transportation
Aging		X				S					S	S			S		S	S	S	S			S
Agriculture	X					S	S	P			S	S		S	S	S	S	S	S	S		S	
Banking		X												S	S	S	S	S	S	S			
BRP (DEP)	X		S			S	P	S	S		S	S	S	S	S	P	S	S				S	
Corrections		X				S		S				S					S	S					
Comm & Econ Devel		X																S					
Consrvatn & Natl Res		X													S			S	S				
DEP	X						S								S	S							
Education	X					S					S	S		S		S	S	S	S			S	S
Fish & Boat Comsn		X					S											S					
Game Commission		X					S											S					
General Services		X	S								S							S	S			S	S
Governor's Press Sec.															S							S	
Health	X				S	S		P			S	S		S	P	S	S	S	S			S	S
Labor and Industry		X																S					
Military & Veterans Affairs	X		S		S	S				S						S	S		S		S	S	S
Nuclear Facilities			S		S	S	S	S	P			S	S	S		S	S	S				S	
PEMA			P	P	P	S	S	S	S	S	S	P	P	P	S	S	P	P	P	S	S	P	S
PSP	X		S			S				P			S			S	S				P	S	
PUC		X				S											S	S	S				S
Public Welfare		X			S	S					S	S			S	S	S	S		P			
Red Cross	X				S						S						S	S	S	S		S	
Risk County			S	S	P	S		S	S	S	P	S	S	S	S	S	S	S	S	S	S	P	P
Support County			S	S	S	S		S	S	S	P		S	S	S	S	S	S	S	S	S	S	S
Transportation	X					S											S	S	S		S	S	S
Turnpike Commission		X				S											S				S	S	S

ENCLOSURE 3

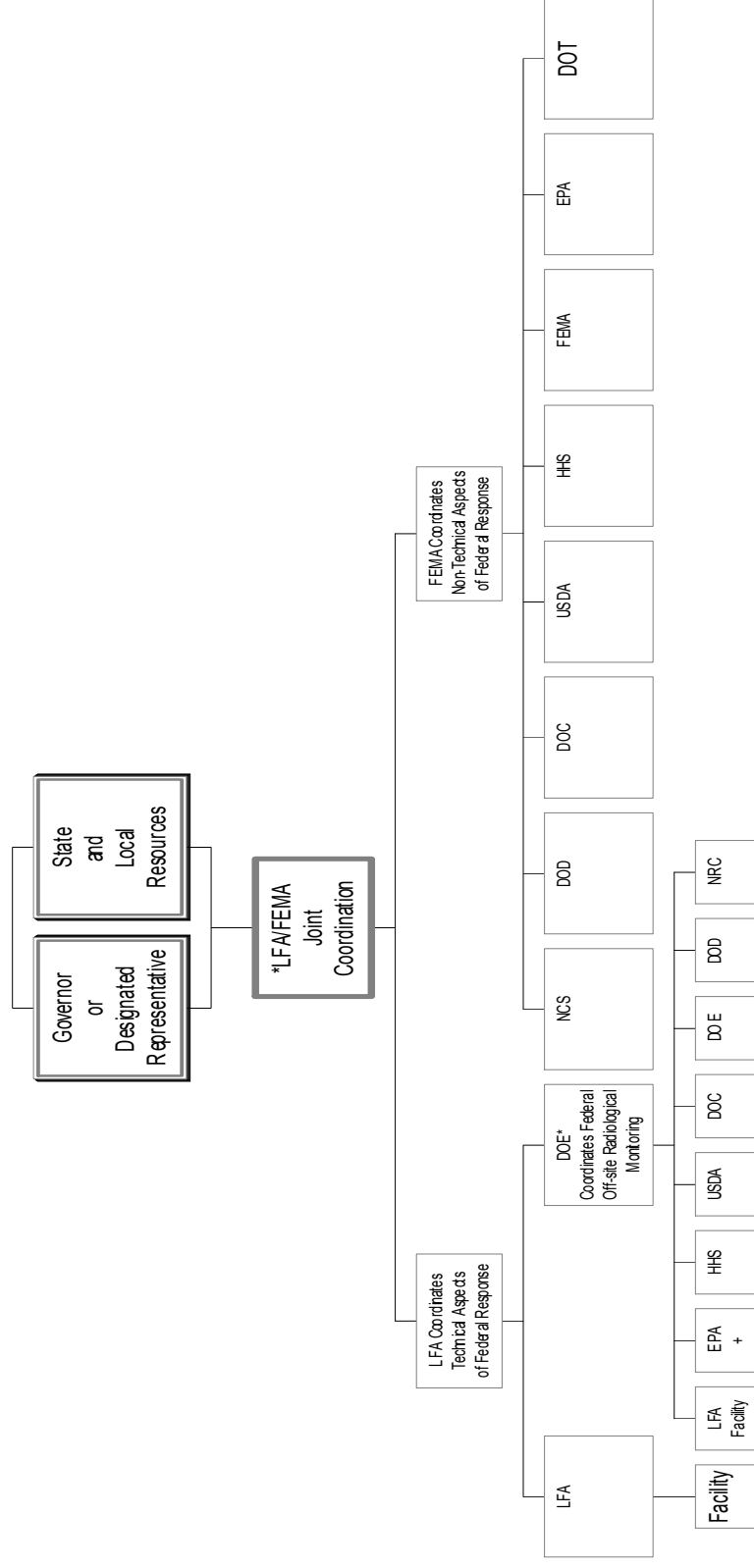
BASIC DOCUMENT ABBREVIATIONS/ACRONYMS

ACP	--	Access Control Point
AmerGen	--	AmerGen Energy Company
AMS	--	Aerial Measuring System
ARES	--	Amateur Radio Emergency Service
ARAC	--	Atmospheric Release Advisory Capability
BRP	--	Bureau of Radiation Protection
BVPS	--	Beaver Valley Power Station
CDNARS	--	Civil Defense National Radio System
CENIC	--	Commonwealth Emergency News and Information Center
DCNR	--	Department of Conservation and Natural Resources
DEP	--	Department of Environmental Protection
DGS	--	Department of General Services
DMVA	--	Department of Military and Veterans Affairs
DOE	--	Department of Energy (Federal)
DOP	--	Disaster Operations Plan
DPW	--	Department of Public Welfare
EAS	--	Emergency Alert System
ECL	--	Emergency Classification Level
EMA	--	Emergency Management Agency
EMC	--	Emergency Management Coordinator
EOC	--	Emergency Operations Center
EOF	--	Emergency Operations Facility
EOP	--	Emergency Operations Plan
EPA	--	Environmental Protection Agency
EPLO	--	Emergency Preparedness Liaison Officer
EPZ	--	Emergency Planning Zone
ERAMS	--	Environmental Radiation Ambient Monitoring System
ERT	--	Emergency Response Team
FAA	--	Federal Aviation Administration
FCFO	--	Federal Coordination Field Office
FDA	--	Food and Drug Administration
FEMA	--	Federal Emergency Management Agency
FTSL	--	Federal Technical Support Location
FRERP	--	Federal Radiological Emergency Response Plan
FRMAP	--	Federal Radiological Monitoring and Assessment Plan
HHS	--	Health and Human Services
KI	--	Potassium Iodide

LFA	--	Lead Federal Agency
LFO	--	Lead Federal Official
LGS	--	Limerick Generating Station
LLNL	--	Lawrence Livermore National Laboratory
LNO	--	Liaison Officer
MSL	--	Mean Sea Level
NOAA	--	National Oceanic and Atmospheric Administration
NRC	--	Nuclear Regulatory Commission
mW	--	Megawatt
PAG	--	Protective Action Guide
PBAPS	--	Peach Bottom Atomic Power Station
PEMA	--	Pennsylvania Emergency Management Agency
PennDOT	--	Pennsylvania Department of Transportation
PIO	--	Public Information Officer
PAARNG	--	Pennsylvania Army National Guard
PPL	--	PPL Susquehanna LLC
PRD	--	Permanent Record Dosimeter
PSP	--	Pennsylvania State Police
PUC	--	Public Utility Commission
RACES	--	Radio Amateur Civil Emergency Service
RAP	--	Radiological Assistance Program
RERP	--	Radiological Emergency Response Procedures
SAD	--	State Active Duty
SFO	--	Senior FEMA Official
SOP	--	Standard Operating Procedure
SSES	--	Susquehanna Steam Electric Station
TCP	--	Traffic Control Point
TMI	--	Three Mile Island Nuclear Station
TSC	--	Technical Support Center
USDA	--	United States Department of Agriculture
WEAC	--	Winchester Engineering and Analytical Laboratory

ENCLOSURE 4

BASIC DOCUMENT
FEDERAL RESPONSE MANAGEMENT
FOR A RADIOLOGICAL EMERGENCY



* LFA - Lead Federal Agency

* During intermediate and long-term phases, these roles will be reversed.

APPENDIX 1

ANNEX E

EMERGENCY CLASSIFICATION LEVEL GUIDELINES

1. PURPOSE

To provide consistent and coordinated guidance for response to a nuclear power plant incident by the power plant, State agencies, Counties and Municipalities.

2. SITUATION

- A. The four classes of incidents at nuclear power plants and the corresponding Emergency Classification Level (ECL) Guidelines were established by the Nuclear Regulatory Commission in coordination with the Federal Emergency Management Agency and were published November 1980 in NUREG-0654 FEMA-REP-1, Revision 1.
- B. In the event of an incident at one of the five nuclear power plants within Pennsylvania, response actions must be based upon the Emergency Classification Level Guidelines shown at Attachment A to this Appendix.
- C. Classification of an incident at a nuclear power plant is the responsibility of the utility operating the nuclear power plant and must be accepted by offsite authorities. The decision on which, if any, protective actions will be taken is, however, the responsibility of the Governor in consultation with PEMA, BRP, local officials and Federal agencies involved.

3. CONCEPT OF OPERATIONS

- A. Response actions by State agencies and county emergency management agencies (EMA's) will be coordinated through the State EOC.
- B. The Emergency Classification Level Guidelines shown at Attachment A provide a basis for response actions, but may be modified or expanded depending upon the technical evaluation of a particular incident by BRP and its recommendations to PEMA for appropriate response.

- C. If the initial notification by the nuclear power plant to the risk Counties is of a General Emergency, the Risk Counties and the State EOC have the authority to advise the public to take response actions consistent with the Emergency Classification Level Guidelines and as recommended by the nuclear power plant.

4. RISK COUNTY RESPONSE ACTIONS

Risk County Emergency Management Agency response actions for the four classes of incidents are listed below:

(1) UNUSUAL EVENT

- a. Log notification message. EMA designee acknowledges receipt.
- b. Provide onsite emergency fire, rescue, police, and ambulance services if requested, and continue normal operations.
- c. Activate the notification procedures for the county emergency management coordinator or his deputy if the EMC is not available.
- d. Notify the county commissioners and risk Municipalities, if it is the county policy to do so.

(2) ALERT

- a. Check to be sure that actions shown above for Unusual Event have been accomplished.
- b. Notify County Commissioners.
- c. Notify Municipalities in the plume exposure pathway EPZ. (Emergency Management Coordinators or their deputies plus fire departments, police departments and ambulance companies.)
- d. Notify key personnel of the County EOC staff and the local chapter(s) of the American Red Cross. Selected key personnel designated by the emergency management coordinator report to the EOC.
- e. Bring the EOC to operational status.
- f. Place EAS stations on standby status.
- g. Place route-alerting teams on standby status.

- h. Notify school district superintendents and colleges. (Buses and drivers should be placed on standby status.)
- i. Notify transportation providers. (Buses and drivers should be placed on standby status.)
- j. Notify Radio Amateur Civil Emergency Services (RACES)/and Amateur Radio Emergency Services (ARES) to become operational.
- k. Prepare to open RACES communications nets among the County EOC, risk school districts, Municipal EOCs, American Red Cross, reception centers and mass care centers.
- l. Open radio communications nets with Municipality's involved, contiguous Counties and support Counties.
- m. Notify health care, prisons and other public or private institutions inside the plume exposure pathway EPZ.
- n. Distribute or coordinate pick-up of dosimetry and KI for Municipal emergency response organizations to risk Municipal EMA's, if not pre-distributed.
- o. Notify monitoring/decontamination teams.
- p. Notify reception and mass care centers within the county.
- q. Bring the rumor control center to operational status.
- r. Activate sirens and release EAS message (if directed).
- s. Dispatch route-alerting teams (if necessary).
- t. Report unmet needs to the State EOC.

(3) SITE AREA EMERGENCY

- a. Ensure that actions shown above for Alert have been accomplished.
- b. Mobilize county and Municipal EOC staffs.

- c. Mobilize fire departments, police departments and ambulance services throughout the county.
- d. Mobilize the Red Cross staff.
- e. Deploy operational monitoring/decontamination teams to assigned locations.
- f. Bring reception and mass care centers within the county to operational status.
- g. Confirm with State Region EOCs that reception and mass care centers in support Counties are operational.
- h. Ensure that the public is provided timely information about the situation in the county. The CENIC will coordinate information with the utility, the Governor's Office and county public information officers.
- i. Notify all RACES/ARES communications nets to mobilize.
- j. Activate transportation staging areas. (Note: This action is optional for each risk county.)
- k. Notify school district superintendents and colleges to standby and place buses and drivers needed for evacuation on standby status at school locations.
- l. Notify transportation providers to place buses and drivers on standby status at their respective facilities.
- m. Distribute dosimetry and KI to emergency workers.
- n. Distribute survey meters to teams for monitoring/decontamination centers and emergency workers' monitoring/decontamination stations.
- o. Ensure traffic control points are operational.
- p. Activate sirens, dispatch route-alerting teams (if necessary) and release EAS message when directed. Implementation of any protective actions will be coordinated with the State EOC. In the event that protective action becomes necessary, the public alert system (sirens and route alerting, see Appendix 3) may be activated upon the State EOC's direction followed immediately by appropriate prewritten EAS announcements. EAS announcements for radiological emergency response will not be made until after sirens are activated. EAS

announcements are used only for the dissemination of emergency information and instructions.

- q. Report unmet needs to the State EOC.

(4) GENERAL EMERGENCY

- a. Ensure that actions as shown above for Site Area Emergency have been accomplished.
- b. Implement protective action measures if and as directed by the State EOC. EMA designee acknowledges receipt of protective action decision messages.
- c. Activate sirens and conduct route alerting, if necessary (see Appendix 3) broadcast appropriate EAS announcements. The State EOC will coordinate with the risk Counties and specify the time to activate the sirens. In the event the State EOC is out of communications, the Parent County will act for the State EOC until communications are restored. In the event both the State EOC and the Parent County are out of communications, the risk Counties will act on their own initiative.
- d. Notify school district superintendents and colleges to implement protective actions or, if applicable, to remain closed.
- e. Notify risk Municipalities, health care facilities, prisons and other public or private institutions to take protective actions if appropriate.
- f. Mobilize reception and mass care centers for the county, if applicable.
- g. Mobilize monitoring/decontamination teams.
- h. Verify that access control points are mobilized, as required.
- i. Conduct press briefings in coordination with the State EOC.
- j. Support evacuation pickup points for persons without transportation, as required.
- k. Report unmet needs to the State EOC.
- l. Notify the State EOC when the evacuation of the county risk EPZ has been completed.

- m. Relocate the EOC and other county agencies to a site outside the EPZ, if necessary. Advise the State EOC when the relocation is complete. Confirm communications systems to be used.

5. SUPPORT COUNTY RESPONSE ACTIONS

Support County Emergency Management Agency response actions for the four classes of incidents are listed below:

(1) UNUSUAL EVENT

No actions required.

(2) ALERT

- a. Notify County Commissioners.
- b. Notify key personnel on EOC staff.
- c. Notify radio operators.
- d. Bring the EOC to operational status.
- e. Establish amateur and other radio networks.
- f. Place ARC Chapter on standby.
- g. Place TCP organizations on standby.
- h. Place Reception/Mass Care Center managers on standby.
- i. Place monitoring/decontamination teams on standby.
- j. Place host schools and independent schools on standby.
- k. Satisfy reported mass care center unmet needs.
- l. Review applicable plans, procedures, mutual aid agreements and letters of understanding.
- m. Prepare to distribute dosimetry and monitoring equipment to monitoring/decontamination teams.
- n. Report unmet needs to the Regional EOC.

(3) SITE AREA EMERGENCY

- a. Ensure that actions for Alert have been accomplished.
- b. Mobilize fire departments, police departments and ambulance services (as appropriate).
- c. Mobilize the American Red Cross chapter.
- d. Place TCP organizations on operational status.
- e. Place reception centers, mass care centers and monitoring/decontamination centers on operational status.
- f. Issue dosimetry and monitoring equipment to monitoring/decontamination teams.
- g. Issue emergency public information advisories, if appropriate.
- h. Report unmet needs to the Regional EOC.

(4) GENERAL EMERGENCY

- a. Complete actions under Alert and Site Area Emergency
- b. Ensure unmet needs are met or are being met.
- c. Confirm that all emergency response units/facilities are operational.
- d. Update emergency public information.
- e. Provide reception center, mass care center and monitoring/decontamination center support to risk county(s).

6. INGESTION COUNTY RESPONSE ACTIONS

No action required during the emergency phase of the nuclear power plant incident except:

- A. Review ingestion county radiological emergency response plans and procedures.
- B. Be prepared to respond to ingestion problems that result from the incident.

7. STATE EOC RESPONSE ACTIONS

State EOC response actions are found in the PEMA EOC SOP in numerical sequence by emergency classification level.

8. REFERENCES

(See Basic Document, paragraph 12, "References.")

9. DEFINITIONS AND TERMS

(See Basic Document, paragraph 13, "Definitions and Terms.")

10. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3, "Abbreviations.")

ATTACHMENT:

- A. Emergency Classification Level Guidelines for the Four Classes of Incidents as set forth in NUREG-0654, FEMA-REP-1, Revision 1.

ATTACHMENT A

APPENDIX I

EMERGENCY CLASSIFICATION LEVEL GUIDELINES
FOR THE FOUR CLASSES OF INCIDENTS

CLASS	LICENSEE ACTIONS	STATE AND/OR COUNTY ACTIONS
<u>NOTIFICATION OF UNUSUAL EVENT</u>	1. Promptly inform State and County emergency management agencies of the nature of unusual condition as soon as discovered.	1. Provide fire or security assistance if requested.
<u>Class Description</u>	2. Augment on-shift resources as needed.	2. Escalate to a more severe class, if appropriate.
Unusual events are in process or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.	3. Assess and respond.	3. Standby until verbal closeout.
	4. Escalate to a more severe class, if appropriate.	
<u>Purpose</u>	OR	
Purpose of offsite notification is to (1) assure that the first step in any response later found to be necessary has been carried out, (2) bring the operating staff to a state of readiness, and (3) provide systematic handling of unusual event information and decision-making.	5. Close out with verbal summary to offsite authorities; followed by written summary within 24 hours.	

CLASS	LICENSEE ACTIONS	STATE AND/OR COUNTY ACTIONS
<u>ALERT</u>		
<u>Class Description</u> Events are in the process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any releases expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.	<ol style="list-style-type: none"> 1. Promptly inform State and County emergency management agencies of the alert status and reason for alert as soon as discovered. 2. Augment resources and activate onsite Technical Support Center and onsite operational support center. Bring emergency operations facilities (EOF) and other key emergency personnel to standby status. 3. Assess and respond. 4. Dispatch onsite monitoring teams and associated communications. 5. Provide periodic plant status updates to offsite authorities (at least every 15 minutes). 6. Provide periodic meteorological assessments to offsite authorities and, if any releases are occurring, dose estimates for actual releases. 7. Escalate to a more severe class, if appropriate. 8. Close out or recommend reduction in emergency class by verbal summary to offsite authorities followed by written summary within eight (8) hours of closeout or class reduction. 	<p>Provide fire or security assistance if requested.</p> <ol style="list-style-type: none"> 1. Notify key personnel, augment resources and bring the primary response centers to operational status. 2. Place on standby status EAS and emergency personnel including monitoring teams and associated communications. 3. Provide confirmatory offsite radiation monitoring and ingestion pathway dose projections if actual releases substantially exceed technical specification limits. 4. Escalate to a more severe class, if appropriate. 5. Maintain alert status until verbal closeout or reduction of emergency class.
<u>Purpose</u> Purpose of offsite alert is to (1) assure that emergency personnel are readily available to respond if situation becomes more serious or to perform confirmatory radiation monitoring if required, and (2) provide offsite authorities current status information.		

CLASS

SITE AREA EMERGENCY

Class Description

Events are in the process of occurring or have already occurred which involve actual failures or likely major failures of plant functions needed for protection of the public. Any releases not expected to exceed EPA Protective Action Guideline exposure levels except near site boundary.

Purpose

Purpose of the site area emergency declaration is to:

- (1) assure that response centers are manned,
- (2) assure that monitoring teams are dispatched,
- (3) assure that personnel required for evacuation of near-site areas are at duty stations if situation becomes more serious,
- (4) provide consultation with offsite authorities, and
- (5) provide updates for the public through offsite authorities.

LICENSEE ACTIONS

1. Promptly inform State and County emergency management agencies of the site area emergency status and the reason for emergency as soon as discovered.
2. Augment resources by activating onsite technical support center, onsite operational support center and near-site emergency operations facility (EOF).
3. Assess and respond.
4. Dispatch onsite and offsite monitoring teams and associated communications.
5. Dedicate an individual for plant status updates to offsite authorities and periodic press briefings (perhaps joint with offsite authorities).
6. Make senior technical and management staff onsite available for consultation with NRC and State on a periodic basis.
7. Provide meteorological and dose estimates to offsite authorities for actual releases via a dedicated individual or automated data transmission.
8. Provide release and dose projections based on available plant condition information and foreseeable contingencies.
9. Escalate to General Emergency class, if appropriate.

OR

10. Close out or recommend reduction in emergency class by briefing of offsite authorities at EOF and by phone followed by written summary within eight (8) hours of class reduction.

STATE AND/OR COUNTY ACTIONS

1. Mobilize EOC staff and resources on a 24-hour day basis.
2. Provide any assistance requested.
3. If sheltering near the site is desirable, activate public notification system within at least two miles of the plant.
4. Provide public within at least about 10 miles periodic updates on emergency status and place secondary support centers on standby.
5. Augment resources by activating primary support centers.
6. Dispatch key emergency personnel including monitoring teams and associated communications.
7. Place on standby status other emergency personnel (e.g., those needed for evacuation) and dispatch personnel to near-site duty stations.
8. Provide offsite-monitoring results to licensee, DOE and others and jointly assess them.
9. Continuously assess information from licensee and offsite monitoring with regard to changes to protective actions already initiated for public and mobilizing evacuation resources.
10. Consider placing milk animals within two (2) miles on stored feed and assess need to extend distance.
11. Provide press briefings, perhaps with licensee.
12. Escalate to General Emergency class, if appropriate.
13. Maintain Site Area Emergency status until closeout or reduction of emergency class.

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March 2002**

E-1-11

CLASS

GENERAL EMERGENCY

Class Description

Events are in process of occurring or have already occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.

Purpose

Purpose of the General Emergency declaration is to:

- (1) initiate predetermined protective actions for the public,
- (2) provide continuous assessment of information from licensee and offsite organization measurements,
- (3) initiate additional measures as indicated by actual or potential releases,
- (4) provide consultation with offsite authorities and
- (5) provide updates for the public through offsite authorities.

LICENSEE ACTIONS

1. Promptly inform State and County emergency management agencies of General Emergency status and reason for emergency as soon as discovered (parallel notification of State/local).
2. Augment resources by activating onsite technical support center, onsite operational support center and near-site emergency operations facility (EOF).
3. Assess and respond.
4. Dispatch onsite and offsite monitoring teams and associated communications.
5. Dedicate an individual for plant status updates to offsite authorities and periodic press briefings (perhaps joint with offsite authorities).
6. Make senior technical and management staff onsite available for consultation with NRC and State on a periodic basis.
7. Provide meteorological and dose estimates to offsite authorities for actual releases via a dedicated individual or automated data transmission.
8. Provide release and dose projections based on available plant condition information and foreseeable contingencies.
9. Close out or recommend reduction of emergency class by briefing of offsite authorities at EOF and by phone followed by written summary within eight (8) hours of closeout or class reduction.

STATE AND/OR COUNTY ACTIONS

1. Provide any assistance requested.
2. Activate immediate public notification of emergency status and provide public periodic updates.
3. For actual or projected severe core damage accidents or loss of control of facility, recommend evacuation (unless conditions make evacuation dangerous) of entire 360 degree 10 mile EPZ. Augment resources by activating secondary support centers, as required.
4. Dispatch key emergency personnel including monitoring teams and associated communications.
5. Dispatch other emergency personnel to duty stations.
6. Provide offsite-monitoring results to licensee, DOE and others, and jointly assess them.
7. Continuously assess information from licensee and offsite monitoring with regard to changes to protective actions already initiated for public and mobilizing evacuation resources.
8. Again, consider placing milk animals on stored feed and water assess need to extend distance.
9. Provide press briefings, perhaps with licensee.
10. Maintain General Emergency status until closeout or reduction of emergency class.

APPENDIX 2

ANNEX E

NOTIFICATION PROCEDURES

1. PURPOSE

To describe procedures for notifying and mobilizing emergency response personnel in the event of an incident at a nuclear power plant.

2. SITUATION

- A. Each nuclear power plant has dedicated, 24-hour telephone circuits direct from the power plant to the State EOC and the affected risk Counties. The initial notification of a nuclear power plant incident is made simultaneously by the plant to the State EOC and the risk Counties. There is one exception on simultaneous notification; Beaver Valley Power Station (BVPS) uses commercial telephone for initial notification and escalation. The notification is sequential (see Attachment A). BVPS notifies the risk County first and PEMA second. Time difference is less than a minute.
- B. PEMA maintains the State EOC, which is manned 24 hours a day. The State EOC receives initial notifications of plant incidents and escalations of Emergency Classification Levels (ECLs) simultaneously with the risk County(ies), with the exception of BVPS as Stated in Paragraph 2.A. above.
- C. Notification is carried over dedicated and common user telephone lines from the State EOC to risk County(ies), Federal and State agencies, contiguous risk/ingestion States, specified State Regional headquarters and support Counties. Acknowledgment and verification may be transmitted by alternate communication methods.
- D. State EOC will make all notifications directly to risk, support, ingestion Counties and Regions. Unmet needs and other concerns/issues of the support and ingestion Counties will be directed to the appropriate PEMA Regional office.

3. CONCEPT OF OPERATION

A. General

- (1) PEMA will use the notification sequence from each nuclear power plant through the State EOC to risk/support County(ies), Federal agency(ies) and contiguous risk/ingestion States as shown by the diagrams in Attachments A through E to this Appendix.
- (2) The State EOC will use those communications capabilities available. See Appendix 8, "Communications."
- (3) Notification procedures to inform and mobilize response to nuclear power plant incidents are established by the ECL: Unusual Event, Alert, Site Area Emergency and General Emergency. (See Basic Documents, paragraph 13, "Definitions and Terms".)
- (4) The initial notification of the State EOC and risk County(ies) by the power plant must be made within about 15 minutes after determination that an Unusual Event has occurred and sooner, if possible, for higher classifications.
- (5) The nuclear power plants, State and County EOCs will use the Emergency Notification Report as shown in Attachment F to this appendix.
- (6) The terms used to describe the response required by emergency organizations for the ECL of the incident are: Activate, Deploy, Mobilize, Notify, Operational and Standby. They are defined in the Basic Document, paragraph. 13, "Definitions and Terms." They will be used at all levels of authority in notification of and response to nuclear power plant incidents. (See Basic Document, Enclosure 1.)

B. Initial Notification/Escalation Procedures

- (1) The nuclear power plant will simultaneously notify the State EOC and the risk County(ies) by dedicated telephone line of an Unusual Event, Alert, Site Area Emergency or General Emergency (See Attachment F, Emergency Notification Report). The risk Counties will acknowledge to the State EOC their notification as reported by the nuclear power plant caller. The County EMC or his/her designated representative must make acknowledgment. The State EOC will call BRP or BRP duty officer, as

appropriate. BRP will call the affected power plant to confirm the ECL notification. BRP will call back verification to the State EOC.

NOTE: Beaver Valley Power Station is an exception. It notifies offsite authorities sequentially by commercial phone.

- (2) If the ECL is an ALERT or higher the procedure in (1) above will be used. The State EOC, upon verification of the message by BRP, will then 1) notify the PEMA Director and staff, 2) the State Regional EOC(s) 3) support Counties when appropriate, 4) designated State agencies, 5) FEMA and 6) contiguous risk/ingestion States. (See Attachments A, B, C, D and E.)
- (3) A Nuclear Engineer from BRP (collocated in the State EOC at Alert or higher, or present location until the EOC is staffed) will contact the power plant's Technical Support Center or control room (as appropriate). The engineer will gather necessary technical data for an in-depth analysis of the reactor condition and the probability of a release of radiation from the plant site. During BRP non-duty hours, the BRP duty officer performs this function and notifies the State EOC concerning reactor condition and the probability of a radiation release from the site. The nuclear power plant should expect BRP to contact them within 30 minutes to verify the notification message.
- (4) All designated State and County departments and agencies remain on standby or higher readiness status, unless otherwise instructed, until verbal closeout of the emergency. Departments and agencies are designated on a case-by-case basis based on incident response requirements.
- (5) PEMA will provide appropriate information on plant status to the risk Counties following the initial notification and with every subsequent change.

C. Initial Notification/Escalation Contingency Procedures

- (1) If the nuclear power plant experiences a failure of the dedicated phone line or is unable to access the dedicated phone line, they are to first notify the State EOC using backup communications systems. The State EOC will then notify risk Counties, using dedicated phone circuits. If the State EOC determines that the dedicated phone lines to the risk Counties are inoperative, it will continue the risk County notification process using backup communications systems. The State EOC's notification of BRP will, in this case, remain unchanged from procedures set forth in paragraph 3.B. (1) of this appendix. Additionally, if the notification is an Alert or higher classification, the State EOC will notify the State Regional EOC(s),

support Counties, designated State agencies, FEMA and contiguous risk/ingestion States using procedures set forth in paragraph 3.B. (2) of this appendix.

- (2) If at the onset of the notification process the nuclear power plant determines that all dedicated phone circuits are inoperative or malfunctioning, notifications must be made using backup communications systems. The following notification sequence must be followed: parent County, other risk Counties and State EOC.
- (3) In the event of primary and backup communications failures between the risk Counties and the State EOC, notification and coordination responsibilities will be assumed by the County (parent) in which the nuclear power plant is located until communications have been restored. The Parent County will contact the State EOC via relay through an intermediate station and advise of status.
- (4) In a worst case situation at a nuclear power plant involving actual or imminent core degradation or potential loss of containment, the plant's initial notification may be to declare a General Emergency to include a recommendation of protective actions to be taken. This classification could be announced bypassing all lesser classifications, e.g., Alert and Site Area Emergency. Under this circumstance, upon receiving an initial notification from the plant of a General Emergency, State EOC and the risk Counties have the authority to advise the public to take protective action.

D. Protective Action Guide Notification Procedure

At the General Emergency ECL, nuclear power plant senior officials are required by the NRC to issue protective action recommendations (PAR) based upon a technical assessment of the incident. In other than a fast-moving incident, the PAR will be developed in coordination with the NRC and the BRP representatives. Notification will be passed from the utility to the senior official in the State EOC. Once the BRP and Situation Analysis have analyzed the implications of the incident, the Governor will direct the specific actions to be taken in response to the incident.

4. RESPONSIBILITIES

A. Nuclear Power Plant

- (1) Prompt notification of offsite authorities (State EOC and risk Counties) is required within about 15 minutes of declaration of an ECL. (See Emergency Notification Report, Attachment F.)

- (2) In the event of an interruption or failure of telephone communication between the plant and the State EOC, first attempt to re-notify the State EOC. If unable to contact the State EOC, call the Parent County and advise them to assume PEMA's notification and coordination role until communications are reestablished. Parent County EOC will notify PEMA of their intent to assume the notification and coordination role, if possible.

B. State EOC

- (1) If the initial notification from the nuclear power plant is of an Unusual Event:
 - a. State EOC will make all notifications directly to risk, support, ingestion Counties and Regions. Confirm that risk Counties have been notified while still on the dedicated circuits (except BVPS, by commercial phone).
 - b. Notify BRP.
 - c. Obtain ECL verification from BRP.
 - d. Notify key PEMA personnel.
 - e. Standby until verbal closeout is received.
- (2) For an Alert, Site Area Emergency or General Emergency:
 - a. State EOC will make all notifications directly to risk, support, ingestion Counties and Regions. Confirm that risk Counties have been notified while still on the dedicated circuits (except BVPS, by commercial phone).
 - b. Notify BRP or (if appropriate) BRP duty officer.
 - c. Obtain ECL verification from BRP and notify risk Counties.
 - d. Notify and assemble key PEMA personnel.
 - e. Notify State Regional EOCs to assemble PEMA Regional staff.
 - f. Dispatch PEMA liaison officers.
 - g. Notify State and Federal agency(ies) and contiguous risk/ingestion States.

- h. Notify State Regional EOCs when responsibility for support County notification is passed to Regional EOC.
- i. Remain mobilized until verbal closeout.

C. PEMA Regional Offices

For an Alert, Site Area Emergency or General Emergency:

- a. Notify State EOC when Regional EOC is operational.
- b. Notify support Counties when Regional EOC is operational.
- c. Notify support County emergency management agencies when operational, and receive, consolidate and forward to State EOC all County unmet needs.
- d. Standby until verbal closeout is received.

D. Bureau of Radiation Protection

- (1) Verify ECL with the nuclear power plant within 30 minutes.
- (2) For an Alert or higher ECL, activate the full BRP callout cascade and begin, as appropriate, deployment to sites (EOF, State EOC, BRP Assessment Center, etc).
- (3) Review information from the plant and through direct contact with the plant; acquire sufficient technical data for protective action recommendations.
- (4) Remain operational or mobilized until verbal closeout.

E. Risk Counties

- (1) For an Unusual Event, notify any emergency response forces needed onsite, if requested. If County policy, notify County Commissioners and risk Municipalities.
- (2) Acknowledge receipt of the message to the State EOC.
- (3) For an Alert, Site Area Emergency or General Emergency, notify:

- a. County Commissioners
- b. Municipalities within the plume exposure pathway of the EPZ
- c. EOC Staff
- d. Other emergency response agencies, facilities and personnel as required (school districts, nursing homes and other specialized facilities).
- e. Acknowledge receipt of the message to the State EOC.
- f. For a Site Area Emergency or General Emergency ensure all necessary Municipal facilities are staffed.
- g. Remain operational or mobilized until verbal closeout.

F. Support Counties

- (1) For an Alert, Site Area Emergency or General Emergency notify:
 - a. County Commissioners
 - b. Key EOC Staff
 - c. Appropriate police, fire, ambulance and other emergency forces and voluntary agencies.
 - d. Reception and Mass Care Center Managers(s)
 - e. Local Chapters(s) American Red Cross
 - f. Affected school districts and other support institutions.
 - g. Monitoring/decontamination team leaders
- (2) Stay in contact with PEMA Regional EOC.
- (3) Remain operational or mobilized until verbal closeout.

G. Ingestion Counties

- (1) For Site Area Emergency or General Emergency notify:
 - a. County Commissioners
 - b. Key EOC Staff

- (2) Stay in contact with PEMA Regional EOC.
- (3) Remain operational or mobilized until verbal closeout.

5. REFERENCES

(See Basic Document, paragraph. 12.)

6. DEFINITIONS AND TERMS

(See Basic Document, paragraph. 13.)

7. ABBREVIATIONS/ACRONYMS

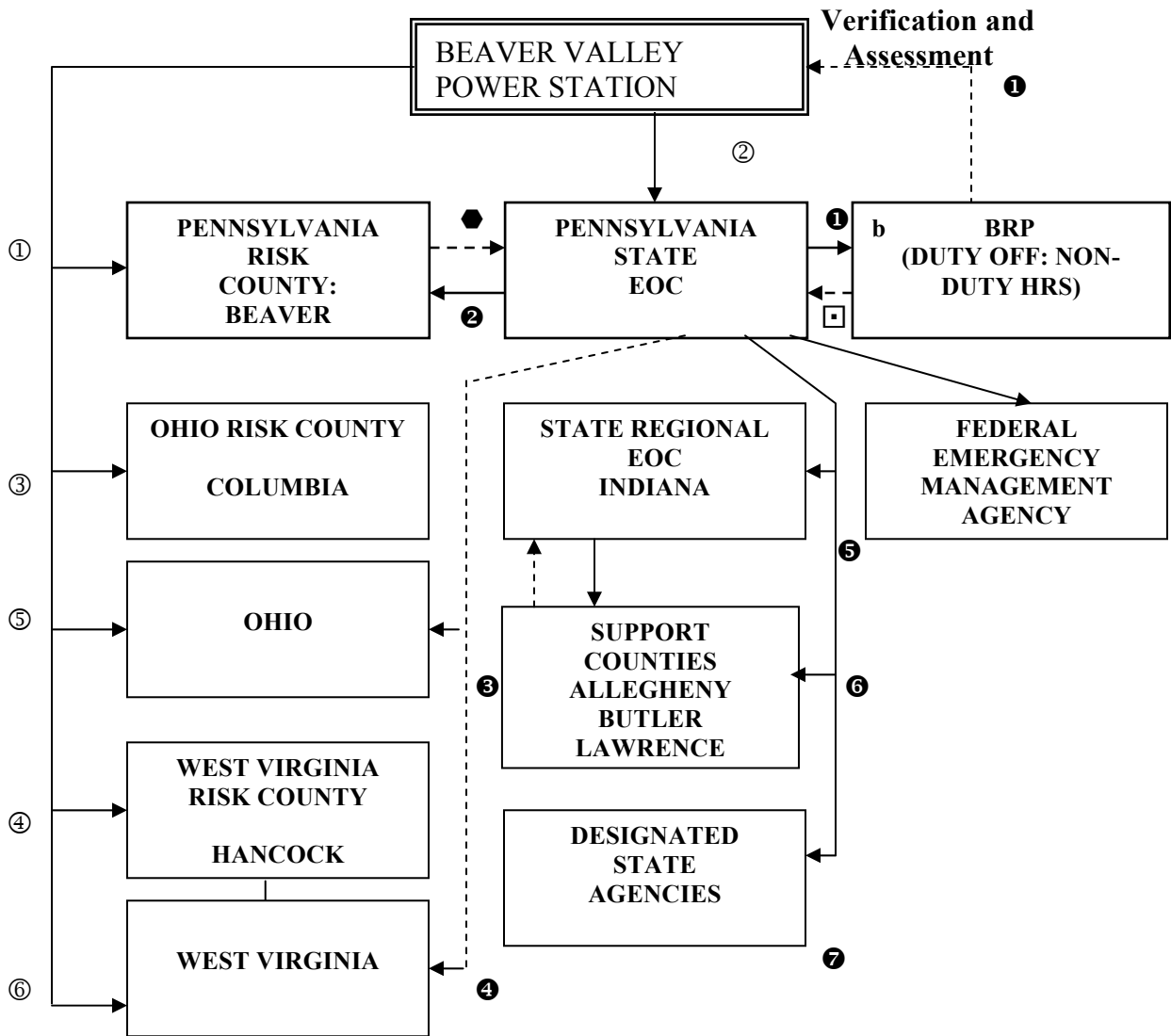
(See Basic Document, Enclosure 3.)

ATTACHMENTS:

- A. First Energy Nuclear Operating Company (BVPS) Notification Procedures
- B. Exelon Nuclear (LGS) Notification Procedures
- C. Exelon Nuclear (PBAPS) Notification Procedures
- D. PPL Susquehanna LLC (SSES) Notification Procedures
- E. AmerGen Energy Company (TMI) Notification Procedures
- F. Emergency Notification Report - Nuclear Power Plant Incident

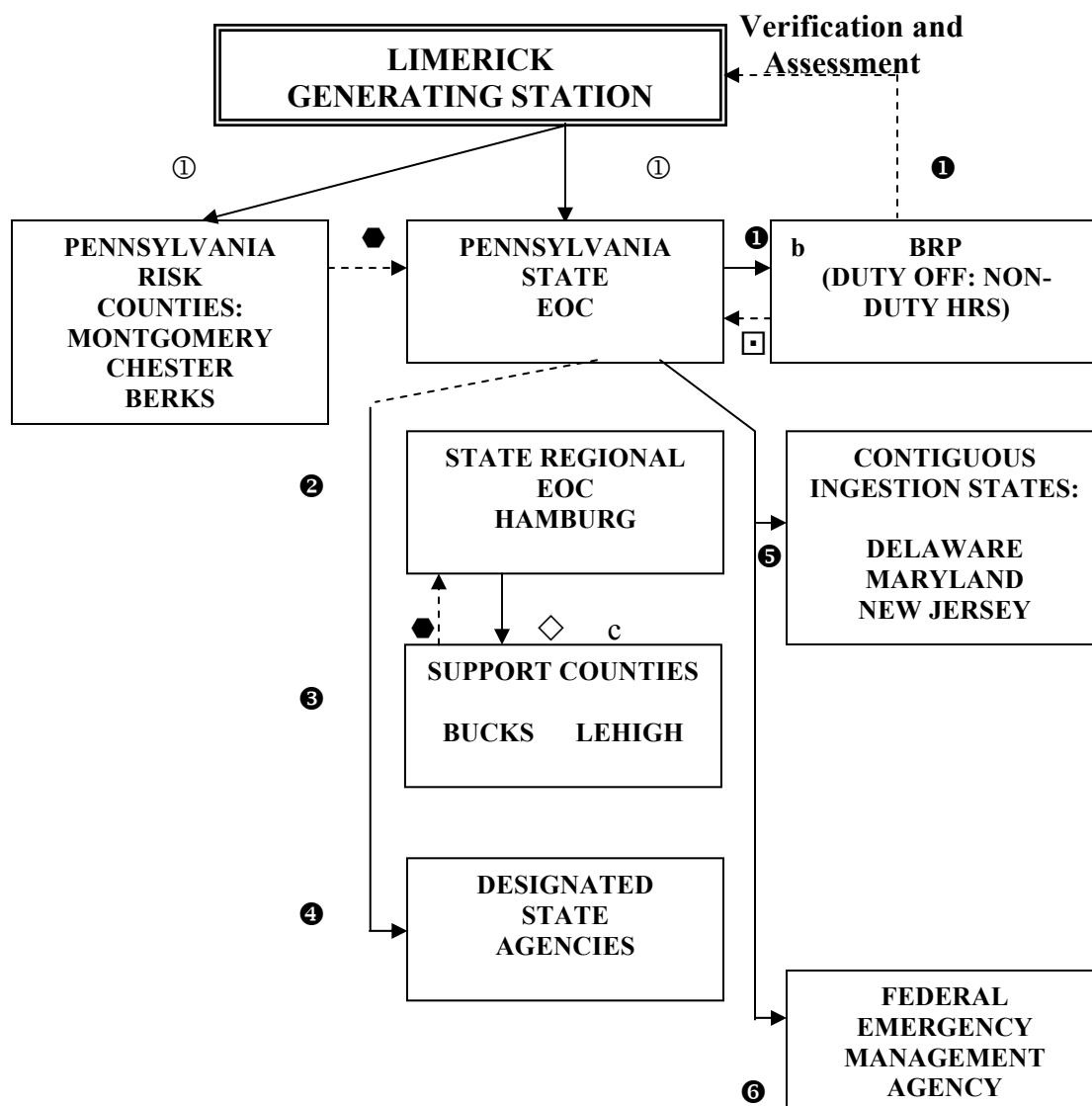
ATTACHMENT A

APPENDIX 2



ATTACHMENT B

APPENDIX 2



Notes:

- (a) Notifications are sequential (1, 2, 3 etc.) as shown with the first notification designated by: ① PEMA, LGS, ① ◇ PEMA Regional, ● Counties, and □ BRP.
- (b) During BRP non-duty hours, the State EOC notifies the BRP Duty Officer
- (c) State EOC notifies support Counties. When operational, State Regional EOC assumes notification role.

LEGEND: - - - - - Acknowledgement or verification
 - - - - - Notification

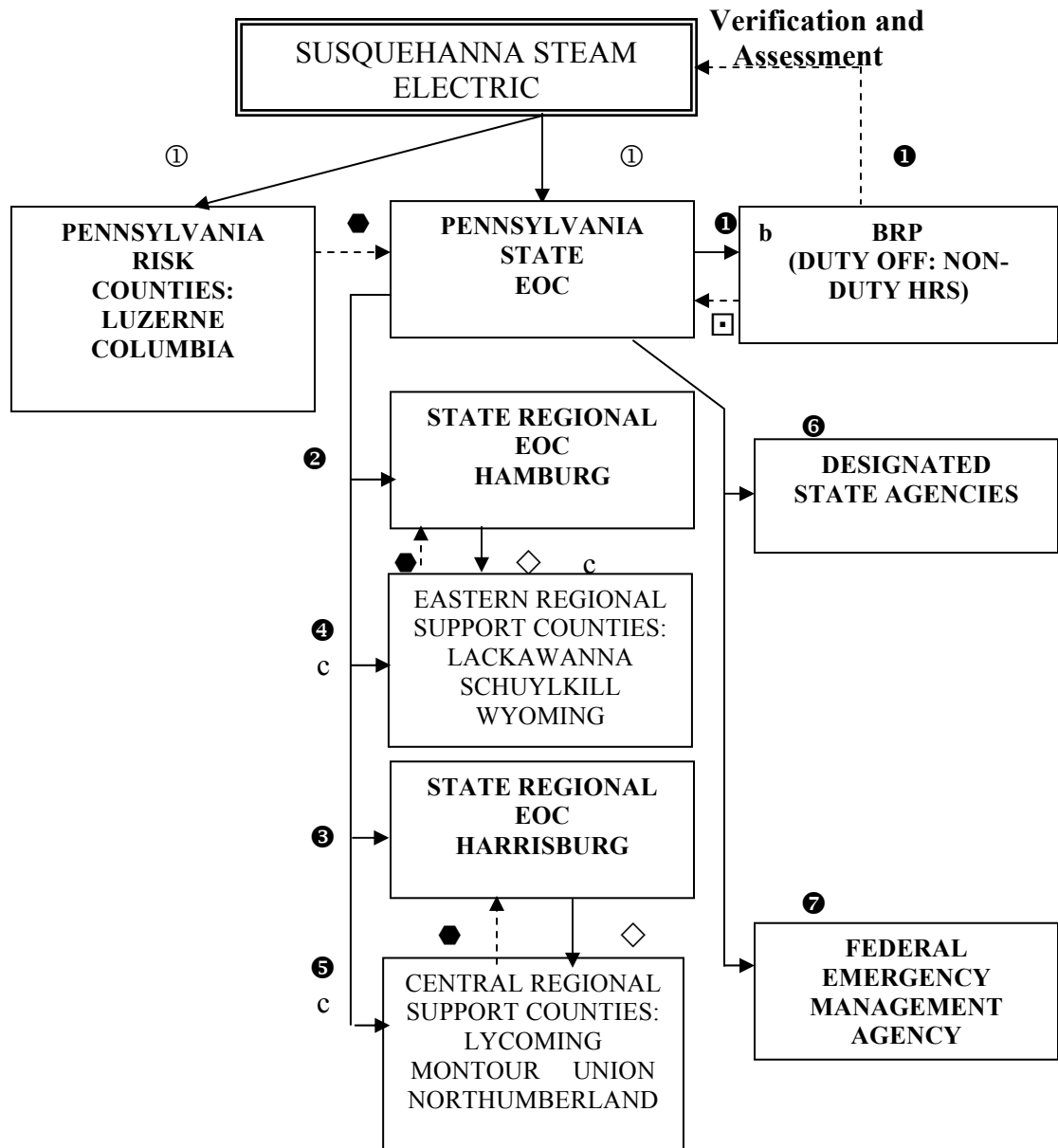
APPENDIX 2



- LEGEND:** ----- Acknowledgement or verification
 ===== Notification

ATTACHMENT D

APPENDIX 2



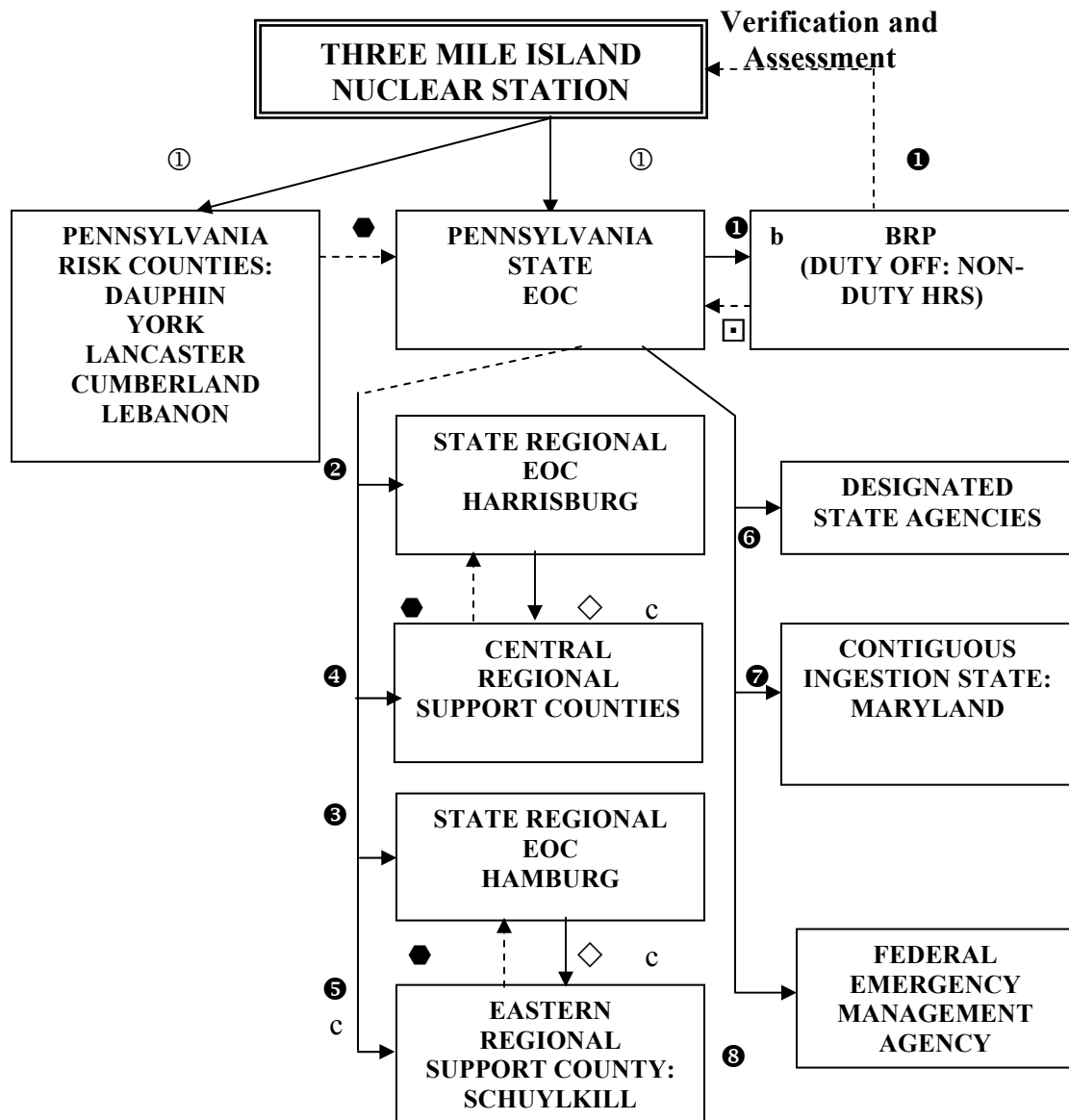
Notes:

- (d) Notifications are sequential (1, 2, 3 etc.) as shown with the first notification designated by: ① PEMA, SSES, ① ◇ PEMA Regional, ● Counties, and □ BRP.
- (e) During BRP non-duty hours, the State EOC notifies the BRP Duty Officer
- (f) State EOC notifies support Counties. When operational, State Regional EOC assumes notification role.

LEGEND: - - - - - Acknowledgement or verification
 _____ Notification

ATTACHMENT E

APPENDIX 2



Notes:

- (g) Notifications are sequential (1, 2, 3 etc.) as shown with the first notification designated by: ① PEMA, TMI, ① ◇ PEMA Regional, ● Counties, and □ BRP.
- (h) During BRP non-duty hours, the State EOC notifies the BRP Duty Officer
- (i) State EOC notifies support Counties. When operational, State Regional EOC assumes notification role.

LEGEND: - - - - - Acknowledgement or verification
 - - - - - Notification

ATTACHMENT F

APPENDIX 2

NOTIFICATION OF A NUCLEAR POWER PLANT INCIDENT

EMERGENCY NOTIFICATION REPORT

☐ THIS IS A DRILL ☐ THIS IS NOT A DRILL

1. This is _____ at _____
My phone number is _____. The time is _____.

2. EMERGENCY CLASSIFICATION

☐ Unusual Event ☐ Site Area Emergency
☐ Alert ☐ General Emergency
☐ The Event has been terminated.

UNIT: _____ TIME: _____ DATE: _____

THIS PRESENTS A/AN ☐ Initial Declaration }

☐ Escalation } IN CLASSIFICATION
STATUS

☐ No Change }

3. BRIEF NON-TECHNICAL DESCRIPTION OF EVENT:

4. THERE IS ☐ NO }

☐ AN AIRBORNE } NON-ROUTINE RADIOLOGICAL RELEASE IN
PROGRESS

☐ A LIQUID }

5. WHEN GENERAL EMERGENCY IS THE INITIAL EVENT, PROVIDE PROTECTIVE ACTION
RECOMMENDATIONS BELOW:

6. Wind direction is from _____ Wind speed is _____

☐ THIS IS A DRILL ☐ THIS IS NOT A DRILL

APPENDIX 3

ANNEX E

PUBLIC ALERT AND PUBLIC NOTIFICATION

1. PURPOSE

To establish public alert and public notification systems that will be implemented in response to an incident at a nuclear power plant: to make the affected population aware of an incident and to provide timely information and instructions to the public (residents, institutionalized, transients) concerning protective actions.

2. SITUATION

A. PEMA Responsibility

PEMA is the lead State agency for the overall coordination of public alert and public notification in the event of an incident.

B. The Public Alert (Siren) Signal

(1) The public alert siren signal - a three to a five-minute steady tone notifies the public to tune in to EAS stations on their radios or TV sets.

(2) The State EOC will coordinate the simultaneous siren activation with contiguous risk State(s) and Counties.

C. Public Alert Systems Requirements

Public alert, i.e., siren, systems designed to meet the requirements in Appendix 3, NUREG-0654/FEMA-REP-1, Rev. 1, and FEMA REP 10 are operational within a ten-mile radius of each of the five nuclear power plants in the Commonwealth. The systems have been installed and are maintained by the nuclear power plants. In coordination with PEMA, the alert systems will be activated from the risk county emergency operations center in which they are located.

D. Public Notification (EAS Message)

Notification is defined as transmitting of information and instructions over the Emergency Alert System immediately after the alert system has been activated. Based upon the radiological emergency situation and off-site

conditions, the notification might include, for example, announcements on school closures, take shelter, need for general evacuation or school evacuation or announcements concerning recovery. (The latter announcement would only be given if a general evacuation had been carried out earlier.) Coordination will be effected with EAS radio and TV stations serving the affected area so that emergency information and instructions, to include protective actions, can be transmitted promptly.

E. Public Alert/Public Notification Systems Capability

The public alert and the public notification systems have the capability to reach the affected public including institutionalized and transient populations within the plume exposure pathway EPZ.

F. Emergency Management Capability

The capability exists at each nuclear power plant, PEMA, each risk county and their risk Municipalities to receive and act upon notification on a 24-hour a day basis. The capability also exists on a 24-hour basis for notification and mobilization of forces of each organization charged with response functions (see Appendix 2).

G. Verification

Procedures are established at all emergency management organizations to verify receipt of notification messages.

3. CONCEPT OF OPERATIONS

A. System Activation

PEMA will determine the necessity for activating the public alert and public notification systems based upon recommendations provided by the Bureau of Radiation Protection (BRP), which is responsible for assessing the seriousness of the incident.

B. Requirements for Siren Activation

In coordination with PEMA, sirens may be activated when: (a) there is significant information that will reassure the public of their safety; (b) the public is to be informed of a plant status that may lead them to implement specific actions on their own; or (c) specific actions (to include protective actions) are to be taken by the public.

C. System Design Objectives and Testing

- (1) The minimum design objectives for coverage by the alert and notification systems are:
 - a. Capability for providing both an alert signal (sirens) and an informational or instructional message (EAS announcement) to the population on an area-wide basis throughout the plume exposure pathway EPZ within 15 minutes.
 - b. The initial alert and notification system will assure direct coverage of over 90% of the population within five miles of the plant.
 - c. Special arrangements will be made to assure that within 45 minutes, all of the populations within the plume exposure pathway EPZ who may not have received the initial alert are notified (see Attachment A).
- (2) The minimum testing requirements for the public alert system are:
 - a. The county siren system for the plume exposure pathway EPZ for each nuclear power plant will be tested as follows:
 - 1) A silent test will be conducted every two weeks with appropriate log entry.
 - 2) A growl test will be conducted quarterly and when preventive maintenance is performed.
 - 3) A complete cycle test of the alert signal will be conducted at least annually and when required in conjunction with biennial exercises. Transmission of a test message over the EAS will be demonstrated or simulated during the biennial exercises.
 - b. Each nuclear power plant will provide PEMA with an annual Statement certifying that the silent and growl tests were performed. PEMA will provide FEMA with a similar annual Statement confirming that the tests were conducted in all Pennsylvania risk Counties.

D. Redundant Means of Communication

- (1) The notification systems below will be used in a supplementary manner when part or all of the siren system fails to function. These

will be used to notify the public in the plume exposure EPZ of potential hazards and protective actions to be taken. Specific systems used will be described in each county and Municipal radiological emergency response plan. These systems may include:

- a. Emergency vehicles with loudspeakers (route alerting)
 - b. Aircraft and boats with loudspeakers
 - c. Telephone
 - d. Radio
 - e. Television
 - f. CBs or other radios
 - g. Personal notification
- (2) National Oceanographic and Atmospheric Administration (NOAA) weather radio network area offices provide a PEMA Alert notification to be transmitted when an emergency exists to warrant notifying large segments of the population. In such a situation, PEMA will direct the appropriate NOAA area office to transmit the notification. (In this case, the notification would be concerned with an emergency at a particular nuclear power plant.) The timing of the NOAA notification would be fixed by PEMA after coordination with the risk county(ies) on the appropriate EAS announcement to issue (see Attachment B).

4. ORGANIZATION AND RESPONSIBILITIES

A. PEMA

- (1) PEMA is the lead State agency for coordination of notification activities in response to nuclear power plant incidents.
- (2) Risk County and Contiguous State Coordination

PEMA will coordinate with the risk Counties and affected contiguous States and Counties regarding protective actions, specific times for activating the sirens, activation of the EAS system and the notification message to be used. Contiguous risk States retain responsibility for the specific protective actions to be taken by their risk Counties.

(3) PEMA Follow-Up Responsibilities

- a. Following the activation of the notification system, PEMA will coordinate the dissemination of follow-up and continuing emergency public information as detailed in Appendix 16, "Public Education and Information."
- b. PEMA will ensure the nuclear power plant is notified when the alert and notification system is activated and what protective action is taken, if applicable.

B. EAS Stations Responsibilities

EAS stations commence transmitting immediately after sirens have been activated for 3-5 minutes. (For examples, see Attachments A-I, Appendix 16.)

C. Risk County Responsibilities

- (1) At the time coordinated by PEMA, each risk county will: activate the sirens; transmit the notification message over the EAS and ensure that Municipalities implement route alerting, if necessary.
- (2) Ensure that procedures are developed and maintained to notify the hearing and mobility impaired, otherwise impaired, non-English speaking, industries, places of public assembly, parks, etc., if required by risk county plans.

D. Risk Municipal Responsibilities

- (1) Risk Municipalities will ensure that procedures are developed and maintained to notify the hearing and mobility impaired, otherwise disabled, non-English speaking, industries, places of public assembly, parks, etc., if required by risk county plans.
- (2) Municipal police, fire departments or volunteer staff will be dispatched as route alert teams in vehicles manned by police, fire, or other emergency response personnel equipped with public address systems or portable public address equipment. These teams will travel over designated routes in areas out of reach of the public alert system to notify the public of the incident and advise them to tune their radio/TV to the EAS station.

5. REFERENCE

Pennsylvania Emergency Alert System (EAS), Operational Plan for the Commonwealth of Pennsylvania, August 1995.

6. DEFINITIONS AND TERMS

(See Basic Document, paragraph 13).

7. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3).

ATTACHMENTS:

- A. Alert/Notification Timing Process
- B. Public Alert Message By NOAA Weather Radio Station for Incidents at a Nuclear Power Plant

ATTACHMENT A

APPENDIX 3

ALERT/NOTIFICATION TIMING PROCESS

In all situations the time frames for activating the alert and notification system are measured from the point at which the designated official, or officials if two or more jurisdictions are involved, reaches a decision which necessitates the activation of the alert and notification system. As indicated in the chart below, there is decision-making time available to offsite officials that should not be calculated in the 15 or 45 minutes.

The following chart illustrates the key steps in the alert and notification process:

TIMING CHART

Emergency Declaration by a Utility	Licensee Notifies Public Officials	Authorized Public Official Reaches Decision which requires activating the Alert and Notification System
15 minutes	Varies	15 (or 45) minutes
	Decision-making time for public officials varies from virtually no time available in a fast-breaking incident to substantial time in a slowly evolving incident.	

Source: FEMA Guidance Memorandum AN-1, "FEMA Actions to Qualify Alert and Notification Systems against NUREG-0654/FEMA-REP-1 and FEMA-REP-10."

ATTACHMENT B

APPENDIX 3

PUBLIC ALERT MESSAGE
BY
NOAA WEATHER RADIO STATION
FOR
INCIDENTS AT A NUCLEAR POWER PLANT

The Pennsylvania Emergency Management Agency advises that an incident has occurred at:

(Name of specific nuclear power plant)

For further information tune to your Emergency Alert System (EAS) station on radio or TV. You will receive notification over that station if protective actions are required of the public. Please avoid unnecessary use of the telephone system since it is urgently needed by the local emergency management agencies. The name and frequency of your EAS station may be found in the emergency information section of the primary directory in your telephone service area.

(Note: A separate taped cartridge for each of the five nuclear facilities in the Commonwealth has been sent to the NOAA weather radio station that broadcasts within the plume and ingestion exposure pathway emergency planning zones of the respective plants.)

APPENDIX 4

ANNEX E

PROTECTIVE RESPONSE

1. PURPOSE

To prescribe protective response actions; portray population distributions; and designate evacuation time estimates for the plume exposure pathway EPZs contiguous to the five nuclear power plants located within the Commonwealth.

2. SITUATION AND ASSUMPTIONS

See Basic Document.

3. CONCEPT OF OPERATIONS

- A. Upon direction or recommendation by the Governor that protective actions are to take place, PEMA will notify the risk and support Counties and designated State agencies that such action is to be taken, and that their respective procedures for protective actions are to be implemented. PEMA will coordinate Counties' concurrences of the protective action decision made by the Governor and specify the time to commence the operation.
- B. The two protective actions that may be implemented are:
 - (1) Sheltering (in-place)
 - (2) Evacuation (See Attachment M, this Appendix.)
- C. Sheltering is a protective action which could be recommended to the public. Factors impacting on the implementation of sheltering are enumerated in Appendix 6.
- D. Evacuation is a protective action option that involves movement of the entire population from the plume exposure pathway EPZ. Evacuation is a worst case situation.
- E. Evacuation can be implemented at either a Site Area Emergency or General Emergency classification. Factors impacting on the implementation of an evacuation are enumerated in Appendix 6. The selection of the evacuation option is a judgment based upon the above referenced factors and an

evaluation of the specific circumstances surrounding the incident (see Attachment M).

F. Protective Action Guides (PAGs)

The PAGs established by the USEPA that influence implementation of a protective action are listed in Appendix 6.

4. ORGANIZATION AND RESPONSIBILITIES

- A. The Governor or the highest ranking elected County or Municipal official in authority may recommend an evacuation or sheltering for their respective jurisdictions. The Governor, or his constitutionally designated successor, has the sole authority and responsibility for directing and compelling an evacuation and then only under a declared state of disaster emergency. All County and local officials have the authority to order an evacuation within their jurisdiction in the event of a disaster emergency. This authority is implicit in Section 7501(b) of the EMS Code.
- B. PEMA has the primary responsibility for directing and coordinating the response to an evacuation order or recommendation made by the Governor. Specific responsibilities of PEMA and designated State agencies in support of the evacuation will be found in Annex E, Basic Document, paragraph 6.
- C. The risk Counties (see Attachment A) will implement evacuation procedures in consonance with the State radiological emergency response document and the respective County RERP. See Annex E, Basic Document, paragraph 6.B.(24).a. for detailed responsibilities assigned to risk Counties.
- D. Designated support Counties (see Attachment A) will prepare to receive evacuees in accordance with responsibilities shown in Annex E, Basic Document, paragraph 6.B.(24).b.
- E. The licensee is responsible for the evacuation of on-site nuclear power plant personnel to off-site locations. The plan developed by the facility for this purpose must be coordinated with PEMA to ensure that there is no conflict with the State or County evacuation procedures. The licensee will notify the State EOC and parent County EOC at the time the decision is made to evacuate non essential on-site personnel to permit off-site assistance and public information coordination as appropriate.
- F. PEMA, in conjunction with the Pennsylvania State Police (PSP), Department of Military and Veterans Affairs (DMVA) and the risk Counties will coordinate the security arrangement for restricted access areas

to include designating access control points to limit entrance into these areas. PSP has the primary responsibility for developing the access control plan and will coordinate the use of resources from PSP, Counties and the National Guard in the implementation of the plan. PEMA will coordinate the activation of the access control points when required. BRP will provide the technical basis for the access decisions.

- G. Upon direction of the State EOC, risk Counties will activate their siren system to alert the public. Municipalities will be advised by the respective risk County, if possible, of the impending protective actions and directed to implement public alert procedures if necessary to supplement the siren system.
- H. The risk Counties will assure that appropriate notification messages are transmitted over the Emergency Alert System immediately after the public alert siren system has been activated.
- I. Evacuation will be accomplished under the direction and coordination of the State EOC and in accordance with procedures established in the RERP of the state and Counties.
- J. When sheltering is advised, the public within the plume exposure pathway EPZ will be told to take sheltering action, meaning to close windows and doors and to reduce outside air intake. (See Attachment L to this Appendix for additional information.)
- K. PEMA will coordinate protective action recommendations with other affected contiguous states.
- L. The State RERP are based upon the concept that any evacuation recommended or ordered by the Governor will be accomplished for the 360 degree plume exposure pathway EPZ rather than on a selective sector basis.

5. POPULATION DATA

Populations within the plume exposure pathway EPZ of each of the five fixed nuclear facilities within Pennsylvania are displayed in Attachments B through F. The displays list the total population in each 22 1/2 degree sector for the full 360 degree plume exposure pathway EPZ. The population in each 22 1/2 degree sector is further delineated by the population within the 2, 5, and 10 mile radii. Where appropriate, the populations living outside the 10 mile radius from the nuclear power plant but within the plume exposure pathway EPZ, are listed. The above data are also summarized in a table at the bottom of each attachment.

6. EVACUATION TIME ESTIMATES

A. General

In the event an evacuation is ordered or recommended by the Governor, it is the policy of the Commonwealth of Pennsylvania to implement such action for the full 360 degree plume exposure pathway EPZ of the nuclear plant. While this policy is conservative, it is predicated on experience gained during the March 1979 incident at the Three Mile Island Nuclear Station. Wind direction is a varying factor and a 360 degree evacuation ensures that sudden wind changes, which were experienced, will not endanger unsuspecting segments of the population. Additionally, planning and preparing for a 360 degree evacuation minimizes public misconception of selective sector evacuation. It also eliminates the confusion that could be caused by a subsequent increase in the sectors involved or by a spontaneous public evacuation. Evacuation time estimates which follow have been accepted by PEMA as a basis for evacuation planning for the respective facilities and are based on the entire 360 degree plume exposure pathway EPZ.

B. Beaver Valley Power Station

- (1) Time estimates for evacuation of that portion of the plume exposure pathway EPZ which lies within Beaver County depends upon information contained in the study entitled, "Evacuation and Mass Notification," dated March 1980. This study was prepared for Duquesne Light Company by Alan M. Voorhees Associates, Inc.
- (2) Estimates made in this study consider two scenarios and are based on 100 percent of the population being evacuated from the plume exposure pathway EPZ. The results of this study can be summarized as follows:

	NORMAL CONDITIONS		INCLEMENT WEATHER	
	<u>Auto-owning</u>	<u>Transport Dependent</u>	<u>Auto-owning</u>	<u>Transport Dependent</u>
Risk area of Beaver County minus Aliquippa/ Hopewell	3 1/4 hours	3 1/2 hours	4 1/2 hours	4 3/4 hours
Aliquippa/ Hopewell	4 1/2 hours	4 1/2 hours	6 1/4 hours	6 1/4 hours

C. Limerick Generating Station

- (1) These estimates are taken from "Evacuation Time Estimates and Traffic Management Plan for the Limerick Generating Station" prepared for the Philadelphia Electric Company by KLD Associates, Huntington Station, New York, January 1992. Fair weather evacuation time estimates were developed by KLD Associates for four time periods, i.e., winter midweek, winter weekend, summer midweek and summer weekend. Time estimates for evacuation of the plume exposure pathway EPZ under these conditions are:

Winter midweek	- 5 hours, 15 minutes
Summer midweek	- 5 hours, 20 minutes
Winter weekend	- 5 hours
Summer weekend	- 5 hours, 5 minutes

- (2) Adverse weather conditions were also studied by KLD. Their estimates for adverse weather evacuation of the plume exposure pathway EPZ for the conditions indicated are as follows:

Snowstorm

Winter midweek	- 7 hours, 35 minutes
Winter weekend	- 7 hours, 35 minutes

Rainstorm

Winter midweek	- 6 hours, 25 minutes
Summer midweek	- 6 hours, 15 minutes
Winter weekend	- 6 hours, 10 minutes
Summer weekend	- 6 hours, 15 minutes

The basic difference in the scenarios is that the winter weekday school and work force population is replaced by a summer weekend recreational population having similar preparation and mobilization time.

D. Peach Bottom Atomic Power Station

- (1) These estimates are taken from "Evacuation Time Estimates for the Peach Bottom Atomic Power Station Plume Exposure Pathway Emergency Planning Zone" prepared for the Philadelphia Electric Company by HMM Associates, Concord, Massachusetts, January, 1990. Fair weather evacuation time estimates were developed by HMM

Associates for three time periods, i.e., winter weekday, winter weeknight, and summer weekend. Time estimates for evacuation of the plume exposure pathway EPZ under these conditions are:

Winter Weekday

York County	- 4 hours, 5 minutes
Lancaster County	- 3 hours, 5 minutes
Chester County	- 2 hours, 45 minutes

Winter Weeknight

York County	- 3 hours, 5 minutes
Lancaster County	- 2 hours, 55 minutes
Chester County	- 2 hours, 45 minutes

Summer Weekend

York County	- 3 hours, 5 minutes
Lancaster County	- 2 hours, 55 minutes
Chester County	- 2 hours, 55 minutes

- (2) Adverse weather conditions were also studied by HMM. Their estimates for adverse weather evacuation of the plume exposure pathway EPZ for the conditions indicated are as follows:

Snowstorm - Winter weekday

York County	- 5 hours, 45 minutes
Lancaster County	- 5 hours, 35 minutes
Chester County	- 2 hours, 50 minutes

Rainstorm - Summer weekend

York County	- 3 hours, 15 minutes
Lancaster County	- 3 hours, 5 minutes
Chester County	- 3 hours, 5 minutes

The basic difference in the scenarios is that the winter weekday school and work force population is replaced by a summer weekend recreational population having similar preparation and mobilization time.

- E. Susquehanna Steam Electric Station

- (1) These estimates are taken from "Susquehanna Steam Electric Station Evacuation Time Estimates" prepared for Pennsylvania Power and Light Company by HMM Associates, Waltham, Massachusetts, August 1981. Evacuation time estimates were developed by HMM Associates for three time periods, i.e., normal weekday, nighttime and weekend. Time estimates for evacuation of the plume exposure pathway EPZ under these conditions are:

Normal weekday	- 6 hours, 5 minutes
Night	- 4 hours, 20 minutes
Weekend	- 5 hours

- (2) If buses must make a return trip for evacuees without their own transportation, the normal weekday estimate increases to 7 hours 45 minutes.
- (3) Adverse weather conditions were also studied by HMM. Their estimates for evacuation of the plume exposure pathway EPZ for the conditions indicated are as follows:

Snow or Rain

Normal weekday	- 7 hours, 35 minutes
Night	- 6 hours, 5 minutes
Weekend	- 7 hours, 10 minutes

Flooding - 8 hours, 50 minutes

Icing - 8 hours, 50 minutes

Winter Storm - 8 hours, 50 minutes

- (4) In developing the estimates for flooding, icing and winter storms, HMM concluded that it is not isolated roadway closings that increase the evacuation times but rather road capacity constraints and speed reductions.

F. Three Mile Island Nuclear Station

- (1) These estimates are taken from "Evacuation Time Estimates for the Three Mile Island Nuclear Station Plume Exposure Pathway EPZ" prepared for GPU Nuclear Corporation by HMM Associates, Inc., July 1993. The evacuation time estimates were developed using population data from 1990 census data and the NETVAC computer simulation model. The NETVAC model was developed specifically to provide evacuation time estimates and related information for use in emergency planning.

- (2) Evacuation times represent the times required for completing public notification, preparation and mobilization, and actual movement out of the EPZ (i.e., on-road travel time, including delays associated with vehicle queuing). The time estimates are for three scenarios as follows:

	<u>Fair Weather</u>	<u>Adverse Weather</u>
Winter weekday	8 hours, 25 minutes	11 hours, 10 minutes
Winter weeknight	6 hours, 30 minutes	8 hours, 55 minutes
Summer weekend	6 hours, 50 minutes	9 hours, 20 minutes

7. PLUME EXPOSURE PATHWAY EPZ DESCRIPTIONS

- A. Written descriptions of the plume exposure pathway EPZ for the five nuclear power plants are appended in Attachments G through K. These descriptions employ streets, highways, natural features such as streams and rivers, man-made features such as railroad tracks, and corporate and state boundaries as demarcations.
- B. The descriptions comprise the actual plume exposure pathway EPZ and contain the areas outside the 10 mile radii but within the designated EPZ that will also be evacuated. Evacuation maps displaying the EPZs described above additionally portray traffic volume, direction of traffic, evacuation routes, and reception centers. They are located in Appendix 24 to this Annex.

8. REFERENCES

(See Basic Document, paragraph 12.)

9. DEFINITIONS AND TERMS

(See Basic Document, paragraph 13.)

10. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3.)

ATTACHMENTS:

- A. Risk and Support Counties
- B. Population Data - Beaver Valley Power Station
- C. Population Data - Limerick Generating Station
- D. Population Data - Peach Bottom Atomic Power Station
- E. Population Data - Susquehanna Steam Electric Station
- F. Population Data - Three Mile Island Nuclear Station
- G. Plume Exposure Pathway EPZ Description for the Beaver Valley Power Station
- H. Plume Exposure Pathway EPZ Description for the Limerick Generating Station
- I. Plume Exposure Pathway EPZ Description for the Peach Bottom Atomic Power Station
- J. Plume Exposure Pathway EPZ Description for the Susquehanna Steam Electric Station
- K. Plume Exposure Pathway EPZ Description for the Three Mile Island Nuclear Station
- L. Sheltering Information
- M. Protective Response Flow Chart

ATTACHMENT A

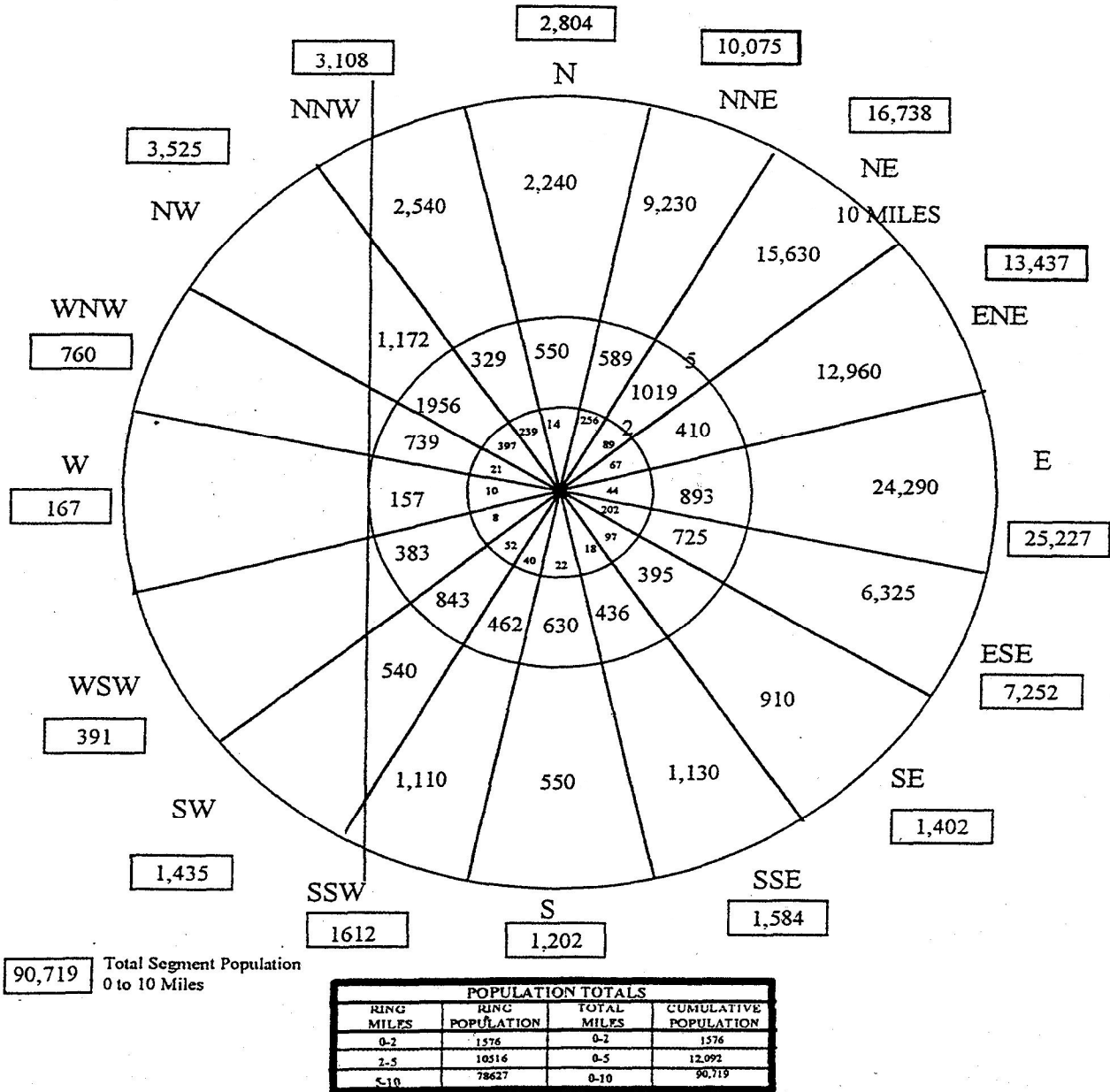
APPENDIX 4

RISK AND SUPPORT COUNTIES

<u>FACILITY</u>	<u>RISK COUNTIES</u>	<u>SUPPORT COUNTIES</u>
Beaver Valley Power Station Unit 1 - 833 megawatts PWR/W Unit 2 - 833 megawatts PWR/W	Beaver County (Parent County)	Allegheny County Butler County Lawrence County Washington County
Limerick Generating Station Unit 1 - 1055 megawatts BWR/GE Unit 2 - 1055 megawatts BWR/GE	Berks County Chester County	Berks County Lehigh County Chester County Berks County
	Montgomery County (Parent County)	Montgomery County Lehigh County Bucks County Berks County
Peach Bottom Atomic Power Station Unit 1 - Deactivated/ dismantled Unit 2 - 1055 megawatts BWR/GE Unit 3 - 1055 megawatts BWR/GE	Chester County Lancaster County York County (Parent County)	Chester County Lancaster County York County
Susquehanna Steam Electric Station Unit 1 - 1050 megawatts BWR/GE Unit 2 - 1050 megawatts BWR/GE	Columbia County Luzerne County (Parent County)	Columbia County Lycoming County Montour County Northumberland County Union County Lackawanna County Luzerne County Schuylkill County Union County Wyoming County

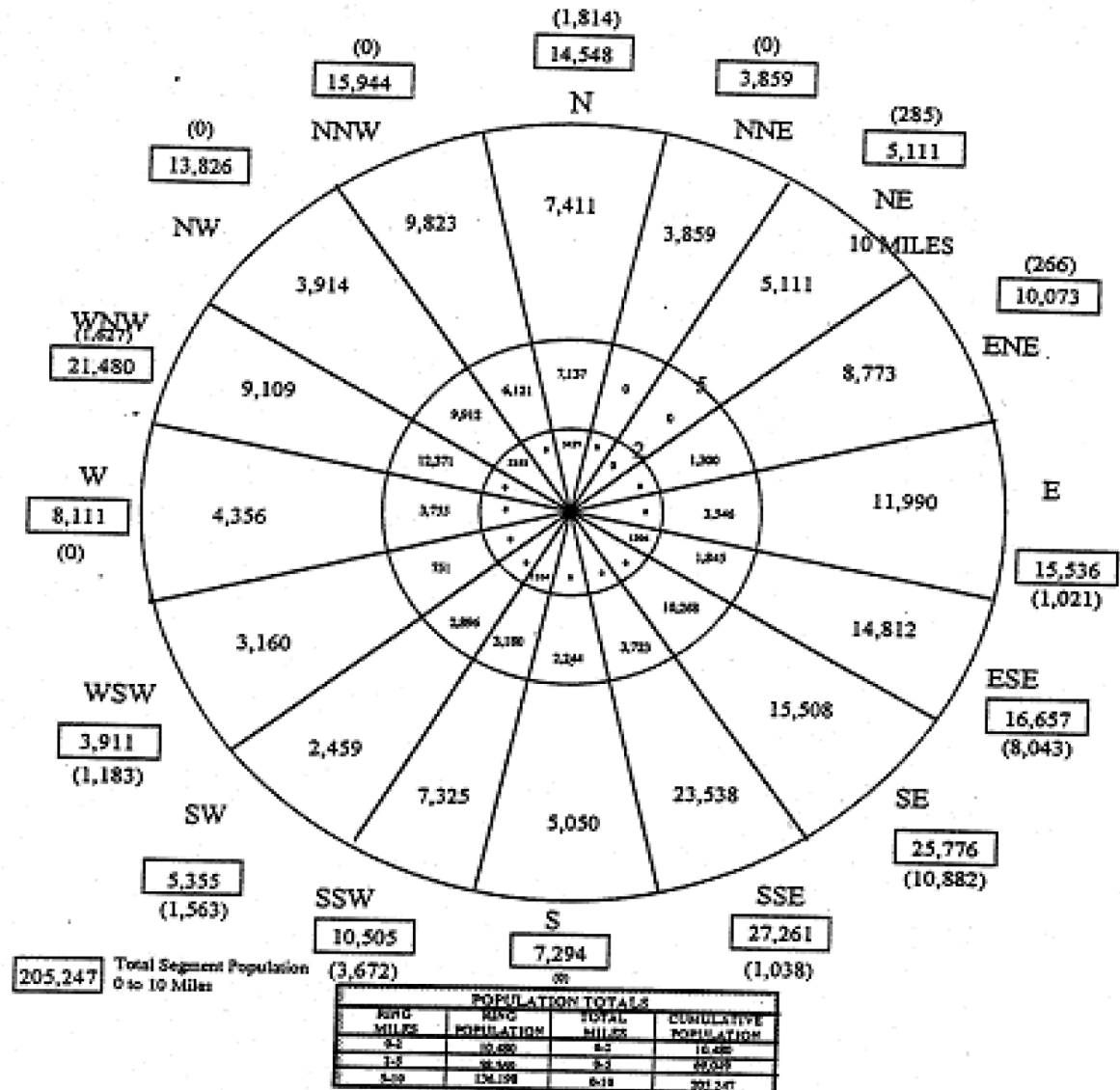
<u>FACILITY</u>	<u>RISK COUNTIES</u>	<u>SUPPORT COUNTIES</u>
Three Mile Island Nuclear Station	Cumberland County	Cumberland County
Unit 1 - 872 megawatts PWR/B&W	Dauphin County	Dauphin County
Unit 2 - Out of Service	(Parent County)	Franklin County
		Lebanon County
		Schuylkill County
	Lancaster County	Lancaster County
	Lebanon County	Lebanon County
	York County	Adams County
		York County

ATTACHMENT B
APPENDIX 4
POPULATION DATA
BEAVER VALLEY POWER STATION



Source: Appendix B, Demography and Evacuation Evaluation, Beaver Valley Power Station Emergency Preparedness Plan, Revision 6A, June 1995.

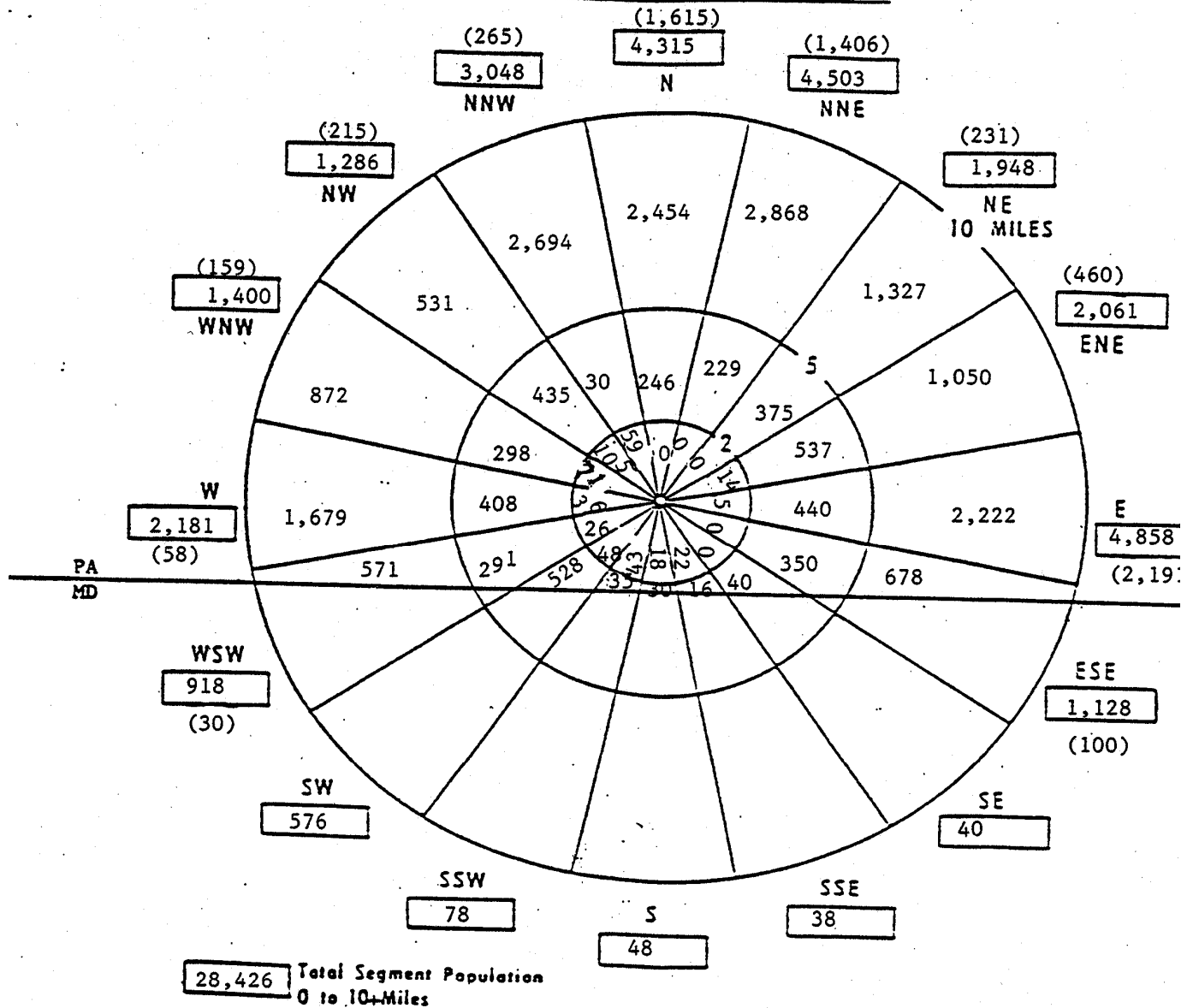
ATTACHMENT C
APPENDIX 4
POPULATION DATA
LIMERICK GENERATION STATION



Source: Bureau of Census, 1990 Census of Population.

Note: Population residing outside the 10 mile radius, but within the EPZ of each sector appears within the parentheses.

ATTACHMENT D
APPENDIX 4
POPULATION DATA
PEACH BOTTOM ATOMIC POWER STATION

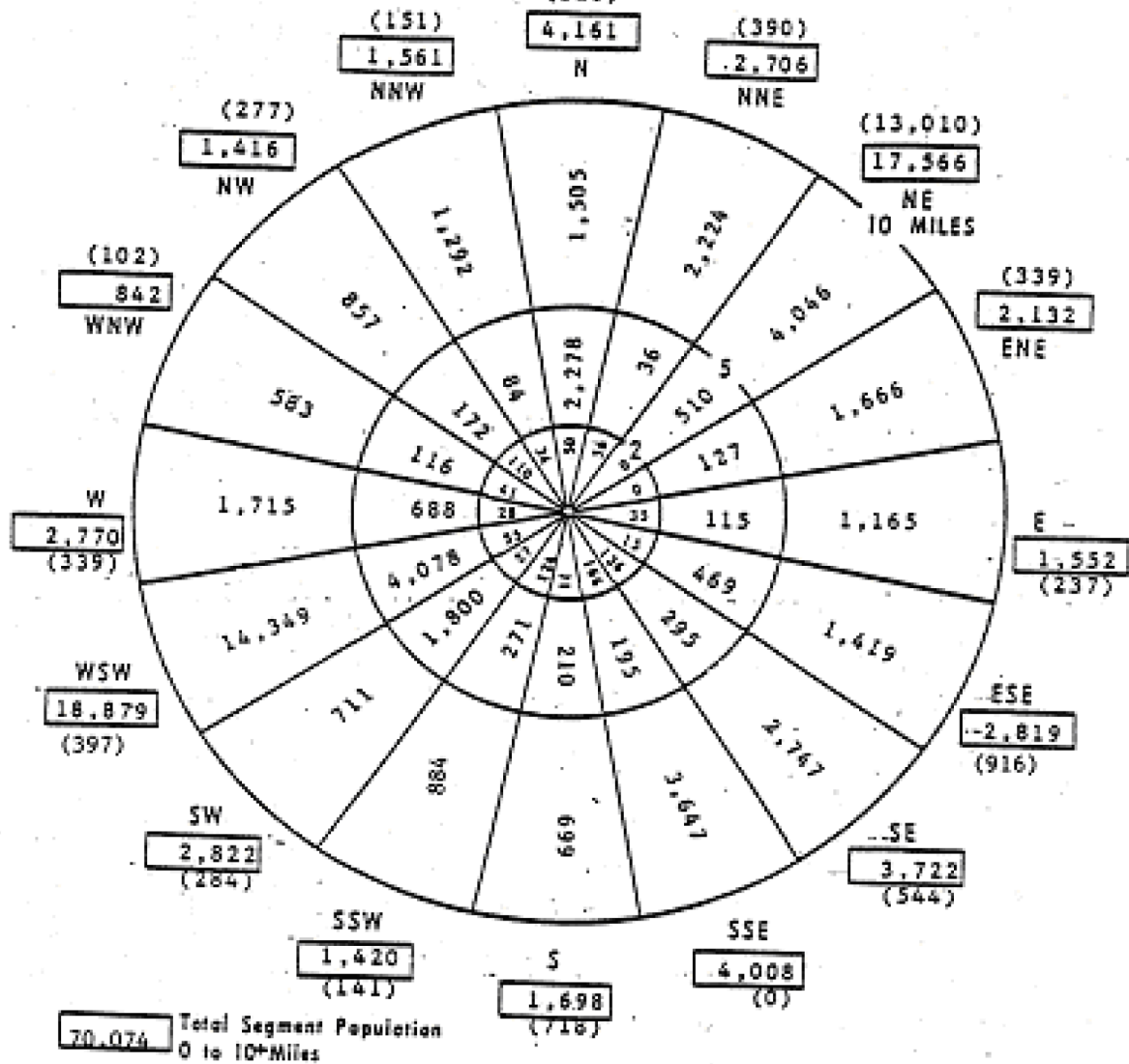


POPULATION TOTALS			
RING. MILES	RING POPULATION	TOTAL MILES	CUMULATIVE POPULATION
0-2	462	0-2	462
2-5	4,288	0-5	4,750
5-10+	23,676	0-10+	28,426

Source: Evacuation Time Estimates for the Peach Bottom Plume Exposure Pathway Emergency Planning Zone Study, January 1990.

Note: Population residing outside the 10 mile radius, but within the EPZ of each sector appears within the parentheses.

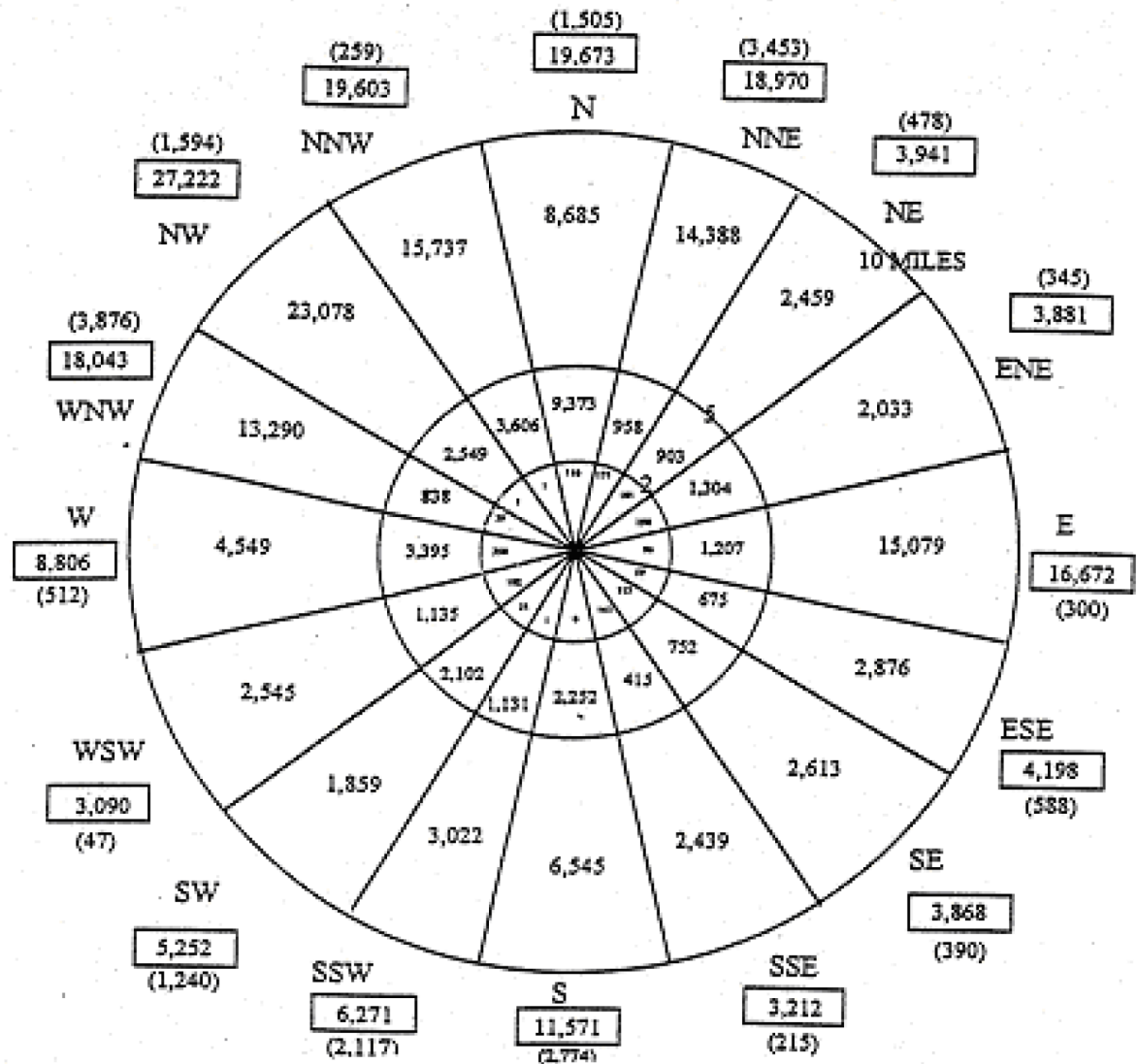
ATTACHMENT E
APPENDIX 4
POPULATION DATA
SUSQUEHANNA STEAM ELECTRIC STATION
(328)



POPULATION TOTALS			
RING, MILES	RING POPULATION	TOTAL MILES	CUMULATIVE POPULATION
0-2	948	0-2	948
2-5	11,444	0-5	12,392
5-10	39,509	0-10+	70,074

SOURCE: Bureau of Census, 1984 Population Estimate.
NOTE: Population residing outside the 10 mile radius, but within the EPZ of each section appears within the parenthesis (18,173).

ATTACHMENT F
APPENDIX 4
POPULATION DATA
THREE MILE ISLAND NUCLEAR STATION



175,092 Total Segment
Population
0 to 10 Miles

POPULATION TOTALS			
RING MILES	RING POPULATION	TOTAL MILES	CUMULATIVE POPULATION
0-2	1,598	0-2	1,598
2-5	32,595	0-5	34,193
5-10	140,899	0-10	175,092

Source: Bureau of Census, 1990 Census of Population.

Note: Population residing outside the 10 mile radius, but within the EPZ of each section appears within the parenthesis.

ATTACHMENT G

APPENDIX 4

PLUME EXPOSURE PATHWAY EPZ DESCRIPTION FOR THE BEAVER VALLEY POWER STATION *(Pennsylvania Portion)*

Begin at the junction of the Ohio/Pennsylvania State Line and Pennsylvania Route 251. Follow Route 251 east to its junction with Pennsylvania Route 51. Proceed northwest on Route 51 approximately .25 miles to its junction with Pennsylvania Route 588. Proceed southeast on Route 588 to the point where the Chippewa, White and Patterson Township corporate boundaries meet. Proceed east/northeast on the White/Patterson Township line to the point where the White Township, Beaver Falls City, and Patterson Township corporate boundaries meet.

Proceed south on the Patterson Township/Beaver Falls City corporate boundary to its junction with Eighth Street in Pleasantville, and then southeast to its junction with the Patterson Heights Borough corporate boundary. Continue southeast on the Patterson Heights/Beaver Falls Borough corporate boundary to Beaver River.

Proceed south on the Beaver River to the junction of the Ohio River. Proceed east, then south on the Ohio River to its intersection with the Beaver/Allegheny County line.

Proceed southwest on the Beaver/Allegheny County line to the point where the Beaver, Allegheny and Washington County corporate boundaries meet. Proceed west on the Beaver/Washington County line to its junction with the West Virginia/Pennsylvania State line.

Proceed north on the West Virginia/Pennsylvania State line to its junction with the Ohio/West Virginia State line. Proceed north on the Ohio/Pennsylvania State line to its junction with Pennsylvania Route 251.

ATTACHMENT H

APPENDIX 4

PLUME EXPOSURE PATHWAY EPZ DESCRIPTION FOR THE LIMERICK GENERATING STATION

1. BERKS COUNTY

Begin at the junction of PA Route 345 and the Berks/Chester County line. Follow Route 345 north to its intersection with Legislative Route (LR) 06097. Follow LR 06097 north to Township Route 663 (at the Schuylkill River). Proceed on T663 to LR 06179. Follow LR 06179 north to LR 06059. Proceed north on LR 06059 to its intersection with Township Route 443. Take R443 east to its intersection with Township Route 464. Proceed north on T464 to its intersection with A-2059. Follow A-2059 east to its intersection with LR 06187 and LR 06109 (Amityville). Then follow LR 06109 north to LR 06053. Proceed northeast on LR 06053 to its junction with the Colebrookdale/Earl Township corporate boundary. Follow the Colebrookdale/Earl Township boundary north to the Pike/Colebrookdale corporate boundary, to the Washington/Colebrookdale boundary. Proceed along the Washington/Colebrookdale corporate boundary to its junction with Pennsylvania Route 100. Follow Route 100 north to its intersection with LR 06033. Proceed southeast along LR 06033 to its junction with the Berks/Montgomery County line.

2. MONTGOMERY COUNTY

Begin at the intersection of the Berks/Montgomery County line and LR 06033 (Berks County) and LR 46008 (Montgomery County). Proceed north along the Berks/ Montgomery County line to its junction with the Upper Hanover Township/Douglass Township corporate boundary (T391-392). Follow the Upper Hanover/Douglass Township corporate boundary to its junction with the Upper Hanover/New Hanover Township corporate boundary. Follow the Upper Hanover/New Hanover boundary to its intersection with the Upper Hanover/Marlborough Township corporate boundary. Go north along the Upper Hanover/Marlborough Township boundary to its intersection with the Marlborough/Upper Frederick Township corporate boundary (Green Lane Reservoir). Follow the Marlborough/Upper Frederick Township boundary to the Marlborough Township/Green Lane Borough corporate boundary. Proceed along the Marlborough Township/Green Lane boundary to its intersection with Route 63 and LR 46032. Follow Route 63 south to the Marlborough/Upper Salford boundary to its junction with the Salford/Upper Salford corporate boundary. Proceed southeast along the Salford/Upper Salford boundary to its juncture with the Franconia/ Upper Salford Township corporate boundary, and continue along this boundary to its junction with

the Upper Salford/Lower Salford Township corporate boundary. Go southwest along the Upper Salford/Lower Salford boundary to its intersection with LR 46023. Follow LR 46023 south to its intersection with LR 46025. Proceed east on LR 46025 to its junction with Township Route 368. Follow T368 south to its intersection with Route 113. Continue south on Route 113 to its intersection with the Lower Salford/Skipack Township corporate boundary. Follow the Lower Salford/Skipack Township corporate boundary to the Skipack/Worcester Township corporate boundary. Proceed southwest along the Skipack/Worcester Township corporate boundary. Proceed southwest along the Skipack/Worcester boundary to its junction with the Worcester/Lower Providence corporate boundary. Follow the Worcester/Lower Providence boundary southeast to its junction with the Lower Providence/West Norriton corporate boundary. Proceed southeast along the Lower Providence/West Norriton boundary to the Lower Providence/Upper Merion corporate boundary (at the Schuylkill River). Follow the Lower Providence/Upper Merion boundary along the Schuylkill River to the Montgomery/Chester County line.

3. CHESTER COUNTY

Begin at the intersection of the Schuylkill Township (Chester County), Lower Providence Township (Montgomery County), and Upper Merion Township (Montgomery County) boundaries (in Schuylkill River). Proceed in a southerly direction along the Chester/Montgomery County boundary to its intersection with the Valley Forge National Park boundary. Proceed generally west then south along the Valley Forge National Park boundary to the Schuylkill Township/Tredyffrin Township boundaries. Follow the Tredyffrin Township boundary in a westerly direction to its intersection with the Pennsylvania Turnpike (Interstate 76). Follow the Turnpike west to its intersection with Township Route 400 (East Nantmeal Township). Proceed north along T400 to its intersection with PA Route 401 (LR 15139). Follow PA Route 401 west to its intersection with PA Route 345 (LR 15144). Follow PA Route 345 (LR 15144, T534, T533, LR 15133) north to its junction with the Berks County/Chester County line.

ATTACHMENT I

APPENDIX 4

PLUME EXPOSURE PATHWAY EPZ DESCRIPTION FOR THE PEACH BOTTOM ATOMIC POWER STATION *(Pennsylvania Portion)*

1. YORK COUNTY

Begin at the intersection of the East Hopewell Township/Fawn Township corporate boundary and the Pennsylvania/Maryland State Line. Follow the East Hopewell Township/Fawn Township corporate boundary north to its intersection with Muddy Creek. Follow the East Hopewell Township/Lower Chanceford Township corporate boundary north along Muddy Creek to the Chanceford Township/Lower Chanceford Township corporate boundary. Follow the Chanceford/ Lower Chanceford corporate boundary northeast to the York County/Lancaster County line at the Susquehanna River. Follow the York County/Lancaster County line south to its intersection with the Conestoga Township/Martic Township corporate boundary.

2. LANCASTER COUNTY

Begin at the intersection of the York County/Lancaster County line and the Conestoga Township/Martic Township corporate boundary. Follow the Conestoga Township/Martic Township corporate boundary east to the Penn Central Railroad tracks (Atglen and Susquehanna Branch). Follow the Penn Central Railroad tracks east to their intersection with the Quarryville Borough/ Providence Township corporate boundary. Follow the Quarryville Borough/Providence Township corporate boundary northeast to the Quarryville Borough/Eden Township corporate boundary. Follow the Quarryville Borough/Eden Township corporate boundary to its intersection with the East Drumore Township/Eden Township corporate boundary. Follow the East Drumore Township/Eden Township corporate boundary east to the East Drumore Township /Colerain Township corporate boundary. Follow the East Drumore Township/Colerain Township corporate boundary southeast to its intersection with the Little Britain Township/Colerain Township corporate boundary. Follow the Little Britain Township/Colerain Township corporate boundary southeast along Octoraro Creek to the Lancaster County/Chester County line. Follow the Lancaster County/Chester County line south to its intersection with the Lower Oxford Township/West Nottingham Township corporate boundary (Chester County).

3. CHESTER COUNTY

Begin at the intersection of the Lancaster County/Chester County line and the Lower Oxford Township/West Nottingham Township corporate boundary. Follow the Lower Oxford Township/West Nottingham Township corporate boundary southeast to its intersection with the East Nottingham Township/West Nottingham Township corporate boundary. Follow the East Nottingham Township/West Nottingham Township corporate boundary southeast to its intersection with the Pennsylvania/Maryland State line.

ATTACHMENT J

APPENDIX 4

PLUME EXPOSURE PATHWAY EPZ DESCRIPTION FOR THE SUSQUEHANNA STEAM ELECTRIC STATION

1. LUZERNE COUNTY

Begin at the intersection of the Luzerne/Columbia/Schuylkill County line. Follow the Luzerne/Schuylkill County line southeast to the Black Creek/Hazle Township corporate boundary. Follow this boundary north to the Hazle/Sugarloaf Township corporate boundary. Continue east, then north and east again along this boundary to its intersection with the Sugarloaf/Butler Township corporate boundary. Follow this boundary northwest to the Butler/Hazle corporate boundary. Continue eastward along this boundary until it intersects with State Route 309. Take 309 north to its intersection with Interstate 80. Follow Interstate 80 east to the Butler/Dennison Township corporate boundary. Follow the boundary north to the point where the corporate boundaries meet for Butler/Dennison/Dorrance/Wright Townships. Proceed north along the Dorrance/Wright Township corporate boundary to the Nuangola Borough corporate boundary. Follow this boundary east, then north and west around the Borough to Newport/Hanover Township corporate boundary. Proceed north along this boundary to the Nanticoke City boundary. Follow this boundary east, north and west (on south side of Susquehanna River) around the City to its intersection with the Newport Township corporate boundary. Proceed along the Newport Township boundary to the Hunlock/Plymouth Township corporate boundary. Follow this boundary north to LR 40069. Take LR 40069 northwest to the Hunlock/Ross Township corporate boundary. Follow this boundary southwest to the intersection of T514/T506 (point where corporate boundaries meet for Huntington/Union/Ross Townships). Proceed north on Huntington/Ross Township corporate boundary to Huntington/Fairmount Township corporate boundary. Proceed west along this boundary to the Luzerne/Columbia County line.

2. COLUMBIA COUNTY

Begin at the intersection of the Huntington/Fairmount corporate boundary with the Columbia/Luzerne County boundary. Proceed southeast along the County line, past point where State Route 239 crosses County line to LR 19067. Take LR 19067 southwest to its intersection with State Route 487. Follow 487 south until it intersects with the Fishing Creek/Orange Township corporate boundary. Go southeast along this boundary to the North Centre Township corporate boundary. Proceed west along this boundary to the Orange/North Centre Township corporate boundary. Follow this boundary south to State Route 93. Take 93 east to LR 19038.

Follow LR 19038 south to its intersection with LR 19034. Take LR 19037 southward to its intersection with Interstate 80. Proceed southeast on Interstate 80, (across North Branch of the Susquehanna River) to LR 19020. Proceed southwest on LR 19020 to its intersection with State Route 339 (LR 19021). Follow 339 south to T415. Take T415 until it intersects with T628. Follow T628 southward to its intersection with T626. Follow T630 south to its intersection with State Route 339. Proceed southeast on 339 to the Columbia/Schuylkill County boundary. Follow this boundary northeast to the intersection of the Columbia/Luzerne/Schuylkill County line.

ATTACHMENT K

APPENDIX 4

PLUME EXPOSURE PATHWAY EPZ DESCRIPTION FOR THE THREE MILE ISLAND NUCLEAR STATION

1. CUMBERLAND COUNTY

Begin at the intersection of the Fairview Township/Monaghan Township boundary and the Yellow Breeches Creek (York/Cumberland County line). Follow the York County/Cumberland County line northeast along the Yellow Breeches Creek to Green Lane Drive. Follow Green Lane Drive north to Cedar Cliff Road. Follow Cedar Cliff Road east to Interstate 83. Follow Interstate 83 north to the New Cumberland/Lemoyne corporate boundary. Follow this boundary east to the Susquehanna River.

2. DAUPHIN COUNTY

Begin at the intersection of the New Cumberland/Lemoyne corporate boundary and the Dauphin/Cumberland County line to the west shore of the Susquehanna River. Follow the Dauphin/Cumberland County line north to the John Harris Bridge (Interstate 83). Cross the Susquehanna River by following Interstate 83 east into the City of Harrisburg. Follow Interstate 83 east to the city boundary. Follow the city boundary north to Reading Railroad tracks. Follow Reading Railroad tracks (which are congruent with the city boundary) east to the Harrisburg City/Paxtang Borough boundary. Follow this boundary north to the Harrisburg/Susquehanna/Paxtang boundary (29th Street/SR 3013). Follow this boundary east to the Susquehanna/Lower Paxton boundary. Follow this boundary north to Union Deposit Road (SR 3020). Follow Union Deposit Road east to Nyes Road (SR 2019). Follow Nyes Road north to T407 (Red Top Road). Follow Red Top Road east to Beaver Creek which forms the Lower Paxton Township/South Hanover Township corporate boundary. Follow this boundary north along Beaver Creek to the West Hanover Township/South Hanover Township corporate boundary. Follow this boundary north to the East Hanover Township/South Hanover Township corporate boundary. Continue east along this boundary to the East Hanover Township/Derry Township corporate boundary (Swatara Creek). Follow this boundary to the Dauphin/Lebanon County line.

3. LANCASTER COUNTY

Begin at the intersection of the Lancaster/Lebanon County line and Lawn Road (SR 3007). Follow Lawn Road to Trail Road (T328). Turn east on Trail Road and follow it to Quarry Road (T855). Follow Quarry Road west to Milongrove Road (SR 4025). Continue south on this road to Grandview Road (SR 4017). Follow Grandview Road to its intersection with Orchard Road (SR 4010). Turn east on Orchard Road to Musser Road (SR 4017). Turn south on Musser Road and follow it to State Route 230. Turn east on Route 230 and follow it to LR 36117 which is the East Donegal Township/Mount Joy Borough corporate boundary. Follow SR 4017 south to Donegal Springs Road (SR 4002). Turn west on this road to its intersection with Church Road (T316). Follow Church Road south to its intersection with Kraybill Road (T827). Follow Kraybill Road to its intersection with Colebrook Road (SR 4025). Take Colebrook Road south to Rock Point Road (T673). Follow Rock Point Road to township road T314. Turn south on T314 to its intersection with Fuhrman Road (T312). Follow Fuhrman Road to its intersection with State Route 743. Follow 743 south to its intersection with the Marietta Borough corporate boundary. Follow this boundary west and then south to the Susquehanna River eastern shoreline. Follow a straight light across the river from the Marietta Borough corporate borough to a point directly opposite Accomac Road (SR 1037) in York County.

4. LEBANON COUNTY

Begin at the intersection of the Dauphin/Lebanon County line and Stouffer's Road (T335). Follow Stouffer's Road northeast to its intersection with Bachmanville Road (SR 3013). Follow Bachmanville Road south to where it meets Chestnut Kreider Road (T333) and follow this road south to where it meets Lawn Road (SR 3015). Continue south on Lawn Road to SR 0341 (Deodate Road). Follow SR 0341 east to where it again meets Lawn Road (SR 3015). Follow Lawn Road south to the Lancaster/Lebanon County line.

5. YORK COUNTY

Begin at a point on the Susquehanna River western shore directly opposite Accomac Road (SR 1037). The EPZ boundary connects with Accomac Road and follows it to Furnace Road (SR 1008). Follow Furnace Road west to Millstone Road (T783) west to Spring Road (T783). Follow Spring Road west to Druck Valley Road (SR 1014). Follow Druck Valley Road west to Mount Zion Road north to its intersection with Sherman Street (SR 1033). Turn southwest on Sherman Street to Mundis Mill Road (SR 1012) and continue west on this road to Woodland View Drive (SR 1012). Follow Woodland View Drive southwest to North George Street (SR 0181). Follow North George Street south to the intersection of Lightner Road (SR 4046). Turn right on Lightner Road west to Gwen Road. Follow Gwen Road northwest to the City of York corporate boundary. Follow the City of York boundary to the

intersection of Brandywine Lane (SR 4011) and West Manchester Township/Manchester Township corporate boundary (Roosevelt Avenue - SR 4001). Follow this boundary northwest to the Dover Township/Conewago Township corporate boundary which is also Bull Road. Follow this boundary northwest to its intersection with Nursery Road (T823). Follow Nursery Road northwest to Old Carlisle Road T815. Follow T815 northwest to Carlisle Road (State Route 74) and then follow Carlisle Road to its intersection with the Rossville Road (State Route 177). Follow this road to the northeast to Fortney Road (T912). Turn northwest on Fortney Road and follow it to Mount Airy Road (SR 4031). Take Mount Air Road to the Warrington Township/Fairview Township corporate boundary (SR 4024 which becomes SR 4022. Follow this boundary north to SR 4033 to the York/Cumberland County line.

ATTACHMENT L

APPENDIX 4

SHELTERING INFORMATION

1. PURPOSE

To provide general information on individual actions that can be taken in order to provide temporary protection from inhalation and ingestion of radioactive particles and gases.

2. GENERAL

- A. Any building, structure or vehicle that can be partially or completely sealed so that outside air does not enter will provide some protection from radiation contamination.
- B. If directed, the Emergency Alert System (EAS) will provide instructions to "take shelter." All persons should seek the most immediately available shelter. Additional information regarding sheltering is available in the Emergency Pages of telephone directories. Telephones should be used to make emergency calls only such as the need to summon fire, police, or rescue personnel. An EAS announcement will advise on when it is appropriate to leave a shelter.

3. ACTIONS TO BE TAKEN

- A. Appropriate actions if sheltering is taken in a home, school, or any other building are:
 - (1) Close doors, windows, drapes, blinds, etc. Seal with tape, cloth, or paper if time allows.
 - (2) Minimize all sources of outside air. Turn off air conditioners, furnaces, and heat pumps.
 - (3) If possible, move to a below-ground or windowless room. They provide the most protection.
 - (4) Place a supply of potable (drinking) water in a sealed container.

- (5) Place fresh vegetables, fresh fruit, and dairy products in sealed containers. Refrigerators and freezers provide acceptable protection.
- (6) Canned, packaged, and bottled foods can be consumed safely. The containers, however, should be washed thoroughly before opening.
- (7) In nuclear power plant incidents involving the release of radioactive iodine, cows may ingest the contaminant and produce milk with some degree of contamination. Only milk produced after any exposure of the cows to contaminated feed (not milk stored in the home or already packaged milk at the dairy or store) is subject to radioactive iodine contamination.
- (8) Food not stored indoors or similarly protected, such as garden vegetables, fruit on trees, or food products obtained outside the home after the incident, could be contaminated. Contamination, however, does not render such foods unusable. Most foods can easily be decontaminated by fairly simple food preparation procedures.
- (9) The following procedures for various food types are generally considered to be effective protective measures in assuring that food is free of contamination and suitable for consumption.

<u>TYPE OF FOOD</u>	<u>RECOMMENDED PROTECTIVE ACTION</u>
a. Root crops (potatoes, carrots, etc.)	Thoroughly wash, brush, scrub or peel to remove surface contamination. Root crops are the least susceptible to contamination since the soil protects the edible portion from immediate contamination. Care should be taken in digging and storing to prevent contact with contaminated surfaces.
b. Fruits and vegetables	Thoroughly wash, brush, scrub or peel to remove surface contamination. These food products are susceptible to contamination due to the exposed surface area of the edible portion.
c. Canned or packaged foods	Thoroughly clean the surface of the package by washing, vacuuming or using a damp cloth to remove surface contamination prior to opening.
d. Frozen foods	Frozen foods packaged prior to an incident involving radioactive contamination will be safe as long as they were kept in a freezer. If the surface becomes contaminated, it should be

thoroughly cleaned off prior to opening to prevent contaminating the contents.

- e. Unpackaged stored foods These foods will be safe to eat if outside air has been excluded from the storage area. If the storage area has become contaminated, they may be able to be salvaged by washing, scrubbing, peeling, etc. This will depend upon the type of food item involved.

(10) If it is announced that a radioactive plume will pass through an individual's area, that person should:

- a. If it becomes necessary to go outdoors, wear a surgical or commercial face mask, double clothing such as raingear, hat, gloves, and galoshes. Tape cuffs and other openings outside of gloves and footwear.
- b. Wear surgical or commercial face masks while indoors. Or, cover mouth and nose with a dampened handkerchief or towel.
- c. After the plume has passed (EAS announcement), wash exposed extremities with non-abrasive soap and warm water. Avoid hot and cold water because they could affect the pores and aggravate contamination.
- d. Shower body and hair with non-abrasive soap and warm water. Clean fingernails thoroughly. Redress with clothes from a closed closet or drawer. Wash old clothing in laundry detergent and dry. Rewash hands thoroughly.

(11) Plan ahead:

- a. Develop a family plan of emergency action including actions to be taken by each family member when away from home and when at home.
- b. Stock emergency supplies of food, medicines, sanitary materials, infant and pet supplies, first aid items, etc., in sufficient supply to last for several days.
- c. Have available flashlights, batteries, a battery-powered radio, a fire extinguisher, and basic tools.

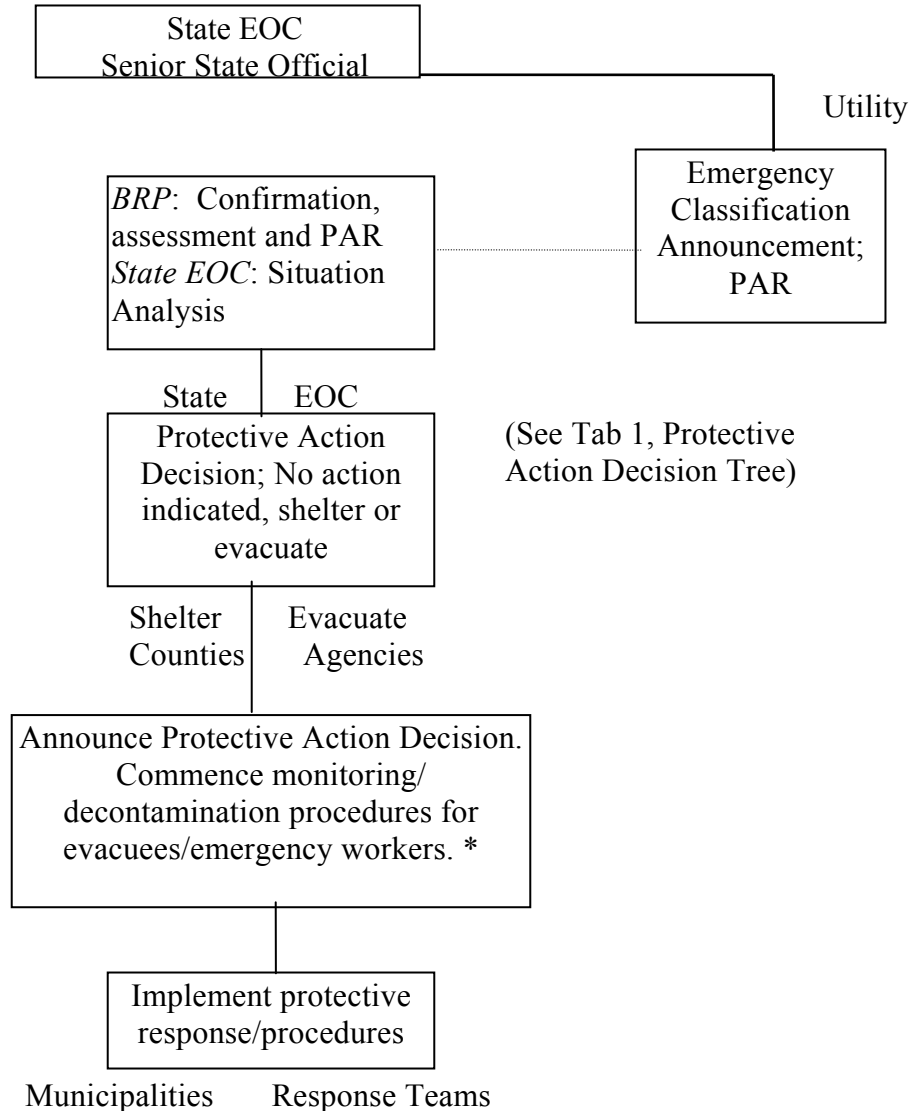
B. Appropriate actions if sheltering is taken in a vehicle are:

- (1) Stop. Close all doors, windows and vents.
- (2) Turn off the heater or air conditioner.
- (3) Tune radio to the EAS station.
- (4) If inside a contaminated area, drive out of the area if at all possible, or drive to your residence and take cover with your family.
- (5) If not within a contaminated area, do not enter it if at all possible.

ATTACHMENT M

APPENDIX 4

PROTECTIVE RESPONSE FLOW CHART



Notes: PAR - Protective Action Recommendation

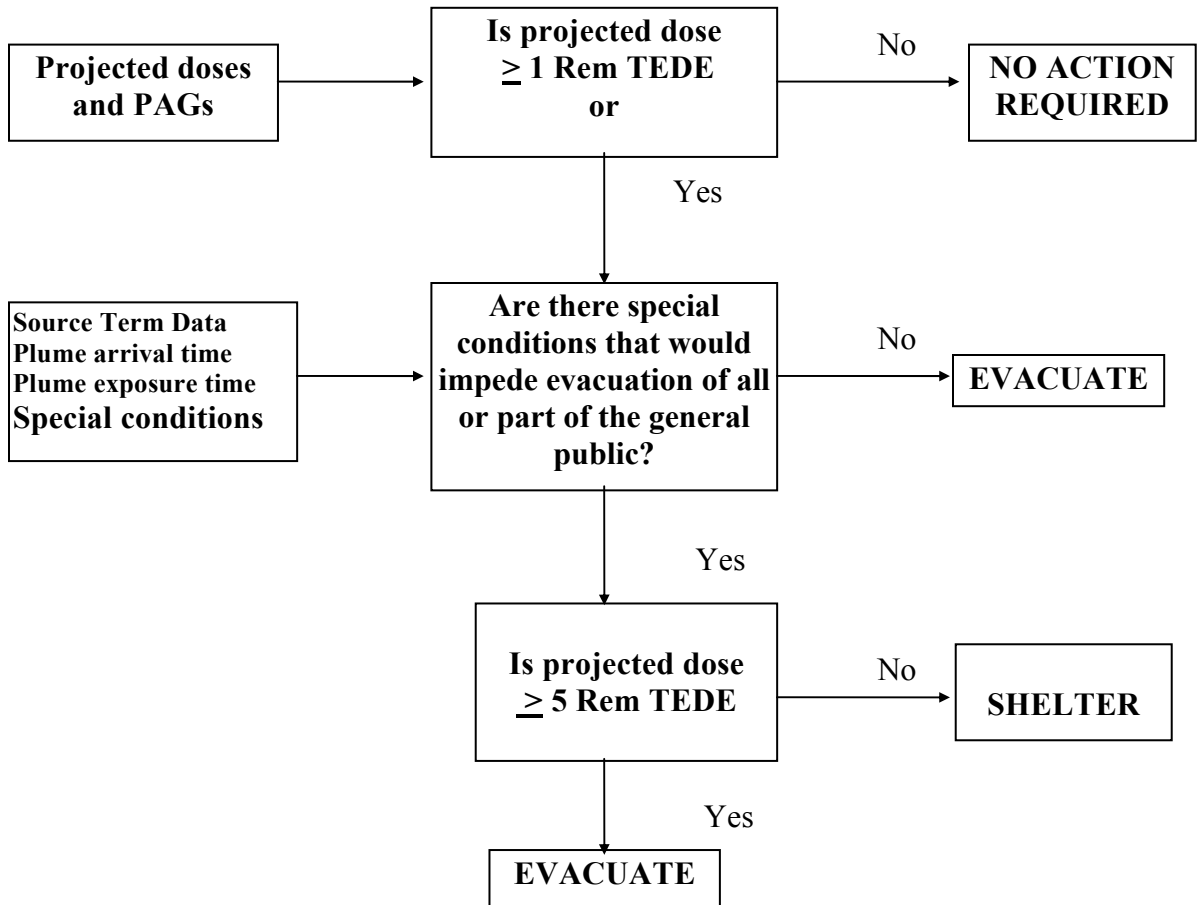
* - If directed

TABS:

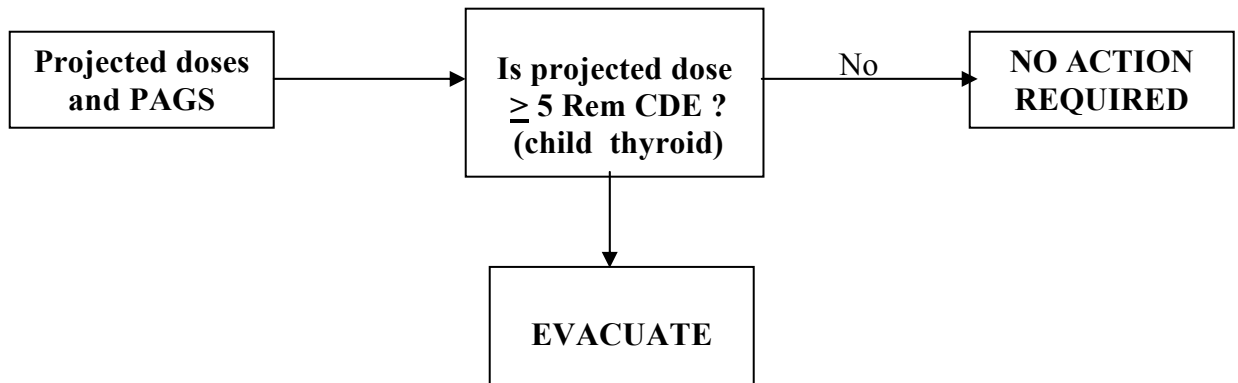
1. Protective Action Decision Tree for the General Population
2. Protective Action Decision Tree for Special Groups
3. Protective Action Selective Considerations

TAB 1
ATTACHMENT M
APPENDIX 4

PROTECTIVE ACTION DECISION TREE
FOR THE GENERAL POPULATION

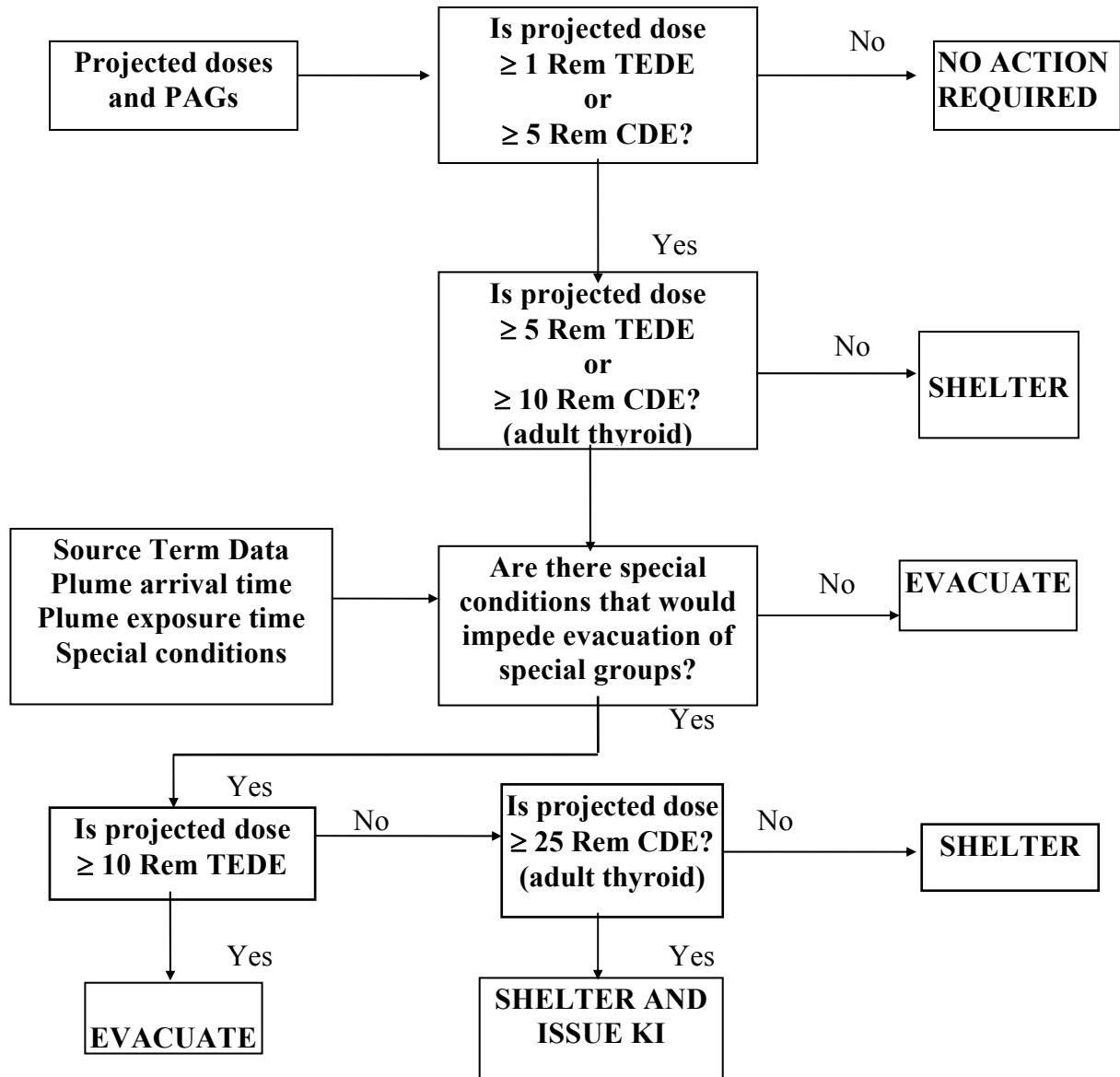


CDE



TAB 2
ATTACHMENT M
APPENDIX 4

PROTECTIVE ACTION DECISION TREE FOR SPECIAL GROUPS



TAB 3

ATTACHMENT M

APPENDIX 4

PROTECTIVE ACTION
SELECTIVE CONSIDERATIONS

- A. The selective bases or considerations that may be applied within the decision making process, dependent upon existing conditions, are:

- Evacuation time estimates
- Non-radiological injury probabilities
- Notification elapsed time
- Plume arrival time
- Plume exposure duration
- Prevalent radioactive contaminant(s)
- Risk population demographics
- Road conditions
- Weather
- Wind velocity and wind direction
- EPZ structure shielding factors

- B. Representative shielding factors

<u>Structure/Location</u>	<u>Exposure Reduced by (%)</u>
House, no basement:	
1-2 story, wood frame	60
1-2 story, masonry	80
House, basement:	
1 story house	95
2 story house	97
3 or more stories house	up to 99
Vehicles on road	
Road contaminated	50
Road non-contaminated	75

Source: SAND 77-1725, February 1978

- C. The above bases and shielding factors will primarily influence protective action decision making at State level, but are also applicable to parent Counties when authority to make sheltering/ evacuation decisions is delegated to them.

APPENDIX 5

ANNEX E

RADIOLOGICAL EXPOSURE CONTROL

1. PURPOSE

To specify the Commonwealth's radiation protection procedures for the public and emergency workers in the event of an incident at a nuclear power plant. To specify responsibilities for incident assessment, radioactive plume monitoring, protective action measures, monitoring of the general public and emergency workers for radioactive contamination to include their clothing and equipment, and disposal of radioactive waste.

2. SITUATION

See Paragraph 3 of the basic document.

3. CONCEPT OF OPERATIONS

- A. In the event of a release of radiation or radioactive contaminants from a nuclear power plant, the Bureau of Radiation Protection (BRP) assesses the need for radiological exposure control, and advises the Pennsylvania Emergency Management Agency (PEMA) Emergency Operations Center (EOC) on the need to commence exposure control activities specified herein. The State EOC instructs State departments/agencies and County emergency management agencies to commence radiological exposure control operations (monitoring, decontamination, recording, etc.), and to take protective action measures, when advised.
- B. In clarification of the above, the general public and emergency workers need not be monitored for radioactive contaminants or be decontaminated until there is a need to do so. That need will be the subject of a deliberate decision at State level. That decision will be relayed to State departments/agencies and County emergency management agencies in the form of an instruction from the State EOC to implement radiological exposure control response.

4. RESPONSIBILITIES

A. PEMA

- Coordinates with BRP, the utility, other State agencies, Federal government agencies, and risk Counties to determine protective action to be taken by the public and emergency workers.
- Provides periodic situation reports to Counties during the emergency, including incident assessment and plume exposure information.
- Specifies procedures for decontamination of the public and emergency personnel and their clothing and equipment.
- Assists Federal personnel with pertinent logistics information related to the disposal of radiation contaminated waste materials generated from the general public and emergency workers.
- Pre-distributes dosimetry and potassium iodide (KI) to risk and support County emergency management agencies.
- Specifies implementation of comprehensive inventory-maintenance programs for dosimetry and KI; collects PRDs, control PRDs, and appropriate records from the County after each incident.
- Assists the Department of Health with planning the distribution of KI to health care facilities.

B. BRP

The BRP is the State agency that will conduct incident assessment and air monitoring for detection and delineation of the radioactive plume. BRP calculates projected radiation doses to the whole body and thyroid and reports these projections as well as actual radiation exposure rates and total doses received by affected areas to PEMA. BRP recommends protective actions based on its information and analysis of the situation. BRP interprets the analysis results of environmental, agricultural and foodstuffs sampling, and reports these findings as appropriate to PEMA and Department of Agriculture. BRP collects the State, Federal and licensee data for comprehensive technical analysis and transmits its recommendations to PEMA who, in turn, relays appropriate information through emergency management channels.

C. County Emergency Management Agencies

The County EMA's will rely upon BRP through the State EOC for incident assessment, field monitoring and for the receipt, analysis and coordination of field monitoring data. The County emergency management agency provides training, dosimetry and KI to emergency workers. It also provides for monitoring and decontamination, if required, to general public, Federal, State, County, and Municipal emergency workers and their pertinent personal items including vehicles and emergency equipment. The County emergency management agency is responsible for distributing dosimetry to hospitals,

licensed nursing homes and prisons located in the plume exposure pathway of the EPZ. It maintains and distributes (at the Alert classification if not already pre-distributed) dosimetry, chargers, survey meters, KI and related record-keeping forms to Municipalities, appropriate hospital, and monitoring/decontamination stations. The County emergency management agency designates access points in coordination with PSP in the EPZ and certifies farmers with livestock and necessary industrial workers for access in the plume exposure pathway of the EPZ. Counties may pre-distribute dosimetry/KI, chargers, survey meters, and related forms from the central location, if they so desire.

D. Municipal Governments

Each Municipal government within the plume exposure pathway EPZ will issue dosimetry and KI to emergency workers within its area at the Site Area Emergency classification.

E. Emergency Workers

In addition to performance of assigned tasks, emergency workers are responsible for utilizing their dosimeters, KI and Dosimetry-KI Report Form as prescribed (see Attachment B, Paragraph 4), and for undergoing monitoring (see Attachment A, Paragraph 2.A.).

The uppermost limit of radiation exposure for emergency workers is set by the Environmental Protection Agency (EPA) at 25 Rem Total Effective Dose Equivalent (TEDE) whole body exposure and this limit should not be exceeded except for authorized life saving missions or protection of large populations (see Attachment B, Paragraph 4.B). Emergency workers should strive to keep any exposure as low as reasonably achievable (ALARA).

F. Monitoring/Decontamination Teams

Monitoring/decontamination teams will monitor, with hand-held survey meters or portal monitors, members of the public and emergency workers to ascertain if individuals are contaminated with a radioactive material. BRP has set the action level for determining whether individuals or equipment are contaminated as follows:

Hand held monitor with a Geiger-Mueller Beta/Gamma tube probe – greater than 300 cpm including background.

Hand held monitor with a Geiger-Mueller Beta/Gamma pancake probe – greater than 1000 cpm including background.

Portal monitor – if the detector alarms individual or vehicle will be re-monitored with a hand held survey meter. The portal monitor is to be set to alarm at the FEMA standard level of 1 uCi CS-137.

NOTE: It is important that the monitoring area be checked periodically to determine if contamination is present. If the background reading is or becomes 60 cpm or greater with a Geiger-Mueller Beta/Gamma tube probe or 150 cpm or greater with a Geiger-Mueller Beta/Gamma pancake probe, notify the County EOC and move to an alternate monitoring location.

G. PRD Service Contractor

Following an incident and at PEMA's request, the PRD service contractor will conduct mechanical "reading" of the PRDs used by emergency workers. The contractor will relay the readings and related information to BRP and PEMA, upon request.

5. RADIOLOGICAL EXPOSURE CONTROL FOR THE GENERAL PUBLIC

A. Protective Actions

- (1) Protective actions will be recommended to PEMA by BRP as part of its incident assessment. (See Appendix 6.)
- (2) The two primary protective action options for the general public are sheltering and evacuation. The procedures for implementation of these options are described in Appendix 4.

B. Monitoring

- (1) County emergency management organizations are responsible for monitoring of the general public. Attachment A to this Appendix sets forth the procedures for monitoring at monitoring/decontamination centers for the public and monitoring/decontamination stations for emergency workers.
- (2) In the event of a nuclear power plant incident, the public and emergency workers may have to be individually monitored to ascertain whether the individual is contaminated with a radioactive substance. Persons found to be contaminated must be decontaminated. Monitoring will be initiated upon receipt of instructions to do so from the State EOC.
- (3) Teams will be located at monitoring/decontamination centers and stations and will perform monitoring once a determination has been made that

monitoring is required. Members of the public will be monitored upon request, regardless of whether they intend to stay in mass care facilities.

6. RADIOLOGICAL EXPOSURE CONTROL FOR EMERGENCY WORKERS

A. General

Unlike the general public, emergency workers with assignments within the plume exposure pathway EPZ are not always able to take shelter or evacuate the area due to their duties. Other protective measures available to emergency workers are enumerated below in Paragraphs B through E.

B. Dosimetry

Each emergency worker assigned tasks within the EPZ, or those who may enter the EPZ, will be equipped commensurate with one of three specific categories. Equipment depends on location, mobility and grouping. The direct-reading dosimeters (DRD) enable the worker to monitor herself/himself during the emergency for total radiation dose received. The Personal Record Dosimeter (PRD) is an independently read (by the PRD service contractor) device that is considered to be more dependable and precise than the direct-reading dosimeters. Each emergency responder and identified emergency workers are responsible for following the dosimetry procedures, including record keeping. Attachment B to this Appendix sets forth guidance and procedures on dosimetry, equipment and use.

C. Thyroid Blocking Agent

- (1) The accumulation of radioiodine (radioactive isotopes of the common element iodine) in the thyroid gland is a potential threat during a nuclear power plant incident. Potassium iodide (KI) acts as a blocking agent to radioiodine, preventing it from accumulating in the thyroid gland.
- (2) KI tablets are available to the County EMA who will distribute them to the Municipalities at the Alert classification level if they are not already pre-distributed. Individual workers will be issued the KI at Site Area Emergency.
- (3) KI should be taken only on the advice of the Secretary of the Pennsylvania Department of Health. The projected dose that triggers this advice is 25.0 Rem CDE to the adult thyroid. General information for the emergency worker regarding KI and protection of the thyroid gland is included in Attachment B to this Appendix.

D. Anti-contamination Clothing

Emergency workers in the EPZ can use their personal rain gear as prevention against contamination on the body and personal clothing/uniform. Any type of head cover, boots or galoshes with pant legs taped outside of footwear, rain coat or winter coat with the collar turned up and gloves offer effective protection by minimizing exposure to radioactive contaminants.

E. Respiratory Protection

Should unforeseen circumstances occur whereby emergency workers would be temporarily exposed to a radioactive plume containing large amounts of particulate, they should improvise respiratory protective measures if regular respiratory protective gear is not available. While these methods may not be fully effective against vapors and gasses, they can be effective temporary protection (until the plume passes or the emergency worker evacuates) against radioactive particulates. Improvised respiratory protective measures recommended by BRP are:

- (1) Sheltering in a vehicle or building that can be "buttoned-up" (windows, doors and air vents closed).
- (2) Conscientiously covering the mouth and nose with a cloth or filtering device; suggested items include a folded handkerchief, 3 or 4 ply of toilet tissue, or a folded towel. Dampened handkerchiefs and towels greatly increase their effectiveness as a filter.

F. Monitoring of Emergency Workers

- (1) After monitoring procedures have been placed in effect through the State EOC, and upon completion of his/her mission, each emergency worker must report to a monitoring/decontamination station or center to be monitored (and decontaminated, if necessary). The emergency worker teams performing monitoring at the mass care centers for the general public and stations for emergency workers will monitor themselves.
- (2) The County emergency management agency provides for monitoring and, if necessary, decontamination of emergency workers. Each risk County has at least one monitoring/decontamination station for this purpose. The monitoring/decontamination stations are located just outside the plume exposure pathway EPZ so as to be readily accessible to workers assigned to work within the EPZ. Additionally, each battalion of the Pennsylvania Army National Guard, located within the EPZ or deployed into risk/support Counties, will be prepared to set up and operate one monitoring station, which is intended to be primarily for National Guard personnel. Regardless, each monitoring station or monitoring center will extend its services to any

requesting emergency worker whether he/she be an employee of the Federal, State, County or Municipal government or a volunteer.

- (3) Emergency workers may receive the same monitoring service at the mass care monitoring/decontamination centers.
- (4) Whether monitoring station or monitoring center, the same procedures for monitoring as specified for the general public apply to emergency workers with the exception of the thyroid check. Emergency workers will be monitored for accumulation of radioiodine in the thyroid gland (see Attachment A.)

G. Dosimetry-KI Distribution to Emergency Workers

(1) Federal Government Emergency Workers

Federal government personnel are expected to provide their own dosimetry and thyroid-blocking agent.

(2) State Government Emergency Workers

- a. Each State government worker who will operate within the plume exposure pathway EPZ will be provided a Category A standard issue (see Attachment B). Dosimetry, KI, dosimeter chargers, and survey meters will be distributed to State agencies as shown in Chart 1, "Dosimetry, Survey Meters and Potassium Iodide Allotments Per State Agency."

- 1) The equipment and KI is pre-distributed to the State EOC in Harrisburg and to the PEMA Regional Offices in Indiana, Harrisburg, and Hamburg. (See Chart 1.)

- 2) At the time of an incident the equipment and KI will be picked up by the respective State agency EOC representatives who in turn will arrange for distribution to the proper elements within their agencies. The amount of dosimetry-KI to be distributed to the respective State agencies from each distribution point is shown on Chart 1.

- b. The "Receipt Form for Dosimetry-Survey Meters-KI" (see Tab 4 to Attachment B) and the "Acknowledgment of Receipt by Emergency Workers for Dosimetry-KI and Survey Meters" (see Tab 5 to Attachment B) form will be used for inventory control of the equipment and KI distributed to State agencies during an emergency.

- c. BRP is exempt from the requirements of this section. BRP will conduct dosimetry-KI distribution and recording for their workers in accordance with BRP plans and procedures.

(3) County, Municipal and Volunteer Emergency Workers

Each emergency worker will be issued appropriate dosimetry and KI at Site Area Emergency. Dosimetry and KI is available to the County EMA. See Attachment B for the dosimetry-KI distribution scheme.

CHART 1
DOSIMETRY, SUYRVEY METER AND POTASSIUM IODIDE
ALLOTMENTS PER STATE AGENCY

1. EQUIPMENT DISTRIBUTION BY LOCATION

STATE AGENCY	ITEM	FOR TMI/PBAPS (AT PEMA EOC)	FOR SSES (STORED AT PEMA C.A)	FOR LGS (STORED AT PEMA E/A)	FOR BVPS (STORED AT PEMA W/A)	TOTALS
Department Of Agriculture	0-20 DRD	12	12	12	12	0-20 DRD - 48
	PRD	12	12	12	12	PRD - 48
	KI	12	12	12	12	KI - 48
	CD V-750	1	1	1	1	CD V-750 - 4
	CONTROL PRD	1	1	1	1	CONTROL PRD - 4
Fish & Boat Commission	0-20 DRD	12	8	8	12	0-20 DRD - 60
	PRD	12	8	8	12	PRD - 60
	KI	12	8	8	12	KI - 60
	CD V - 750	3	2	2	3	CD V - 750 - 10
Game Commission	0-20 DRD	8	8	8	8	0-20 DRD - 32
	PRD	8	8	8	8	PRD - 32
	KI	8	8	8	8	KI - 32
	CD V - 750	1	1	1	1	CD V-750 - 4
Department of General Services	0-20 DRD	9	-	-	-	0-20 DRD - 9
	PRD	9	-	-	-	PRD - 9
	KI	9	-	-	-	KI - 9
	CD V-750	1	-	-	-	CD V-750 - 1
Department of Environmental Protection	0-20 DRD	20	40	40 ⁴	20	0-20 DRD - 120
	PRD	20	40	40 ⁴	20	PRD - 120
	KI	20	40	40 ⁴	20	KI - 120
	CD V-750	5	2	2 ⁴	1	CD V-750 - 10
	CONTRL PRD	-	-	1 ⁴	-	CONTROL PRD - 1
Department of Transportation	0-20 DRD	195	63	110	86	0-20 DRD - 454
	PRD	195	63	110	86	PRD - 454
	KI	195	63	110	86	KI - 454
	CD V-750	7	5	7	4	CD V-750 - 23
State Police (All Items Stored By PSP)	0-20 DRD	687	189	200	260	0-20 DRD 1326
	PRD	687	189	200	260	PRD 1326
	KI	687	189	200	260	KI 1326
	CD V-750	4	2	2	2	CD V-750 10
	CONTROL PRD	10	4	6	6	Control PRD 26

ii. EQUIPMENT DISTRIBUTED BY AGENCY

STATE POLICE	HEADQUARTERS EQUIPMENT/SPARES NOT PRE-DISTRIBUTED TO TROOPS	0 – 20 DRD PRD KI CD V-750 CONTROL PRD	-- -- -- -- --	53 53 76 2 2
BUREAU OF RADIATION PROTECTION	POTASSIUM IODIDE STORED AT RACHEL CARSON BUILDING FOR STAF/FIELD TEAM USE	KI	--	100
DEPARTMENT OF MILITARY AFFAIRS	EQUIPMENT AND KI ISSUED TO THE DEPARTMENT IS FOR ALL NUCLEAR POWER PLANTS, STORED AT RADEF SHOP, FORT INDIANTOWN GAP	0 – 20 DRD PRD KI CD V-750 CD V-700 ³ CONTROL PRD	-- -- -- -- -- --	1000 1000 1000 20 30 1
DEPARTMENT OF CORRECTIONS	EQUIPMENT ISSUED TO HQ AT CAMP HILL, SCI, FOR APPROPRIATE ISSUE/DISTRIBUTION	0 – 20 DRD 0 – 200 DRD KI PRD CONTROL PRD CD V-750 CD V-750	-- -- -- -- -- -- --	391 242 6725 1400 6 71 82
TURNPIKE COMMISSION	EQUIPMENT ISSUED TO TURNPIKE HEADQUARTERS APPROPRIATE ISSUE/DISTRIBUTION	0 – 20 DRD 0 – 200 DRD KI PRD CONTROL PRD CD V-750	-- -- -- -- -- --	12 12 350 12 1 1
PEMA	DOSIMETRY AND KI IS A RESERVE FOR EMERGENCY WORKERS, UNFORSEEN NEEDS AND UNEXPECTED VISITORS, STORED IN STATE EOC	0 – 20 DRD PRD KI CD V-750	-- -- -- --	50 50 50 2

FOOTNOTES TO CHART 1

1. TOTALS: DOSIMETER (0-20 r) - 3,555 HOSPITALS OPERATED BY STATE AGENCIES ARE NOT INCLUDED HERE; RATHER THEY ARE INCLUDED IN THE RESPECTIVE RISK COUNTY PLANS AS THEY RECEIVE THEIR DOSIMETRY/KI FROM THEIR COUNTY EMA's.
2. DOSIMETRY AND DOSIMETER CHARGERS PREDISTRIBUTED TO THE PSP ARE FOR USE BY THEIR PERSONNEL IN RESPONDING TO INCIDENTS AT THE NUCLEAR POWER PLANTS. THE DOSIMETRY WILL BE STORED AND MAINTAINED BY THE RESPECTIVE PSP TROOPS (ISSUES FOR PSP HQ PERSONNEL ARE STORED AT PSP HQ) AND EACH SHALL BE RESPONSIBLE FOR HAVING AN EFFECTIVE MEANS FOR DISTRIBUTION OF THEIR DOSIMETERS TO RESPONDING TROOPERS.
3. THESE SURVEY METERS ARE ISSUED TO THE DEPARTMENT OF MILITARY AFFAIRS BECAUSE THE NATIONAL GUARD WILL CONDUCT MONITORING OF ITS OWN PERSONNEL AS WELL AS FOR OTHER REQUESTING EMERGENCY WORKERS.
4. STORED AT ENVIRONMENTAL PROTECTION SOUTH EAST OFFICE.

DOSIMETER (0-20R)	-	3,555
DOSIMETER (0-200 R)	-	254
KI	-	10,350
PRD	-	4,564
CD V-750	-	158
CD V-700	-	112
CONTROL PRD	-	40

H. State Agency Radiological Training, Inventory, Maintenance and Record Keeping

With the assistance of BRP, PEMA is responsible for dosimetry training for appropriate State agencies including dosimetry charging and reading and recording of information. Equipment and KI inventory and maintenance procedures with appropriate records are specified in Attachment C to this Appendix.

Inventory control during the emergency will consist of a trail of accountability from each agency issuing equipment through the individual and user of the equipment and KI. Forms and procedures for this purpose are included in Attachment B.

7. PROTECTION FOR INSTITUTIONAL PERSONNEL

A. General

- (1) The evacuation time required for persons residing in hospitals, licensed nursing homes, and prisons is expected to be greater than that for the general public. The staffs and complements of these facilities may become emergency workers in case of evacuation. Consequently, increased means of protection are necessary.
- (2) Direct-reading dosimeters for hospitals, licensed nursing homes and prisons (facility) are used as area monitors not personal monitors. An issue of dosimetry to these facilities is in the form of an area kit(s) that consists of one DRD Charger, two 0-20R DRDs, one PRD and a Dosimetry-KI Report Form. This issue of dosimetry will be located at a site(s) within a facility accessible to the staff for recording purposes.
- (3) One monitoring site is usually sufficient for a facility. Due to size and configuration of a facility, the need for additional recording sites, and additional issues of dosimetry, will be determined on a case by case basis. At a minimum, each facility will be issued one area kit.
- (4) Reading and recording of data at each recording site will be accomplished at 30-minute intervals when exposure control activities are directed by the State EOC. The highest reading will apply to all personnel within a facility.

B. Hospitals and Nursing Homes

- (1) In addition to the minimum of one area kit provided to each institution, all patients and staffs in hospitals and residents in nursing homes are provided KI. A 14-day supply of KI is on hand for each patient or resident and for

50% of the staff. It is pre-distributed by the Risk Counties or distributed at declaration of an Alert during an incident. (See details in Appendix B.)

- (2) Evacuation can require augmentation of the on-duty shift. Therefore, PRDs and a 14-day supply of KI will be provided to a minimum of 50 percent of the total staff and complement of each facility. PRDs and KI are either pre-distributed or issued to hospitals and nursing homes at Alert.
- (3) Monitoring of institutional staff and residents can be accomplished by utilizing the institution's own capability and that of the host institutions, monitoring stations for emergency workers, or monitoring centers co-located with reception *or* mass care centers.

C. Prisons

- (1) KI will be maintained on-hand, or issued at declaration of an Alert, in sufficient supply for 100 percent of the inmates, staffs and complements of designated prisons. A unit of KI consists of a 14-day supply per person.
- (2) The full staffs and complements of all designated prisons will be provided: One PRD, Dosimetry-KI Report Form, and a 14-day supply of KI per person. These items will be maintained on-hand or issued at declaration of an Alert. Additionally, at least one area kit will be placed at each facility. (See details in Appendix B.)
- (3) Risk prisons are responsible for providing Monitoring/ Decontamination Teams for the purpose of monitoring and decontaminating prison evacuees. The provisions of Attachment A, Monitoring/Decontamination Procedures, apply.

8. REFERENCES

- A. Department of Environmental Protection, Bureau of Radiation Protection, "Nuclear Power Station Emergency Plan", January 1994.
- B. Commonwealth of Pennsylvania, Department of Health, "Disaster Preparedness and Recovery Plan," November 1982.
- C. FEMA-REP-2, "Guidance on Offsite Emergency Radiation Measurement systems, Phase 1 - Airborne Release," Revision 1, July 1987.
- D. NUREG-0654 (FEMA-REP-1), "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, November 1980.

- E. Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, EPA 400-R-92-001, U.S. Environmental Protection Agency, Office of Radiation Programs, Washington, D.C., October 1991.
- F. Pennsylvania Emergency Management Guidance and Information Circular No. C99-4, "Nuclear Power Plant Accident Emergency Worker Dosimetry and Potassium Iodide (KI) Stock and Distribution.
- G. FEMA REP-18, "Statements of Consideration for FEMA REP-14 and FEMA REP-15," January 1992.
- H. Letter, subject: "Recommendations to REPAC - Dosimetry for Staff and Attendants of Institutions," June 6, 1990.
- I. Meeting, Pennsylvania Emergency Management Council, July 10, 1990.
- J. FEMA Region III Letter, January 19, 1993 (clarification of dosimetry requirements).
- K. FEMA REP-14, "Radiological Emergency Preparedness Exercise Manual", September 1991.
- L. Summary of Federal REP Agencies Guidance on State Implementation of EPA Guidance on Inhalation Dose for Emergency Workers, Ad Hoc PAG Subcommittee of the FRPCC, July 1994.

9. DEFINITIONS AND TERMS

- A. Area Kit - Dosimetry that is placed in a location where emergency workers will be in close proximity to each other during the entire mission and adequate control of exposure can be effected for all emergency workers by a dosimeter strategically placed in the work area. Area kits may be required in multiple locations within a facility. An area kit consists of one PRD, two 0-20R direct reading dosimeters, one DRD charger, and one Dosimetry-KI Report Form.
- B. Bureau of Radiation Protection (BRP) - The State agency upon which the County EMA will rely for incident assessment and plume monitoring services; BRP information will be disseminated by PEMA.
- C. CD V-700 - Survey meter (with Geiger-Mueller tube) used to conduct monitoring for radiation contamination.
- D. CD V-730 - A direct-reading dosimeter with a scale from 0-20R.

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- E. CD V-742 - A direct-reading dosimeter with a scale from 0-200R.
- F. CD V-750 - The dosimeter charger used to charge (zero) the DCA-622, the CD V-730, and the CD V-742 dosimeters. Other types from different manufacturers are available and authorized.
- G. Committed Dose Equivalent (CDE) - The total thyroid exposure from inhalation of radioiodine.
- H. DCA-622 - Abbreviation for Dosimeter Corporation of America model 622 direct-reading dosimeter. It has a 0-20R scale and is the commercial equivalent of the CD V-730.
- I. Dosimeter Charger - a device used to zero direct-reading dosimeters, which in this plan are the DCA-622, the CD V-730, and the CD V-742 (or equivalents).
- J. Dosimeter - Pocket size devices that measure accumulated exposure to radiation.
- K. Double clothing or rain gear protection - The donning of outer rain clothing (rain hat, coat and boots) by emergency workers as a protective measure to prevent radioactive contamination directly on the body.
- L. Emergency Responders - Individuals or teams, located within the EPZ (or who may enter the EPZ) working in a mobile capacity, with a potential for individual radiation exposure, such as police, firefighters, emergency medical persons, State workers, farmers and industrial workers.
- M. Emergency Workers - In this appendix, those persons, other than on-site nuclear facility workers who could be exposed to radiation as a consequence of performing assigned tasks to meet an emergency situation. Included are all those persons deployed within the plume exposure pathway of the EPZ or are assigned to monitoring duty. Generally, these persons will be assigned to: (1) emergency management agencies, (2) police departments, (3) fire companies, (4) EMS services, (5) hospitals, (6) nursing homes, (7) prisons, (8) farmers who keep livestock within the plume exposure pathway EPZ or (9) industrial workers who must reenter the EPZ to maintain or shut down equipment.
- N. FRERP - The Federal Radiological Emergency Response Plan (FRERP) is used by Federal agencies in peacetime radiological emergencies. It primarily concerns the offsite Federal response in support of State and local governments with jurisdiction for the emergency.

- O. Geiger-Mueller pancake probe – A radiation detector that has a very thin mica (1.4 – 2 mg/square cm) window with an approximate area of 15 square centimeters.
- P. Geiger-Muller tube probe – A radiation detector encased in a metal tube that has a window that can be opened and closed. When opened the detector wall thickness is normally 30 – 40 mg/sq centimeter and the window has an approximate area of 3 square centimeters.
- Q. Monitoring - The process of checking a person or object with a survey meter to ascertain if the person or object is contaminated with a radioactive substance.
- R. Monitoring/Decontamination Center - A facility co-located with mass care or reception centers where evacuees may undergo monitoring for radioactive contamination and, if necessary, are decontaminated.
- S. Monitoring/Decontamination Station - A facility, located just outside the plume exposure pathway of the EPZ, where emergency workers undergo monitoring for radioactive contamination and, if necessary, are decontaminated.
- T. Monitoring/Decontamination Team - A team consisting of one monitor and one recorder whose function is to perform monitoring duties. A team chief is assigned to each monitoring/decontamination center and station to supervise monitoring and decontamination.
- U. Permanent Record Dosimeter (PRD) – A non-self reading dosimeter, generally considered a “badge” type dosimeter, which is sensitive to beta and gamma energy. This device provides a more accurate and legal record of the emergency worker’s actual radiation exposure received during the duration of the incident as well as being a back-up for the direct reading dosimeter(s). The device is not a “real-time” instrument and must be processed using specialized laboratory equipment following a radiological emergency to determine the amount and type of exposure. Permanent Record Dosimeters are typically a TLD, film badge, or other non-self reading technology.
- V. PRD Service Contractor – The service contractor providing PRD service in support of the commonwealth’s Radiological Response to Nuclear Power Plant Incidents. The PRD service will include provision of the PRDs; annual replacement; reading of PRDs during or after an incident, and transmitting the data to BRP and PEMA upon request.
- W. Personal Monitoring - Refers to the use of dosimeters to alert the wearer of accumulated radiation exposure.
- X. Portal Monitor – A stand-alone whole body personal/vehicle radiological contamination monitor used to monitor individuals or vehicles exposed to a

plume of radioactive material. The device must have the capability to detect a one-microcurie (uCi) test source of Cesium – 137 and radionuclides that emit beta and gamma radiation.

- Y. Potassium Iodide (chemical symbol is KI) - A thyroid-blocking agent that prevents the accumulation of radioiodine by blocking its absorption by the thyroid gland through the presence of stable (non-radioactive) iodine.
- Z. Radioactive contamination - Refers to a radioactive material in unwanted locations, for example on people, objects and the environment. The following action levels for determining contamination apply for individuals or equipment evacuating the EPZ after a non-routine release has occurred:

Hand held monitor with a Geiger-Mueller Beta/Gamma tube probe – greater than 300 cpm including background.

Hand held monitor with a Geiger-Mueller Beta/Gamma pancake probe – greater than 1000 cpm including background.

Portal monitor – upon detector alarming.

NOTE: It is important that the monitoring area be checked periodically to determine if contamination is present. If the background reading is or becomes 60 cpm or greater with a Geiger-Mueller Beta/Gamma tube probe or 150 cpm or greater with a Geiger-Mueller Beta/Gamma pancake probe, notify the County EOC and move to an alternate monitoring location.

NOTE: Due to the variety of monitor configurations available from many different manufactures it would be impossible to list them all here. Any questions concerning the capability or contamination parameters of different type of equipment should be addressed to the BRP.

- AA. Radioiodine - Radioactive iodine, principally Iodine-131.
- BB. Roentgen Equivalent Man (Rem) - A unit of radiation dose equivalent that is based on latent effects on the human body.
- CC. Survey Meter – For purposes of this plan a hand held monitor used to detect beta and/or gamma contamination on individuals or equipment. Many types from different manufacturers are available and authorized.
- DD. Total Effective Dose Equivalent (TEDE) - The total whole body exposure to an individual that includes external exposure from the plume, external exposure from ground deposition and internal exposure from inhalation.

10. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3.)

ATTACHMENTS:

- A. Monitoring/Decontamination Procedures
- B. Dosimetry and Potassium Iodide (KI)
- C. Inventory and Maintenance Procedures

ATTACHMENT A

APPENDIX 5

MONITORING/DECONTAMINATION PROCEDURES

1. MONITORING/DECONTAMINATION CENTERS

A. Organization at Monitoring/Decontamination Centers

- (1) Mass care or reception centers for evacuees will serve as points where radioactive contamination monitoring and decontamination will be conducted. When radioactive contamination monitoring is required, evacuees, upon arrival at the center will first be monitored for radiological contamination and, if necessary, be decontaminated after which they can be admitted to the "general living" portion of the mass care center. Trained monitoring teams will conduct the monitoring for radiological contamination, carry out decontamination procedures, and complete associated records. This activity, although sometimes co-located with the mass care centers, is not an integral part of that operation. Monitoring teams take direction from the County radiological officer. Monitoring of evacuees should be completed as soon as possible while monitoring of vehicles can be accomplished after the evacuees have been processed.
- (2) Monitoring teams will organize their areas and traffic flow patterns so that contaminated persons and those to be monitored will not mix with the contamination-free individuals already admitted to the "general living" section of the mass care center. For example, persons will be sent to the decontamination area (shower) by a route that will not place them in contact with contamination-free areas. Showers used for decontamination will not be available for general use until they are decontaminated.
- (3) Persons waiting to be monitored must be separated from the monitoring area so that it will not cause false readings on the person being monitored. Care must also be taken to avoid areas where high voltage electrical lines and electrical equipment such as computers are present. Those items can cause false readings on the survey meter.

NOTE: It is important that the monitoring area be checked periodically to determine if contamination is present. If the background reading is or becomes 60 cpm or greater with a Geiger-Mueller Beta/Gamma tube probe or 150 cpm or greater with a Geiger-Mueller Beta/Gamma pancake probe, notify the County EOC and move to an alternate monitoring location.

B. Monitoring Services for Persons Who Are Not Housed at Mass Care Centers

Persons who do not intend to stay at a mass care center, but who wish to be monitored will be extended these services at the monitoring/decontamination centers. The monitoring procedures and record keeping are identical for people who stay or do not stay at mass care centers.

C. Monitoring/Decontamination Stations for Emergency Workers

- (1) After monitoring procedures have been placed in effect by PEMA, and upon completion of his/her mission, or more often as directed by supervisors, each emergency worker must report to a monitoring station or monitoring center to be monitored for radiological contamination, and, if necessary, be decontaminated.
- (2) Most emergency workers will be working within the plume exposure pathway of the EPZ, which extends about ten miles in a 360-degree circle around the nuclear power plant. Since the monitoring centers for the public are located 20 or more miles from the nuclear power plant, special monitoring stations for emergency workers are established just outside the plume exposure pathway EPZ. Therefore, emergency workers will not be required to travel the longer distance to monitoring centers.
- (3) The monitoring stations for emergency workers are provided for by each risk County emergency management agency. Additionally, each designated battalion of the Pennsylvania Army National Guard, upon activation to State active duty, will be prepared to set up and operate a monitoring station which is intended primarily to service National Guard personnel. Nonetheless, all monitoring stations will extend their service to any requesting emergency worker, whether Federal, State, County, Municipal employee or volunteer.

D. Equipment and Personnel Requirements in Risk Counties

- (1) Portal monitors or hand held monitors that meet minimum Federal specifications may be used for monitoring.
- (2) A sufficient number of survey meters are available for each monitoring location to provide one meter for each 250 mass care spaces; monitoring stations have available one survey meter for each 50 emergency workers. If portal monitors are used these requirements should be modified based on the monitoring time required by the manufacturer. Some hand-held survey meters will be required for pinpointing the actual location of contamination, re-monitoring after decontamination attempts, and vehicle and equipment monitoring.

- (3) Personnel requirements are one trained monitor and one recorder (assistant to the monitor) for each survey meter as a minimum. Personnel performing monitoring duties will be issued a PRD. Recorders who do not monitor will not be issued a PRD.
- (4) The monitoring teams and equipment available will be capable of monitoring, within about a 12-hour period, all residents and transients arriving at mass care monitoring centers.
- (5) Inventory, maintenance and property accountability with regard to dosimetry, survey meters and KI are described in Attachment C to this Appendix.
- (6) Personnel monitors should wear disposable or plastic gloves while monitoring. Additionally, it is suggested that shirts/blouses with long sleeves and long trousers/slacks be worn. Masks or respirators are not required or recommended.

E. Equipment and Personnel Requirements in Support Counties

The equipment and procedures for monitoring/decontamination teams is the same as risk Counties.

F. Monitoring/Decontamination Record Keeping

Monitoring team personnel will be responsible for completing a "Monitoring/Decontamination Report Form" (see Tab 1 to this Attachment) for each individual found to be contaminated. The form will be completed, signed by the monitor and individual monitored at each of the steps [(1) initial monitoring, (2) after first decontamination, (3) after second decontamination, (4) medical referral.] Two copies of the form will be prepared. One copy will be given to the individual when decontamination is completed or the individual is sent to a medical facility. The Risk County Emergency Management Agency will retain the original in a historical file. (Support County emergency management agencies are responsible for forwarding these completed forms to their corresponding risk County emergency management agency.) The Risk County Emergency Management Agency will make these forms available to BRP, if requested. Individuals who are found to be free of contamination upon initial monitoring will not need this form completed. However, Counties must implement a method whereby these individuals names are recorded to show they were monitored and some method of marking "clean" individuals is used so as to ensure their acceptance into mass care centers.

G. Progress Reports on Monitoring/Decontamination

Monitoring team chiefs will verbally report at two-hour intervals to their County emergency management agency on results of monitoring. The report will include the following cumulative data: number of persons monitored; number contaminated; number decontaminated; number referred to a medical facility (for radiation decontamination/treatment); the highest reading on any contaminated individual; and any unusual notable findings. The risk and support County EMCs are responsible for consolidating this information and reporting it immediately to PEMA who in turn will relay the information to BRP.

2. PROCEDURES FOR MONITORING/DECONTAMINATION TEAMS

A. Monitoring/Decontamination Procedures

- (1) Select a location for conducting the monitoring operation.
- (2) Place the survey meter into operation following the manufacturer's instructions.

NOTE: If using a portal monitor follow the manufacturer's instructions. Ensure hand held monitors are available to pinpoint contamination detected by the portal monitor. If a contaminated individual arrived by vehicle ensure that the vehicle monitoring team is notified so that the vehicle interior is monitored for contamination.

- (3) Determine and record the background radiation level of the monitoring area.

NOTE: It is important that the monitoring area be checked periodically to determine if contamination is present. If the background reading is or becomes 60 cpm or greater with a Geiger-Mueller Beta/Gamma tube probe or 150 cpm or greater with a Geiger-Mueller Beta/Gamma pancake probe, notify the County EOC and move to an alternate monitoring location.

- (4) To monitor both personnel and equipment, place the probe in a thin-ply plastic bag or cover of lightweight material to prevent its contamination.

NOTE: The monitoring teams do not need to wear special clothing. See paragraph 1.D. (6).

- (5) Place the probe approximately 1" from the head, being careful not to touch the person.

- (6) Move the probe downward on one side of the neck, the collar, the shoulder, arm, wrist, hand, underarm, armpit, side of body, side of leg, and around the cuff and shoe. Then monitor the inside of the leg from the cuff to the groin and continue the procedure on the other side of the body.
- (7) Monitor the chest and stomach area on the front of the body, and the middle back and buttocks on the rear of the body.
- (8) The final points to monitor are the soles (bottom) of each shoe. As each sole is checked, if it is not contaminated, instruct the person to place that foot across the line into the clean area. A contaminated shoe should be removed before stepping into the clean area. If any reading exceeds the established limit continue monitoring, changing scales as necessary, to determine the highest level of contamination.
- (9) Individuals free of contamination should be so informed, have their name recorded, and released. Those going to mass care centers should be designated according to plan and provided authorization to allow admittance into these facilities.
- (10) Ensure that individuals found to be contaminated are decontaminated and the results are recorded on the Monitoring/Decontamination Report Form (see Tab 1 to this Attachment).
- (11) Monitor the individual after decontamination to determine that the contamination has been removed. Repeat decontamination procedures if contamination still remains. If contamination is still present after the second decontamination attempt the individual must be sent to a designated medical facility.

B. Thyroid Gland Screening Check for Emergency Workers

- (1) In addition to the steps outlined in 2.A. above, emergency workers are to be screened for thyroid gland uptake of radioiodine.

CAUTION

Emergency workers shall be screened for surface contamination, and decontaminated if appropriate, before this procedure is implemented.

- (2) The thyroid uptake screening procedure follows:
 - a. Check the survey meter for operability.

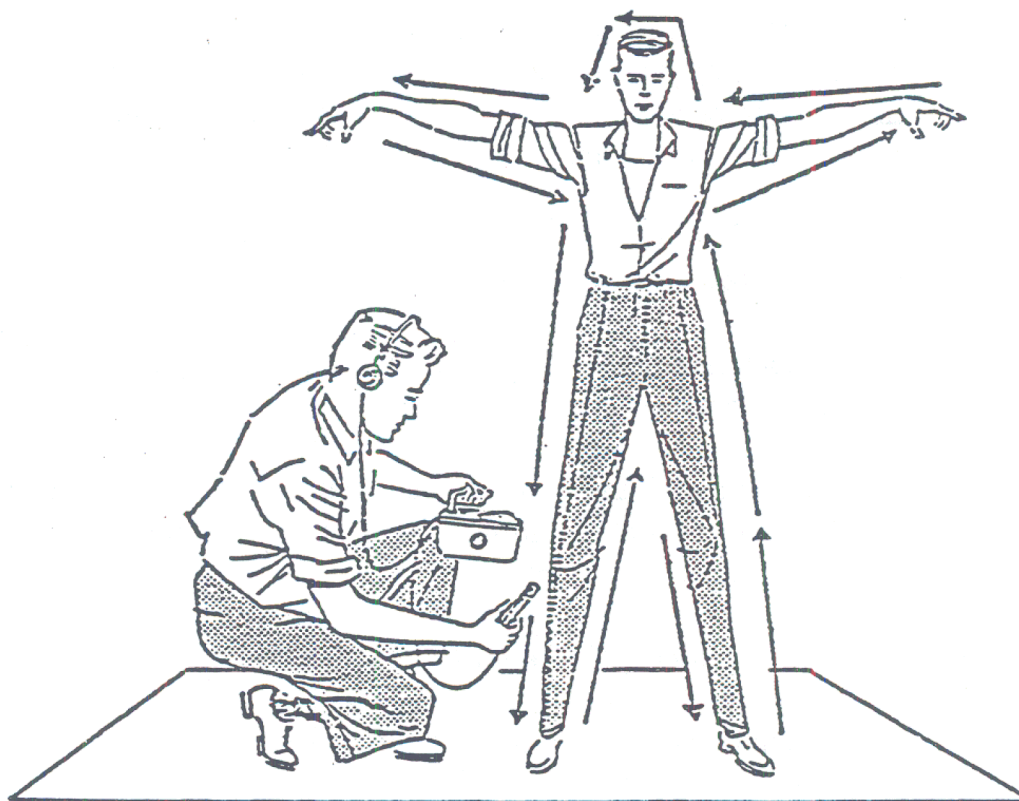


Illustration 1 - Monitoring Procedure

- b. Place the probe in a horizontal position across the front of the neck, just below the larynx (Adam's Apple). If the survey meter probe is a Geiger-Mueller Beta/Gamma tube type ensure the beta shield is closed. If the probe is a Geiger-Mueller Beta/Gamma pancake type turn it over completely and monitor with the back, or shielded side, of the probe instead of the front portion with the window.
- c. If the reading is less than .1 mR/hr with a Geiger-Mueller Beta/Gamma tube probe or less than 300 cpm with a Geiger-Mueller Beta/Gamma pancake probe no further action is necessary.
- d. If the reading exceeds the limits in paragraph c. above the individual's neck area should be decontaminated using standard surface decontamination techniques.
- e. Following decontamination, repeat the thyroid screening procedure. If the second reading exceeds limits refer the individual to the appropriate medical facility for evaluation.
- f. Record the data on the Monitoring/Decontamination Form and sign in the appropriate place. Also obtain the signature of the person monitored.

C. Decontamination of People

- (1) Persons found to be contaminated by means of a portal monitor should be further monitored using a hand-held survey instrument to identify the location(s) of the contaminate.
 - a. If the identified contaminated area(s) are covered by clothing or footwear, instruct the individual to carefully remove the article of clothing or footwear while wearing exam type gloves. Have the individual place the article(s) in a bag or container along with the glove(s). Move the bag/container away from the immediate monitoring field.
 - b. Re-monitor the individual being careful to monitor the hands.
 - c. If the individual is found to be free of contamination, or if the readings are below the contamination threshold, proceed to step 3 below.
 - d. If the individual is found to have readings above the contamination threshold value, consider the use of "dry-decontamination" methods. These include:

- 1) The removal of additional layers of clothing, if present.
 - 2) The use of a masking type tape to remove contaminants by carefully lifting the material(s) from the contaminated area(s).
 - 3) The use of an adhesive step-off pad for contaminate found on the bottoms of the shoes.
 - 4) The use of a damp “wash-cloth” or “paper towel” to dab or wipe the suspect area.
- e. Place any used “dry-Decontamination” materials in a bag or container and remove it from the immediate area. Re-monitor the individual.
- f. If the individual is found to be free of contaminants or if readings are below the threshold value, proceed to Step 3 below.
- g. If contamination persists, follow the steps below:
- (1) Contaminated persons should wash with a mild, non-abrasive soap and warm water (A thorough shower should be sufficient). Emphasis should be placed on any specific spots found to be contaminated in the monitoring process. Also, special attention should be given to the hair, hands and fingernails.
 - (2) After thorough cleansing, the individual will be monitored again. If some contamination still remains, the individual should shower again, using a mild, non-abrasive soap. If monitoring after the second thorough cleansing indicates that the contamination is still present, the individual should be sent to the nearest medical facility capable of treating contaminated persons.
 - (3) Care should be taken that persons who are decontaminated do not become recontaminated by dressing in contaminated clothing or by touching contaminated clothing or other contaminated items. If the individual does not have contamination free clothing, clothing should be issued to the individual until such time as their clothing can be decontaminated.

D. Decontamination Procedures for Wounds

Persons with contaminated wounds will be referred to an appropriate medical facility for decontamination and treatment.

E. Clothing Decontamination Procedures

- (1) Articles that are machine washable should be laundered with a conventional detergent, line dried in a contamination free area or machine dried, and retained until they can be monitored. Water repellent items may be scrubbed with water and detergent and retained until monitored.
- (2) The County EMA is responsible for arranging for a laundry facility dedicated to washing of contaminated clothing.

F. Decontamination Procedures for Supplies, Instruments and Equipment

- (1) The item in question should be monitored first to determine the extent and area of contamination by thoroughly going over the object with a survey meter about one inch from the surface. Wiping or washing to the extent necessary to remove the radioactive contaminants generally accomplishes decontamination of these articles.
- (2) The County emergency management agency is responsible for arranging for radiation monitoring of vehicles and for decontamination. Monitoring teams will initially direct their efforts to the evacuees as described previously. When time permits, the monitoring teams can monitor the vehicles of the evacuees where they are parked. Monitoring and decontamination procedures are in Paragraphs G and H below. Suitable car washing arrangements can be made for external decontamination depending upon the number of vehicles contaminated and amount of radioactive contamination. Vehicles with contamination in the interiors that are not able to be decontaminated employing the procedures in Paragraph H.2 below will be impounded and BRP must be consulted, through PEMA, on how to decontaminate these vehicles before return to their owners.

G. Monitoring Procedures for Vehicles

NOTE: BRP has set the same activity limit for using a portal monitor for vehicles as that set by FEMA for personnel monitoring. The portal monitor must be set to alarm at a level of 1 microcurie (uCi) of Cs-137 in the wheel well of the vehicle. If using a portal monitor follow the manufacturer's instructions. It must be noted that the monitoring devices in the portal monitor must be within the manufacturer's specified distance of the vehicle being monitored. This will require that the portal monitor be

easily adjustable to account for vehicles of differing sizes. Also, the speed at which a vehicle passes through the monitor will vary between different manufacturers. A vehicle is considered contaminated if the portal monitor alarms and must be monitored by hand held meters to pinpoint the contamination.

- (1) Check the operability of the survey meter per manufacturer's instructions.
- (2) Install the headphone if applicable.
- (3) Ensure the shield on the probe is open if applicable.
- (4) If using a handheld monitor ensure the motor and electrical components are turned "off."
- (5) Hold the probe about 1 inch from the exterior surface and scan. Record the highest reading.
- (6) Monitor and record the reading at the following locations:
 - a. Left front wheel well
 - b. Left rear wheel well
 - c. Right rear wheel well
 - d. Right front wheel well
- (7) If any occupants are found to be contaminated the following locations will also be monitored:
 - a. Driver's seat and floor mat and all hand and foot controls
 - b. Rear passenger seat and floor mat, drivers' side
 - c. Rear passenger seat and floor mat, passenger side
 - d. Front passenger seat and floor mat
- (8) Consider the vehicle contaminated if any of the readings are greater than 300 cpm with a Geiger-Mueller Beta/Gamma tube probe or 1000 with a Geiger-Mueller Beta/Gamma pancake probe.
- 9) Complete interior monitoring is required if the driver's seat or floor mat is contaminated.

(10) If contaminated complete the Equipment Decontamination Record (see Tab 2).

(11) If the vehicle cannot be decontaminated below release limits move it to a quarantine area.

H. Vehicle and Equipment Decontamination Procedures (e.g., metal, glass, etc.)

(1) Exterior

- a. Use a steady stream of water. Do not use a spray. Wear personal protective gear to keep dry and to avoid contamination.
- b. Work from top to bottom and upwind to downwind in order to avert recontamination; 15 to 20 feet from the surface is optimal. Vertical surfaces should be hosed at a 30 to 45 degree angle downward.
- c. Flush the rear sides of both bumpers.
- d. Flush the engine compartment.
- e. Flush each wheel well.
- f. Remonitor the equipment.
- g. Revise the Equipment Decontamination Record. Leave one copy in/on the equipment/vehicle. Forward the original to the County emergency management agency.

(2) Vehicle Interior – If interior contamination is verified quarantine the vehicle and notify County for further guidance.

I. Disposal of Contaminated Wastes

(1) As described previously, clothing and similar materials as well as miscellaneous equipment and vehicles can be decontaminated.

If cleaning materials and other items cannot be successfully decontaminated, special handling is necessary.

(2) Contaminated waste materials should be packaged in a plastic bag, tied securely at the top, and placed in a metal or plastic container with a snug-fitting lid (garbage can). If any materials cannot be decontaminated by laundering, place it in the same type of plastic bag and container and store

in a locked room that is not used for any other purpose until such time as the contaminated waste is disposed of in accordance with instructions from BRP. Accumulation of contaminated waste materials and the need for disposal should be reported through the emergency management channels.

- (3) Contaminated wastewater need not be contained or stored. Due to its considerable dilution, it is considered to not pose a danger to public health.

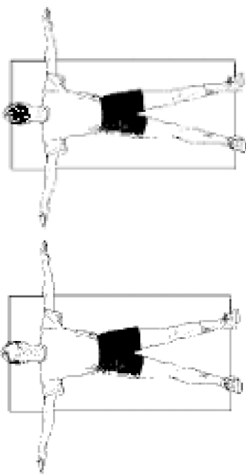
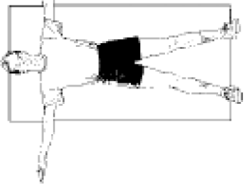
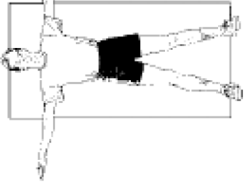
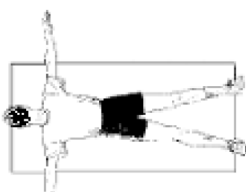
J. Processing of Personal Property

- (1) This section addresses the processing of personal property such as money, valuable documents, dentures, prosthesis, or jewelry that could be contaminated.
- (2) If the person is also contaminated, the owner will decontaminate their personal property as follows:
 - a. Brushing or swabbing.
 - b. Washing the items in a sink using a commercial detergent.
 - c. Washing the items while showering to decontaminate the property owner.
- (3) The activities described in the above paragraph will be conducted in a controlled area so that contaminants will not be spread to contaminant-free general areas.
- (4) In the event that personal property cannot be decontaminated as described above, the property will be quarantined as follows:
 - a. Place the items in a plastic bag and seal the bag.
 - b. Complete the Personal Property Inventory form. See Tab 2.
 - c. Give the original copy of the inventory form to the property owner. Attach the other copy of the form to the bag holding the property.
 - d. Place the bag containing the property in a garbage can, seal the garbage can and place the can in a secure, controlled storage area.
 - e. Request guidance from the appropriate County EMA concerning disposition of the property when time permits.

- (5) Contaminated personal property will not be entered into general living areas used by the public.

TABS:

1. Monitoring/Decontamination Report Form
2. Equipment and Personal Property Decontamination/Accountability Record

PEMA-BOP-REP-1 (REVISED 4/97)				MONITORING/DECONTAMINATION REPORT FORM			
NAME OF PERSON MONITORED:				NOTE: COMPLETE FOR EACH PERSON MONITORED AND FOUND CONTAMINATED			
SOCIAL SECURITY NUMBER:				(Print)			
ADDRESS:				(Signature)			
MONITORING LOCATION:							
SURVEY METER TYPE							
BACKGROUND:				CPM			
NOTE: Mark contamination location and reading from survey meter on outline below							
1 FIRST MONITORING		2 SECOND MONITORING AFTER DECONTAMINATION (IF NEEDED)		3 THIRD MONITORING AFTER DECONTAMINATION (IF NEEDED)			
							
Monitor's or Recorder's Name _____ Survey Meter Serial No. _____ DATE _____ TIME _____ am/pm		Monitor's or Recorder's Name _____ Survey Meter Serial No. _____ DATE _____ TIME _____ am/pm		Monitor's or Recorder's Name _____ Survey Meter Serial No. _____ DATE _____ TIME _____ am/pm			
THYROID GLAND SCREENING CHECK (only required for emergency workers) Monitoring includes screening for radiiodine uptake in the thyroid gland and the results recorded here. Medical referral action level for the thyroid check is .1 mR/hr when using a G-M Tube Probe and 300 CPM when using a G-M Pancake Probe.							
Survey meter Serial No. _____		Reading: _____		Signature of Monitor/Recorder _____			
Medical Referral - subject individual sent to _____		_____		hospital for decontamination and/or treatment (Time)		am/pm	
on (Date) _____		Decontamination Team Chief _____					

TAB 2
ATTACHMENT A
APPENDIX 5
EQUIPMENT AND PERSONAL PROPERTY –
DECONTAMINATION/ACCOUNTABILITY RECORD

PEMA-BOP REP-2
(REVISED 5/01)

**EQUIPMENT AND PERSONAL PROPERTY
DECONTAMINATION/ACCOUNTABILITY RECORD**

Date	TIME	LOCATION	
TYPE OF EQUIPMENT/PROPERTY (INCLUDE MAKE & SERIAL NUMBER)			
WHERE USED			
EQUIPMENT/PROPERTY WAS USED BY (list all known users)			
SURVEY METER TYPE/SERIAL #			
EQUIPMENT PART OR PROPERTY (DESCRIBE)	MONITORING FIRST/SUBSEQUENT	EQUIPMENT PART OR PROPERTY (DESCRIBE)	MONITORING FIRST/SUBSEQUENT
1.	(cpm)	9.	(cpm)
2.	(cpm)	10.	(cpm)
3.	(cpm)	11.	(cpm)
4.	(cpm)	12.	(cpm)
5.	(cpm)	13.	(cpm)
6.	(cpm)	14.	(cpm)
7.	(cpm)	15.	(cpm)
8.	(cpm)	16.	(cpm)
CHECK APPROPRIATE FINAL ACTION: (enter appropriate item number from previous block)			
EQUIPMENT OR PROPERTY DECONTAMINATED			
EQUIPMENT OR PROPERTY QUARANTINED TO DECONTAMINATE SURFACES			
SIGNATURE OF TEAM RECOORDER			
PRINTED NAME OF TEAM RECORDER			
<u>EQUIPMENT/PROPERTY</u> OWNER			
ADDRESS:		STREET	
		CITY/STATE/ZIPCODE	
NOTE: BRING THIS FORM WITH YOU WHEN YOU CLAIM YOUR EQUIPMENT OR PROPERTY			
<u>RELEASE OF EQUIPMENT OR PROPERTY TO OWNER</u>			
I hereby State that I am again in full possession of my equipment/personal property, which was left at the decontamination site to be decontaminated.			
Signature			
Witness			Date

ATTACHMENT B

APPENDIX 5

DOSIMETRY AND POTASSIUM IODIDE (KI)

1. GENERAL INFORMATION

Each emergency worker assigned tasks within and around the plume exposure pathway EPZ will be equipped commensurate with one of three specific categories during the plume phase. These categories incorporate the "area concept", as approved by the Pennsylvania Emergency Management Council on July 10, 1990. The categories and guidelines below represent the minimum acceptable standard and may be augmented with appropriate justification from the County EMC. A control PRD will be provided for each storage location.

A. CATEGORY A

Emergency responders located within the EPZ, or those who may enter the EPZ, functioning in a mobile capacity with a potential for individual radiation exposure, such as: police, firefighters, emergency medical persons, plus State workers, farmers, and industrial workers on a selected basis. Each location that issues direct-reading dosimeters (DRD) will have at least one charger, with a minimum of one per 100 DRD issue. (If location is very isolated, a backup charger may be appropriate.)

Category A Standard Issue:

PRD - 1 per emergency responder

*0-20R Direct-reading dosimeter - 1 per emergency responder

KI - 1 unit (14-day supply) per emergency responder

*AREA EQUIPAGE - where more than 2 Category A emergency workers respond together and remain in the same area, the area concept will be used for equipage: a minimum of two 0-20 DRDs. However, each person will still be issued a PRD and a unit of KI.

B. CATEGORY B

Collectively grouped persons located within the EPZ who may be exposed at facilities and institutions such as: hospitals, nursing homes, prisons, and Municipal and County EOCs, fire stations, police stations and ambulance stations.

Each Category B facility and institution where emergency workers will remain until after completion of the evacuation of the general public will be issued at a minimum one area kit. An area kit contains:

- | | |
|----------------|------------------------------|
| 1 - PRD | 1 - Charger |
| 2 - 0-20R DRDs | 1 - Dosimetry/KI Report Form |

Category B Standard Issue:

- PRD - 1 per staff member
KI - 1 unit (14-day supply) per staff member

C. CATEGORY C

Emergency responders located outside the EPZ who, due to assigned taskings during a nuclear emergency, have limited potential for radiation exposure (e.g., monitoring/decontamination teams, MS-1 hospital staffs). Transporters of contaminated or potentially contaminated individuals outside of EPZ are not provided dosimetry.

Category C Standard Issue:

- PRD - 1 per emergency responder, monitor or hospital staff member as Stated in the hospital plan.

Monitoring/Decontamination Teams

Each individual who meets/directs/monitors possibly contaminated people or vehicles will receive a Category C Standard Issue.

2. DISTRIBUTION OF DOSIMETRY-POTASSIUM IODIDE AND RELATED PROCEDURES

A. Distribution

- (1) At present the PRDs, DRDs, Dosimetry-KI Report Form, potassium iodide (chemical symbol is KI) and appropriate numbers of survey meters and DRD Chargers have been pre-distributed by PEMA to the risk and support County emergency management agencies (EMA's) in support of response to nuclear power plant incidents. The risk County EMA's are charged with distribution or pre-distribution of the appropriate numbers of dosimeters, Dosimetry-KI Report Forms, dosimeter chargers and KI to their respective risk Municipalities no later than when the Alert status is declared. At Site Area Emergency the risk Municipalities will distribute the equipment and KI: (1) to members of their own EOC staff; (2) to emergency organizations

(fire companies, police departments and ambulance services) who will then issue to their emergency workers. Also at Site Area Emergency monitoring teams are activated and the County EMA distributes the appropriate numbers of PRDs, survey meters, Dosimetry - KI Report Forms, Emergency Worker Dosimetry/KI Record Cards, Personal Property Inventories and Monitoring/Decontamination Report Forms to each team.

(2) Specific additional allocations will be as follows:

- a. A reserve stock of 0-20R DRDs will be positioned at the risk Municipal and risk County EOCs for unforeseen incidents where there may be a need for independent missions in the EPZ. The percentage of reserve stock (a minimum of 10%) will be justified by each risk Municipal/County EMC.
- b. If a task requires multiple shifts to accomplish, DRDs will be re-zeroed and passed from shift to shift.
- c. A stockage of 0-200R DRDs will be established at risk County level. At the option of the County EMC, stockage may be up to 30% of Category-A personnel, as determined by the County and risk Municipal EMCs. These would be issued in the extremely unlikely event of a life-saving mission requirement in a known, high radiation area.
- d. Route alerting persons will receive a PRD and a unit of KI. Each vehicle to be used in route alerting will be equipped with two 0-20R DRDs. (NOTE: PRD/KI are issued only when individuals do not receive an issue in another of these categories).
- e. Traffic control persons in the EPZ will receive a PRD and a unit of KI. Each TCP will be equipped with two 0-20R DRDs. (NOTE: PRD/KI are issued only when individuals do not receive an issue in another of these categories).
- f. Law enforcement persons in the EPZ will receive a Category-A Standard Issue. Law enforcement officials, who are outside the EPZ but may have a need to enter, will also receive a Category-A Standard Issue. The appropriate law enforcement supervisor and the County EMC will make the judgment as to equipage.
- g. Firefighters in the EPZ will receive a PRD and a unit of KI. Firefighters who are outside the EPZ, but may have the necessity to enter, will also receive a PRD and a unit of KI. Each fire apparatus will be equipped with two 0-20R DRDs. The appropriate fire chief and the County EMC will make the judgment as to equipage.

- h. Emergency medical services personnel in the EPZ will receive a PRD and a unit of KI. Emergency medical persons who are outside the EPZ but may have need to enter will also receive a PRD and a unit of KI. Each medical emergency response vehicle, in or entering the EPZ to respond, will be equipped with two 0-20R DRDs for use by the crew. The appropriate medical supervisor and the County EMC will make the judgment as to equipment.
- i. A stock of Category-A issues will be established for farmers who need to return to care for their livestock. The chairman of the FAC/CEB and risk County coordinator will determine the quantity of individual issues required. The risk County coordinator will determine location and procedures for issue to designated farmers. (AREA EQUIPAGE concept will be applied as appropriate).
- j. A stock of Category A issues will be established for industrial workers who need to return to attend to industrial matters which, if not attended to, could result in safety compromises and/or unfavorable public impact.

The Risk County Emergency Management Coordinator will determine the quantity of individual issues required. (AREA EQUIPAGE concept will be applied, as appropriate).

- k. Selected State workers will receive a Category A Standard Issue. Determination of need will be accomplished by PEMA in consultation with appropriate State agencies. (AREA EQUIPAGE concept will be applied, as appropriate).
- l. A Category B Standard Issue equipment equivalent to 50% of total staff members will be allocated for each hospital in the Plume EPZ. A greater amount than 50% may be issued if the facility manager plans to call in more than 50% of the staff to assist in the operation/evacuation of the facility. One unit of KI will be provided for each patient. Quantity of KI will be determined by reference to the maximum patient capacity of the facility. The number of area kits required for each facility will be determined by the County EMC in consultation with the facility manager in order to compensate for different size facilities.
- m. A Category B Standard Issue equipment equivalent to 50% of total staff members will be allocated for each nursing home in the Plume EPZ. A greater amount than 50% may be issued if the facility manager plans to call in more than 50% of the staff to assist the operation/evacuation of the facility. One unit of KI will be provided

for each patient. Quantity of KI will be determined by reference to the maximum resident capacity of the facility. The number of area kits required for each facility will be determined by the County EMC in consultation with the facility manager in order to compensate for different size facilities.

- n. A Category B Standard Issue equipage for 100% of the total staff members will be allocated for each prison in the Plume EPZ. One unit of KI will be provided for each inmate. Quantity of KI will be determined by reference to the maximum capacity of the facility or current population, whichever is greater. The number of area kits required for each facility will be determined by the County EMC in consultation with the superintendent/warden in order to compensate for different size facilities.
- o. For County and Municipal EOC's within the EPZ, each staff member will receive the Category B Standard Issue.
- p. For computing Monitoring/Decon Team requirements, one hand-held survey meter, will be required per 250 persons at monitoring/decontamination centers; one will be required for each 50 emergency workers at the monitoring/decontamination stations. This monitoring is to be performed in a 12-hour period at each monitoring/decontamination location. Also, one or more hand held meters must be included for monitoring persons after showers and additional hand held meters will be stocked for monitoring vehicles and equipment. If portal monitors are used these requirements should be modified based on the monitoring time required by the manufacturer. Some hand-held survey meters will be required for pinpointing the actual location of contamination, re-monitoring after decontamination attempts and vehicle and equipment monitoring. Survey meters are not required for Ambulances/Emergency Response Vehicles either in EPZ or in support of MS-1 Hospitals.

B. Property Control

- (1) Property accountability must be maintained in the distribution process. "Receipt Form for Dosimetry-Survey Meters-KI" (see Tab 4) is designed for transfer of quantities of equipment from agency to agency, such as from the County to hospitals, nursing homes, Municipalities and monitoring teams, and from Municipalities to emergency response organizations (fire, police, ambulance). Acknowledgment of receipt by emergency workers for Dosimetry-KI and Survey Meters" (see Tab 5) is designed to expedite transfer of the equipment-KI to individual users. Municipal EOCs, fire companies, police departments, ambulance services and monitoring teams

will use this form (Tab 5) to maintain accountability when distributing the equipment-KI to their individual emergency workers.

- (2) The County, Municipality, or other agency, which stores and maintains the equipment and KI is the responsible agency for assuring return of all equipment upon termination of an incident.

C. Control PRDs

- (1) Control PRDs are equal in number to about one percent of the total amount allotted for distribution. A control PRD will be provided for each PRD storage location. Each "control PRD" is so labeled and the serial numbers are not in the same sequential batch as the PRDs meant for distribution to emergency workers. As coordinated by PEMA, the control PRDs will be forwarded to the Commonwealth's Radiological Officer located in the State EOC. The County EMA will complete the "Control PRD Form" (see Tab 3) and forward it with the control PRDs, or in the case of pre-distribution, the agency holding the PRDs will complete the form and forward it to the appropriate County EMA along with the "Control PRDs."
- (2) The purpose of "Control PRDs" is to allow measurement of a "baseline" of *any radiation that the PRDs have been exposed to prior to distribution for the emergency. The amount of radiation exposure denoted by the control PRDs will be subtracted from the reading obtained for each emergency worker in that County. This procedure can be characterized as a "mathematical zeroing" of the PRD.*
- (3) At the time of an incident the County *or Municipal* EMA will take reasonable steps so that the control PRDs are not exposed to radiation other than background radiation. Specifically, if the PRDs are stored at a *location*, which happens to be inside the plume exposure pathway EPZ, they should be moved to a location outside the EPZ. This move should be accomplished at Alert. Where PRDs are stored outside the plume exposure pathway EPZ, care should be taken so that the control PRDs are not moved inside the EPZ.
- (4) Control PRDs may be delivered by air to the PEMA EOC by the PSP if aircraft are available. In the event aerial delivery is approved by the PSP, risk Counties will deliver their control PRDs to the sites indicated below. Support Counties will deliver their control PRDs to the below site that is most convenient.

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<u>FACILITY</u>	<u>COUNTY</u>	<u>DELIVERY SITE</u>
Beaver Valley Power Station	Beaver	PSP Findlay Station 190 Industry Drive Pittsburgh, PA 15275
Limerick Generating Station	Berks	PSP Reading Station 600 Kenhorst Boulevard Reading, PA 19611
	Chester	PSP Embreeville Station 1818 W. Strasburg Road Coatesville, PA 19320
	Montgomery	PSP Dublin Station 3218 Rickert Road Perkasie, PA 18944
Peach Bottom Atomic Power Station	Lancaster	PSP Troop J Headquarters 2099 Lincoln Highway East Lancaster, PA 17602
	York	PSP York Station 110 North Street York, PA 17403
	Chester	PSP Embreeville Station 1818 W. Strasburg Road Coatesville, PA 19320
Susquehanna Steam Electric Station	Columbia	PSP Bloomsburg Station 6850 Hidlay Church Road Bloomsburg, PA 17815

<u>FACILITY</u>	<u>COUNTY</u>	<u>DELIVERY SITE</u>
	Luzerne	PSP Troop P Headquarters 475 Wyoming Avenue Wyoming, PA 18644
Three Mile Island Nuclear Station	Dauphin	PEMA EOC
	Cumberland	PSP Carlisle Station 1538 Commerce Avenue Carlisle, PA 17013
	Lancaster	PSP Lancaster Station 2099 Lincoln Highway East Lancaster, PA 17602
	York	PSP York Station 110 North Street York, PA 17403
	Lebanon	PSP Jonestown Station R.D. #2, PA Route 72 Jonestown, PA

- (5) Coordination of aerial delivery, at the time of an incident, is a responsibility of the State Radiological Officer. In the event that the PSP cannot provide aerial delivery of the control PRDs, the Counties are responsible for their delivery to the State EOC. Preplanning by two or more Counties so as to deliver their control PRD by one vehicle, rather than individual vehicles, is encouraged.

D. Inventory and Maintenance

Inventory and maintenance procedures are specified in Attachment C to this Appendix.

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E. County Distribution Time Requirements

The County EMA's will begin their entire dosimetry-KI survey meter distribution to risk Municipalities and support agencies at the declaration of Alert, if not pre-distributed.

3. POTASSIUM IODIDE (KI)

A. Background Information

- (1) Iodine accumulates in the thyroid gland, which is located at the front base of the neck just below the larynx. Radioactive iodine will also accumulate in the thyroid gland. Taking KI will have the effect of saturating the thyroid gland with iodine so that radioiodine (radioactive iodine) will not lodge there in a large quantity.
- (2) The Pennsylvania Department of Health has developed policies relating to use of KI during nuclear power plant incidents. The department has procured KI tablets for emergency workers and for staff and patients of risk hospitals and nursing homes. A unit of KI consists of 14 tablets of 130 milligrams in size; the dose is one tablet per day while a radioiodine threat exists.
- (3) The toxicity level of KI is very low and dangers in taking this drug are considered to be minimal. Nonetheless, individuals should not take more than the recommended dose. Although side effects to KI are unlikely because of the low dose and the short time period it will be taken, some side effects are possible. The side effects may include: skin rashes, swelling of the salivary glands, and "iodism" (metallic taste, burning mouth and throat, sore teeth and gums, cold symptoms and sometimes gastrointestinal symptoms). A few people may have an allergic reaction with more serious symptoms. These symptoms could be elevated temperature, joint pains, swelling of the face and body, and at times severe shortness of breath, which requires immediate medical attention. Individuals who know they are allergic to iodine should not take KI and should consult a physician regarding their ability to be an emergency worker.
- (4) The effectiveness of KI as a blocking agent is greatest if administered shortly before the time of exposure to radioiodine, but some exposure saving can be obtained by administration shortly after exposure.
- (5) Emergency workers who may experience a severe reaction to KI, as determined by their private physicians, should be evacuated from the plume

exposure pathway EPZ before or immediately upon issuance of the advisory to take KI.

B. Pennsylvania Department of Health Policies on KI

- (1) KI in tablet/capsule form is available to emergency workers (emergency management agencies, police forces, fire companies, ambulance services, prison guards and inmates, farmers keeping livestock and selected industrial workers) and to hospitals and nursing homes located within the EPZ. County EMA's will specify in their plans those facilities; Municipalities, agencies, and teams that receive KI for use by emergency workers.
- (2) The Secretary of the Department of Health is charged with the decision to advise use, or not to use KI in an incident. The decision criteria made in conjunction with BRP, includes radioactive iodine dose projections, exposure savings, risk factors and incident assessment information. Dose projection criterion is 25.0 Rem CDE adult thyroid. When the projected dose (25 Rem) approaches or reaches that level, this information is provided to the DOH Emergency Preparedness Liaison Officer (EPLO) by the BRP, both of who are located at the State EOC. The decision to advise taking KI is then made by the Secretary of the Department of Health, or in her/his absence by the Deputy Secretary for Public Health Programs.
- (3) KI should be taken only on the advice of the Secretary of the Department of Health. The Secretary's advice will be disseminated to emergency workers through emergency management channels. Upon taking KI, the emergency worker will record this information on the Dosimetry-KI Report Form (see Tab 1 to this Attachment). No one is required to take KI.

4. EMERGENCY WORKER EXPOSURE CONTROL

A. Dose Limits for Emergency Workers

- (1) The dose limits for emergency workers are for radiation doses received during the emergency phase. They are considered to be once-in-a-lifetime doses, and are separate and distinct from occupational exposures received under subsequent non-emergency conditions.
- (2) Emergency workers and supervisors are cautioned that dose limits should not be construed as "license" to incur radiation exposure unnecessarily. Emergency workers and supervisors should attempt to keep exposure As Low As Reasonably Achievable (ALARA). This concept means that exposure to radiation should be kept to a minimum for all persons and that any one individual should not receive a total dose far in excess of other

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emergency workers if circumstances permit substitution of personnel, termination of the assignment, or other protective action. ALARA applies to the decision chain for emergency worker exposure in subparagraph (6) below.

- (3) BRP reports projected radiation doses that a person will receive if they remain in a specific area. PEMA reports this information to the appropriate County for further relay to Municipalities. This information is to be used in the management of emergency workers doses.

(4) Whole Body Dose Limits

- a. Whole body dose limits specified by the Environmental Protection Agency (EPA-400) and BRP are expressed as Total Effective Dose Equivalent (TEDE). TEDE whole body dose includes external exposure from the plume, external exposure from ground deposition and internal exposure from inhalation.
- b. The emergency worker dose limit for whole body exposure is 5 Rem TEDE.
- c. Some situations may justify exceeding the 5-Rem TEDE whole body dose limit for emergency workers. These include protection of valuable property such as livestock, protection of large populations or lifesaving missions. Until evacuation of the general public is complete, the emergency worker whole body dose limits will be based solely on external gamma radiation exposure, as measured by a direct-reading dosimeter, without regard to additional dose that may be received from inhalation.
 - 1) The emergency worker dose limit for protection of valuable property, valuable functions or care of special groups is 10 Rem TEDE.
 - 2) The emergency worker dose limit for lifesaving or protection of large populations is 25 Rem TEDE.
 - 3) For extraordinary circumstances situations may occur in which a dose in excess of 25 Rem for emergency exposure would be unavoidable in order to carry out a life saving operation or to avoid extensive exposure of large populations. It is not possible to prejudge the risk that one should be allowed to take to save the lives of others. Reference EPA 400 (May 1992), page 2-11. The emergency worker shall be a volunteer with full awareness of the risks of acute and late effects of the dose.

- d. In situations where the internal exposure from inhalation is significant, emergency workers entering the plume after evacuation is completed are assigned a predetermined administrative whole body dose limit, from external gamma only, that is lower than the maximum TEDE dose for the emergency worker activity to be performed. BRP will calculate the appropriate DRD reading corresponding to the emergency worker dose limits, using a correction factor for the specific radionuclide mix in the plume. The licensee will provide the correction factor to BRP as soon as it is available, but not later than the completion of the evacuation. The predetermined administrative dose limits account for dose already received and the calculated ratio of external dose to TEDE. PEMA will disseminate this information to County and Municipal emergency workers in affected areas.

(5) Thyroid Gland Dose Limits

- a. The dose limit for thyroid exposure specified by the Environmental Protection Agency (EPA 400) and by BRP is 25 Rem Committed Dose Equivalent (CDE). CDE is the total thyroid exposure from inhalation of radioactive iodine.
- b. There is no specific upper limit for thyroid exposure in a lifesaving mission. An upper limit is not given for thyroid exposure since complete thyroid loss might be acceptable during lifesaving activities.

(6) Decision Chain for Emergency Worker Exposure

- a. 1-5 Rem TEDE Exposure - It is through State authorization that volunteer emergency workers may be exposed to up to 5 Rem TEDE (whole body) in performance of their duties. The Municipal emergency management coordinator, however, must ascertain the following conditions.
 - 1) The activity, mission, or task is essential to providing for public safety.
 - 2) The immediate supervisors of emergency workers (fire chiefs, police chiefs, etc.) are managing radiation exposure so that it is kept to a minimum for all persons, and that any one worker should not receive a total dose far in excess of their other emergency workers within the Municipality.
- b. 5+ to 25 Rem TEDE Exposure - The County Emergency Management Coordinator, upon the advice of the County Radiological Officer, may authorize Municipalities or other responsible organizations such as fire companies, etc., each independently, to exceed the 5 Rem TEDE dose

limit up to 25 Rem TEDE. The following conditions, however, must be ascertained by the County EMC.

- 1) Upon a request from a Municipality for an individual to exceed the 5 Rem TEDE limit, ascertain that the activity, mission, or task is essential to providing for public safety.
 - 2) The Municipality is managing radiation exposure so that it is kept to a minimum for all persons; and that any one worker should not receive a total dose far in excess of other emergency workers within the Municipality.
 - 3) Another Municipal emergency worker force, that could still maintain their emergency worker exposure below 5 Rem TEDE, cannot be deployed in a timely manner in order to assume the mission.
- c. Greater than 25 Rem TEDE Exposure - It is anticipated that exceeding the 25 Rem TEDE limit in order to conduct a lifesaving mission will be an extremely rare event. Lifesaving response is of such urgency that it is not practical to go through an elaborate decision-making process. The decision will have to be made on the scene by the senior supervisor (Police Chief, Fire Chief, etc.) in charge of, or person closest to the situation. If no supervisory personnel are available on the scene, an individual may have to make the decision. The person making the decision will consider the following conditions:
- 1) The mission must be life saving, i.e. failure to act will result in loss of human life.
 - 2) Alternative solutions have been exhausted, i.e. if time is available, another emergency worker(s), that could still maintain their emergency worker exposure below 25 Rem, cannot be deployed in a timely manner in order to assume the lifesaving mission.
 - 3) The lifesaving mission must be accomplished by a volunteer(s).
 - 4) The volunteer should be a healthy adult. Volunteers must be advised of the possible long-term effect on reproductive capability, and the potential for genetic damage in their future children.
 - 5) Women of reproductive capacity must be fully advised of the increased potential for genetic damage and fetal exposure.

- 6) The volunteer(s) selected should be persons whose normal duties might involve such missions, e.g., police, fire and rescue personnel.
- 7) The volunteer(s) selected must have received the lowest total dose in comparison to other volunteers for the mission.
- 8) The mission must be accomplished in the least amount of "stay time."
- 9) The volunteer(s) must be knowledgeable of and accept the increased risk of exceeding the 25 Rem PAG.

NOTE: It is intended that emergency workers be informed on the above conditions during training prior to an incident. There may not be time to repeat those instructions during an actual incident.

(7) Information to be Provided Emergency Workers.

- a. Standard Operating Procedures (SOPs) developed for emergency worker missions should provide the following:
 - 1) Prior to departure on a mission, each emergency worker will:
 - (a) Be provided with an update on the status of the incident.
 - (b) Be provided with Potassium Iodide (KI) in accordance with the policy established by the Secretary of Health; and
 - (c) Be informed of emergency worker PAG levels of radiation exposure, procedures and frequency for reading dosimeters, where to report after the mission is completed, and what may be required if decontamination of the worker or equipment is necessary.
 - 2) During the conduct of the mission:

How each emergency worker or team will be provided updates on the accident status and any special protective actions.
 - 3) At the conclusion of the mission:
 - (a) The monitoring of each emergency worker to include farmers and industrial workers who reenter the EPZ,

equipment and vehicles used, and what will be required if decontamination is necessary; and

- (b) Determination if each emergency worker has exceeded his or her allowable exposure, and whether or not each has any remaining "stay time" in controlled areas.
- (c) Determination if each emergency worker will be referred to a medical facility for radiation exposure treatment.

B. Increased Risks Due to Radiation Exposure

Information concerning the possible consequences of emergency workers' exposure to radiation during a nuclear power plant incident is organized below into three categories - (1) immediate somatic effects, (2) long term somatic effects, and (3) genetic effects. Somatic are characteristics of or effects on the body of the individual actually exposed, as distinguished from genetic characteristics or genetic effects that are manifested in future offspring (descendants).

(1) Representative Relationships between a Brief one-time Radiation Exposure and Immediate Somatic Effects

Representative Absorbed Dose of Whole Body Gamma Radiation	Nature of Effect
5-25 Rem	Minimal dose detectable by chromosome analysis or other specialized analysis.
50-75 Rem	Minimal acute dose readily detectable in a specific individual (e.g., one who is a possible exposure case).
75-125 Rem	Minimal acute dose likely to produce vomiting in about 10% of people so exposed.
150-200 Rem	Acute dose likely to produce transient disability and clear hematological changes in a majority of people so exposed.

(2) Long Term Somatic Risks as a Result of a one-time Exposure to Radiation

Current knowledge about the long-term health effects resulting from a one-time radiation exposure below 25 Rem indicates that development of health problems, such as cancer, in adults to exposed is extremely unlikely. There is not direct clinical evidence of low level radiation (in this case meaning a one-time exposure below the whole body dose protective action guide of 25 Rem) causing health problems years after the exposure.

(3) Genetic Effects of Radiation

The cause of chromosome and gene abnormalities (mutations) is thought to be radiation exposure of reproductive cells of ovaries and testes. Persons exposed to any radiation should avoid the possibility of conception during the first three months after exposure to virtually eliminate any possible genetic risk.

C. Dosimetry and KI Record Keeping

- (1) Each emergency worker is responsible for completing a Dosimetry-KI Report Form (see Tab 1) and returning it with the dosimetry to his organization at the termination of his/her services. Each emergency organization will forward the forms and PRDs to the appropriate County EMA, which in turn will deliver the PRDs and forms to PEMA. PEMA will deliver the forms from all Counties to BRP and will deliver the PRDs to the PRD service contractor for reading. All dosimetry records will be forwarded through emergency management channels to BRP for the purposes of record keeping, analysis, reporting and storage. Direct-reading dosimeters will be retained at County or other agency level, as appropriate.
- (2) Weather and other conditions may make it difficult if not impossible for an emergency worker to use the Dosimetry-KI Report Form while deployed on a mission. All efforts must be taken to keep the form dry and legible. If necessary, at the completion of the mission, data will be transferred onto a clean copy of the Dosimetry-KI Report Form when conditions allow it to be completed.
- (3) BRP will retain all original copies and will be the permanent record keeper of the completed Dosimetry-KI Report Forms along with BRP's explanation of each; the PRD service contractor generated information and all related material. The records of individuals will be kept confidential.
- (4) BRP will use the Dosimetry-KI Report Form to select PRDs for immediate reading. The highest priority will be given to PRDs worn by persons whose direct-reading dosimetry indicates 25 R or more, or where medical authority has requested immediate reading, or where other circumstances warrant. In these cases, PEMA will expedite delivery of the PRDs to the PRD service contractor and readings will be received within 24 hours after the contractor's receipt of the PRDs. BRP will promptly relay the readings, with their interpretation to the individual and appropriate medical authorities. All other PRDs will be in the "routine" category of five days turnaround time from the PRD service contractor; individuals will be informed of the PRD readings.

- (5) If emergency workers turn in their PRDs for reading and are later employed in an area where dosimetry is needed, they will be issued new PRDs.

D. Dosimetry Reading Procedures

Direct-reading dosimeters will measure the external exposure from the plume and ground deposition. The internal exposure from inhalation cannot be measured with a DRD. In situations where the internal exposure from inhalation is significant, the exposure measured by the DRD will under-report the total whole body exposure. Emergency workers should use the direct-reading dosimeter(s) to ensure that whole body exposure is minimized and that the whole body dose limits are not exceeded. By regularly checking the DRD, the emergency worker can make reasonable judgments about how much radiation, if any has been received.

- (1) Prior to use, direct-reading dosimeters should be “zeroed”. If zeroing is not possible due to lack of a charger and the dosimeter reading is less than 10% of full scale, the dosimeter may be used but the initial reading must be recorded and subsequently subtracted from exposure reading. If the reading is more than 10% of full scale, do not use the dosimeter.
- (2) Dosimeters contained in other than area kits should be worn clipped to the upper torso of an outer garment from the time of issue until the worker is released from the mission requiring reading of the dosimeter. Dosimetry contained in area kits should be read until PEMA says dosimetry reading is no longer necessary. Dosimetry may be worn inside protective gear if there are no outer pockets on protective gear, and must be worn inside protective gear if temperatures outside the protective gear exceed 130 degrees Fahrenheit. In no case will the same PRD be worn by more than one person since it would be impossible to ascertain later how much of the dose recorded on the PRD was received by each individual.
- (3) Emergency workers responsible for doing so should read the direct-reading dosimeters at least once every 30 minutes after having been advised to begin reading and record the reading before and after each mission.
- (4) Two direct-reading dosimeters provide redundancy. Where the Area Concept is applied, workers will heed the higher measurement taken from the two dosimeters. It is possible for dosimeters of this type to have “electrical leakage” that will register a reading not caused by radiation. Nonetheless, workers are to “err on the side of caution” by heeding the higher reading.

5. FARMER AND INDUSTRIAL WORKER ACCESS TO THE PLUME EXPOSURE PATHWAY EPZ

A. Farmers and Industrial Workers as Emergency Workers

Farmers with livestock within the plume exposure pathway EPZ and industrial workers needed to maintain or shut down equipment will be designated emergency workers if the EPZ is evacuated. The County EMA will provide these emergency workers with dosimetry and KI and identification enabling them to stay within or exit and reenter the evacuated area.

B. Distribution of Dosimetry-KI and Farmers/Industrial Workers “Pass” to the Evacuated Area

Following the completion of evacuation, each risk County EMA will establish a “Contact and Dosimetry-KI Distribution Point for Farmers/Industrial Workers”, which will be outside the plume exposure pathway EPZ at a location easily accessible and known to the workers. If an evacuation is necessary, an Emergency Alert System (EAS) or other announcement will instruct the emergency workers to report to the designated location(s). Utilizing its EOC agriculture representative or designated County representative, the County EMA will distribute the dosimetry-KI to the emergency workers and provide instructions on their use. A “Farmer/Emergency Worker Authorization/Industrial Worker Authorization” (see Tab 6) will be completed in duplicate for each emergency worker and serve as a pass for access to the evacuated area. The agriculture or County representative as the basis for property control will retain the duplicate.

C. Limitation on Access to the Plume Exposure Pathway EPZ

The farmer/industrial workers’ emergency worker status and authorization to be in the EPZ can be suspended if the incident becomes serious enough to warrant this action.

TABS:

1. Dosimetry-KI Report Form
2. Dosimetry-KI Instructions for Emergency Workers
3. Control PRD Form
4. Receipt for Dosimetry-Survey Meters-KI (Bulk Issue)
5. Acknowledgment of Receipt by Emergency Workers for Dosimetry-KI and Survey Meters (Individual Issue)*
6. Farmer/Emergency Worker Authorization/Industrial Worker Authorization
7. KI Decision Flow Chart

(Please Print Legibly)	
Emergency's Worker Name or Name of Facility Where Area Kit is Located:	Mailing Address or Area Kit Location:
Social Security Number	Emergency Worker's Organization
Emergency's Worker Signature	

Mission		0-20R Direct Reading Dosimeter			0-200R Direct Reading Dosimeter		
# 1 Description	Date	Serial No.	BEFORE AFTER	Mission Total	Serial No.	BEFORE AFTER	Mission Total
			R	R		R	R
			R	R		R	R
			R	R		R	R
			R	R		R	R
			R	R		R	R
			R	R		R	R
			R	R		R	R
			Total	R		Total	R

	Date	Time	Amount Taken
Day 1			1 Tablet/130 mg
Day 2			1 Tablet/130 mg
Day 3			1 Tablet/130 mg
Day 4			1 Tablet/130 mg
Day 5			1 Tablet/130 mg
Day 6			1 Tablet/130 mg
Day 7			1 Tablet/130 mg
Day 8			1 Tablet/130 mg
Day 9			1 Tablet/130 mg
Day 10			1 Tablet/130 mg
Day 11			1 Tablet/130 mg
Day 12			1 Tablet/130 mg
Day 13			1 Tablet/130 mg
Day 14			1 Tablet/130 mg

DOSIMETRY-KI REPORT FORM DISTRIBUTION: Complete this form and forward the original copy with the PRD through emergency management channels to BRP. If the direct-reading dosimetry indicates total exposure to 25R or more, *expedite* delivery to BRP. BRP will forward to the individual and to the County EMA the PRD reading as well as an explanation of the reading. When expedited delivery is made to BRP and where otherwise warranted, BRP will report the PRD reading within 24-hours. Routine reporting may take a week or more. Copy 2 is retained by County Emergency Management Agency. Copy 3 is retained by the individual.

KI INSTRUCTIONS: take KI only on the direction of the Secretary of the Department of Health. Take one tablet (130 mg.) once a day. If you have any adverse reaction to the drug, discontinue taking KI and report to your supervisor.

(Please Print Legibly)	
Emergency's Worker Name or Name of Facility Where Area Kit is Located:	Mailing Address or Area Kit Location:
Social Security Number	Emergency Worker's Organization
Emergency's Worker Signature	

Mission		0-20R Direct Reading Dosimeter			0-200R Direct Reading Dosimeter		
# 1 Description	Date	Serial No.	BEFORE AFTER	Mission Total	Serial No.	BEFORE AFTER	Mission Total
			R	R		R	R
			R	R		R	R
			R	R		R	R
			R	R		R	R
			R	R		R	R
			R	R		R	R
			R	R		R	R
			Total	R		Total	R

	Date	Time	Amount Taken
Day 1			1 Tablet/130 mg
Day 2			1 Tablet/130 mg
Day 3			1 Tablet/130 mg
Day 4			1 Tablet/130 mg
Day 5			1 Tablet/130 mg
Day 6			1 Tablet/130 mg
Day 7			1 Tablet/130 mg
Day 8			1 Tablet/130 mg
Day 9			1 Tablet/130 mg
Day 10			1 Tablet/130 mg
Day 11			1 Tablet/130 mg
Day 12			1 Tablet/130 mg
Day 13			1 Tablet/130 mg
Day 14			1 Tablet/130 mg

DOSIMETRY-KI REPORT FORM DISTRIBUTION: Complete this form and forward the original copy with the PRD through emergency management channels to BRP. If the direct-reading dosimetry indicates total exposure to 25R or more, expedite delivery to BRP. BRP will forward to the individual and to the County EMA the PRD reading as well as an explanation of the reading. When expedited delivery is made to BRP and where otherwise warranted, BRP will report the PRD reading within 24-hours. Routine reporting may take a week or more. Copy 2 is retained by County Emergency Management Agency. Copy 3 is retained by the individual.

KI INSTRUCTIONS: take KI only on the direction of the Secretary of the Department of Health. Take one tablet (130 mg.) once a day. If you have any adverse reaction to the drug, discontinue taking KI and report to your supervisor.

(Please Print Legibly)	
Emergency's Worker Name or Name of Facility Where Area Kit is Located:	Mailing Address or Area Kit Location:
Social Security Number	Emergency Worker's Organization
Emergency's Worker Signature	

PRD (Personal Record Dosimeters)		
Serial No. of PRD:		
	Date/Time	Person/Organization
Issued		By:
Turned In		To:
LABORATORY READING OF PRD		
M/Rem		
Date of Reading		

	Date	Time	Amount Taken
Day 1			1 Tablet/130 mg
Day 2			1 Tablet/130 mg
Day 3			1 Tablet/130 mg
Day 4			1 Tablet/130 mg
Day 5			1 Tablet/130 mg
Day 6			1 Tablet/130 mg
Day 7			1 Tablet/130 mg
Day 8			1 Tablet/130 mg
Day 9			1 Tablet/130 mg
Day 10			1 Tablet/130 mg
Day 11			1 Tablet/130 mg
Day 12			1 Tablet/130 mg
Day 13			1 Tablet/130 mg
Day 14			1 Tablet/130 mg

KI INSTRUCTIONS: take KI only on the direction of the Secretary of the Department of Health. Take one tablet (130 mg.) once a day. If you have any adverse reaction to the drug, discontinue taking KI and report to your supervisor.

TAB 2

ATTACHMENT B

DOSIMETRY-KI INSTRUCTIONS FOR EMERGENCY WORKERS

1. PURPOSE

To provide emergency workers instructions on recording radiation dose exposure, thyroid gland screening, and use of potassium iodide and processing of PRDs.

2. GENERAL

- A. Instructions on when to commence radiological monitoring operations will be issued by PEMA through EMA channels. Upon receipt of that instruction, emergency workers will commence recording the data indicated on the Dosimetry-KI Report Form.
- B. The Dosimetry-KI Report Form will not always be usable under field conditions; in that event, the form will be completed as soon as possible after each mission is completed. Supervisory personnel must ensure that the forms are completed and processed.

3. INSTRUCTIONS

A. Dosimetry

- (1) Read all direct-reading dosimeters each half-hour.
- (2) Do not exceed 5R TEDE dose exposure without County emergency management coordinator's (EMC) approval.
- (3) Do not exceed 25R TEDE dose exposure except in the case of a lifesaving mission or protection of large populations. Approval by the senior person at the scene is required.
- (4) Record total dose upon completion of each mission.
- (5) Record grand total dose upon completion of all missions.

- (6) If the TEDE dose is 25R or more, expedite delivery of the Dosimetry-KI Report Form to BRP and refer the emergency worker to a medical facility for treatment.

B. Thyroid Gland Screening Check

- (1) Upon completion of each mission into a known or suspected radiation area, or as directed, each emergency worker is to undergo monitoring and a thyroid gland check for radioiodine uptake.
- (2) The monitoring/decontamination team will complete the thyroid check portion of the Dosimetry-KI Report Form.
- (3) If the thyroid check exceeds limits (see attachment A) the emergency worker is referred to a medical facility for treatment.

C. Permanent Record Dosimeter (PRD)

- (1) Record date/time of issue to emergency worker and turn in to supervisor/EMA.
- (2) Forward form and PRD to BRP through EMA channels.
- (3) The PRD contractor accomplishes PRD reading.

D. Potassium Iodide (KI) Record

- (1) Take KI only on the advice of the Secretary of the Department of Health.
- (2) Take one tablet daily while in a radioiodine-contaminated area.
- (3) Record the date/time KI was taken daily.

4. DISTRIBUTION OF DOSIMETRY-KI REPORT FORM

- A. BRP - copy 1
- B. County EMA - copy 2
- C. Emergency Worker - copy 3

TAB 3
ATTACHMENT B
APPENDIX 5

CONTROL PRD FORM

<p>When PRDs are issued to emergency workers, the CONTROL PRDs, along with a completed copy of this form, must be forwarded by the Municipality/organization to the appropriate County EMA. The County EMA is then responsible for delivering the Municipal/organizational Control PRDs, along with any held by County EMA, to PEMA</p>			
<p>NOTE: If the County EOC is inside the plume exposure pathway EPZ, the County should designate an alternate site outside the EPZ to which Control PRDs are to be delivered.</p>			
<p><u>Control PRD(s) included with this form</u></p>			
Serial #		thru	
Serial #		thru	
Serial #		thru	
<p>COUNTY/MUNICIPALITY/ORGANIZATION</p>			
<p>The PRD stock, with which the above listed control PRDs were stored, was located at:</p>			
<p>Address</p>			
<p>At the time PRDs were issued to emergency workers, the CONTROL PRDs were moved to: (enter/check as appropriate)</p>			
<p>a. _____ COUNTY EOC</p>			
<p>-or -</p>			
<p>ALTERNATE LOCATION</p>			
<p>b. _____</p>			
<p>- and -</p>			
<p>c. PEMA EOC</p>			
<p>Receipt for CONTROL PRDs:</p>			
a. SIGNATURE		ORGANIZATION (date/time)	
<p>- and -</p>			
b. SIGNATURE		PEMA EOC (date/time)	

TAB 4
ATTACHMENT B
APPENDIX 5

PEMA-BOP-REP--5

RECEIPT FOR DOSIMETRY-SURVEY METERS-KI (Bulk Issue)			
Issued by:		Issued to:	
Address		Address:	
Responsible Individual:			
Telephone:			
<p>INSTRUCTIONS: During a nuclear power plant incident, use this form to maintain property control when distributing the items listed below to Municipalities and monitoring/decontamination centers and stations. This form should be used for transfer of these items in bulk form: (1) the County emergency management agency to risk Municipalities and monitoring/decontamination centers and stations; and (2) the Municipalities to their local emergency response organizations (such as fire, police and ambulance associations).</p> <p>NOTE: The form listed on item 12 below should be used when issuing dosimetry KI to individual emergency workers.</p> <p>NOTE: For return of items described: (✓) by the appropriate line item indicates return of the item(s).</p>			
LINE NUMBER	DESCRIPTION	✓	QUANTITY
1	Low Scale Direct Reading Dosimeter (0 - _____ R)		
2	High Scale Direct Reading Dosimeter (0 - _____ R)		
3	CD V-750 Dosimeter Charger or other type _____		
4	PRD (Permanent Record Dosimeter) Serial Numbers _____ through _____		
5	Potassium Iodide (KI) (In units of 14 Tablets Each)		
6	CD V-700 Survey Meter or other type _____		
7	Monitoring/Decontamination Report Form		
8	Equipment & Personal Property Decontamination/Accountability Record		
9	Dosimetry-KI Report Form		
10	Control PRD Form		
11	Receipt for Dosimetry-Survey Meters-KI (Bulk Issue)		
12	Acknowledgment of Receipt by Emergency Workers for Dosimetry-KI and Survey Meters (Individual Issue)		
13	Farmers/Emergency Worker Authorization Form – Industrial Worker Authorization Form		
14	Radiological Equipment/KI//Forms Inventory Record		
RECEIVED BY:		TITLE	
SIGNATURE		DATE:	

TAB 5

**ACKNOWLEDGMENT OF RECEIPT BY EMERGENCY WORKERS FOR
DOSIMETRY-KI AND SURVEY METERS (INDIVIDUAL ISSUE)**

Instructions for Use: Record the serial number of the dosimeter being issued in columns 1, 2 and 5. Enter (1) or (0) in columns 3 and 8. By signing column 8, the individual accepts responsibility for each item indicated on the respective line and agrees to return these items (less the KI authorized to be used) upon request and automatically when the nuclear power plant incident is terminated.			DATE:				
NAME OF EMERGENCY ORGANIZATION:			RESPONSIBLE INDIVIDUAL:				
ORGANIZATIONAL ADDRESS:							
1	2	3	4	5	6	7	8
PRD (Permanent Record Dosimeter)	MODEL AND SERIAL NO. OF LOW SCALE DIRECT READING DOSIMETER (0 - _____R)	KI (Potassium Iodide) In units of 14 Tablets	DOSIMETRY KI REPORT FORM	MODEL AND SERIAL NO. OF HIGH SCALE DIRECT READING DOSIMETER (0 - _____R)	CD V-700 SURVEY METER OR OTHER TYPE	INDIVIDUAL'S NAME (Print Legibly)	INDIVIDUAL'S SIGNATURE
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
			1 EACH				
			1 EACH				
			1 EACH				
			1 EACH				
			1 EACH				
			1 EACH				
			1 EACH				
			1 EACH				
			1 EACH				

TAB 6
ATTACHMENT B

FARMER/EMERGENCY WORKER AUTHORIZATION FORM
INDUSTRIAL WORKER AUTHORIZATION FORM

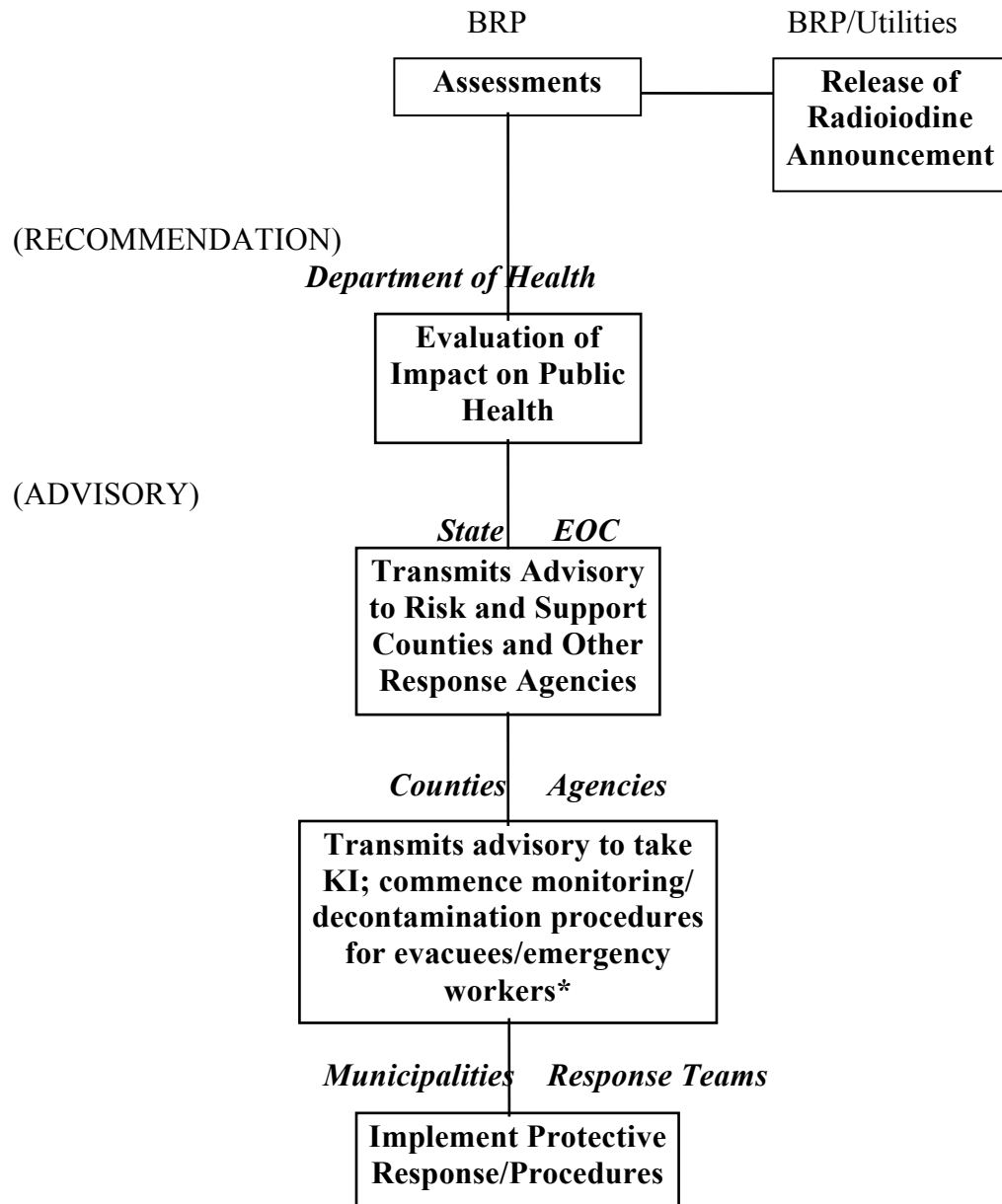
This is to certify that _____ <div style="text-align: center; font-size: small;">(Name)</div>			
_____ <div style="text-align: center; font-size: small;">(Address)</div>			
is authorized access to the plume exposure pathway emergency planning zone (EPZ) surrounding the _____ nuclear power plant for the period extending from _____ am/pm to _____ am/pm <div style="display: flex; justify-content: space-between; font-size: x-small;"> (Date) (Time) (Date) (Time) </div>			
This individual has been issued dosimetry and KI and is authorized access to the evacuated area for the exclusive purpose of tending to livestock or maintaining/closing down industrial or other authorized operations located at			
(FARM LOCATION OR INDUSTRY OR OTHER LOCATION) _____ _____			
IDENTIFICATION DATA:		Eye Color	
Sex	<input type="checkbox"/> MALE <input type="checkbox"/> FEMALE	Hair Color	
Height	_____ Ft. _____ In	State Automobile Operator's License No.	
Weight	_____ Lbs.	Social Security No.	
RADIOLOGICAL EQUIPMENT ISSUED			
Model & Serial No. of Direct Reading Dosimeter			
PRD Serial No.			
Dosimetry-KI Report Form			
Potassium Iodide (KI) Quantity	To be taken only when directed by Secretary of the Department of Health. Discontinue taking KI and report to supervisor if you have adverse reaction		
Individual's Signature			
Signature of Plant Manager (If appropriate)			
Agriculture Representative's or County Coordinator's Signature (As appropriate)			
NOTE: LISTEN TO THE COUNTY EAS STATION WHEN INSIDE THE EPZ			

TAB 7

ATTACHMENT B

APPENDIX 5

KI DECISION FLOW CHART



***If directed**

ATTACHMENT C

APPENDIX 5

INVENTORY AND MAINTENANCE PROCEDURES

1. PURPOSE

To prescribe procedures for inventory and maintenance of the dosimetry, dosimeter chargers, survey meters and potassium iodide (KI) intended for use in response to incidents at nuclear power plants.

2. GENERAL

For the purpose of this attachment, the following criteria are applicable:

- (1) Inspection - A visual check for physical damage and missing accessories to include batteries for DRD chargers and survey meters, which should be stored separately.
- (2) Inventory - An accounting for the equipment and material on hand.
- (3) Operational Check
 - a. Direct-reading dosimeters - The dosimeter is operational if the hairline can be moved to or close to zero using a dosimeter charger.
 - b. Dosimeter Charger - The charger is operational if the light source for reading dosimeters is working and the charger can move the hairline on a direct-reading dosimeter to or close to zero.
 - c. Survey Meter – Operational checks consist of a physical inspection of the meter and probe, battery test if applicable, and a source response check. Manufacturer's instructions should be followed.
 - d. Portal monitors and other hand-held survey meters – Follow the manufacturer's instructions.
- (4) RERP Issue - Refers to dosimeters, dosimeter chargers and survey meters that are either emergency management or commercial equipment issued to selected Counties for the express purpose of response to nuclear power plants incidents.

3. INVENTORY AND MAINTENANCE PROCEDURES

- A. At least once each year and after each use, for an exercise or actual emergency, emergency response equipment/instruments will be inventoried, inspected and operationally checked by each agency having RERP issue on hand.
- B. At present sufficient reserves of equipment/instruments will be maintained by the utilities to replace those, which are undergoing calibration or repair.
- C. The above procedures (A and B) pertain only to the RERP equipment for response to nuclear power plant incidents and in no way change or alter other established procedures for radiological equipment.

4. INSTRUMENT CALIBRATION

Frequency of calibration is as prescribed by the manufacturer. The manufacturers standard for the CD V-700 is every four years. The calibration date must be visible on the instrument. For portal monitors and other hand-held survey meters follow the manufacturer's calibration recommendations. Calibration, repair, and replacement of these instruments are the responsibility of the agency that owns them.

5. PERMANENT RECORD DOSIMETERS

Each year, based on the original issue date, PEMA will purchase and coordinate an exchange of new-for-old PRDs. After the annual replacements are received from the PRD service contractor the old PRDs will be immediately returned to the manufacturer. Failure to accomplish this return will result in an additional charge.

There are no maintenance requirements for the PRDs and all are replaced, one for one, annually.

TAB:

- 1. Radiological Equipment/KI/Forms Inventory Record

**Change 4
March 2002**

TAB 1
ATTACHMENT C

RADIOLOGICAL EQUIPMENT/KI/FORMS INVENTORY RECORD

COUNTY//MUNICIPALITY/AGENCY

I, as the person who conducted the inventory, certify that a physical inventory of radiological equipment and KI issued to this organization specifically for response to nuclear power plant incidents was conducted on _____ And the results of such inventory are as follows:

EQUIPMENT/KI/FORMS	QUANTITY ISSUED	PHYSICAL INVENTORY QUANTITY
1. Low Scale Direct-Reading Dosimeter (0 - _____ R)		
2. High Scale Direct-Reading Dosimeter (0 - _____ R)		
3. CD-V-750 Dosimeter Charger or other type _____		
4. PRD (Permanent Record Dosimeter) Serial Number _____ through _____ and _____ through _____		
5. Potassium Iodide (KI) (in units of 14 tablets each)		
6. CD V-700 Survey Meter or other type _____		
7. Monitoring/Decontaminating Report Form		
8. Equipment & Personal Property Decontamination/Accountability Record		
9. Dosimetry/KI Report Form		
10. Control PRD Form		
11. Receipt for Dosimetry-Survey Meters-KI (Bulk Issue)		
12. Acknowledgement of Receipt of Emergency Workers be Dosimetry-KI and Survey Meters (individual Issue)		
13. Farmer/Emergency Worker Authorization Form – Industrial Worker Authorization Form		
14. Radiological Equipment – KI Forms Inventory Record		
NAME OF INVENTORY CLERK: _____ (PLEASE PRINT OR TYPE)		
INVENTORY CLERK'S SIGNATURE	DATE	
SIGNATURE OF COUNTY/MUNICIPAL COORDINATOR OR AGENCY MANAGER	DATE	

APPENDIX 6

ANNEX E

BUREAU OF RADIATION PROTECTION (BRP)

TECHNICAL ASSESSMENT AND PROTECTIVE ACTIONS

1. PURPOSE

To outline procedures and provide coordinated guidance in the areas of incident assessment and radiological protection for response to a nuclear power plant incident in Pennsylvania and bordering States.

2. SITUATION

- A. There are five nuclear power plants in Pennsylvania. (See maps, Appendix 24.)
- B. Parts of three bordering States (Maryland, Ohio and West Virginia) are within the 10-mile radius of two of Pennsylvania's nuclear power plants (Beaver Valley and Peach Bottom). Parts of five bordering States (Delaware, Maryland, New Jersey, Ohio and West Virginia) are within the 50-mile emergency planning zone (EPZ) of four Pennsylvania nuclear power plants (Beaver Valley, Limerick, Peach Bottom and Three Mile Island - see maps, Appendix 24).
- C. Parts of Pennsylvania are within the 50-mile EPZ of four nuclear power plants located within three bordering States (New York, New Jersey and Ohio - see map Appendix 24).
- D. In event of an incident at a nuclear power plant, BRP would be required to make technical assessments and provide protective action recommendations to the Pennsylvania Emergency Management Agency (PEMA).

3. CONCEPT OF OPERATIONS

A. Notification

Initial notification is made from the licensee to the State EOC and the risk Counties and from the State EOC to BRP. The incident is verified when BRP contacts the licensee and then re-contacts the State EOC. For an Alert or higher incident classification, the full BRP callout cascade is completed.

B. BRP Representatives in State EOC

BRP will staff the State EOC at declaration of an Alert or higher emergency classification (see Attachment B).

C. Assessment

BRP will conduct accident assessment at the State EOC. Accident assessment considerations are contained in Attachment D.

D. Monitoring Teams

- (1) BRP monitoring teams will be used to verify the licensee's measurements in the field and to provide independent data to BRP until the arrival of Federal assistance.
- (2) BRP will depend upon Federal support and resources as provided by the FRERP and accessed through USDOE at the Brookhaven National Laboratory. This is, primarily, monitoring support for 24-hour operations.
- (3) Environmental samples collected by BRP will be analyzed by the DEP's Bureau of Laboratories in Harrisburg.
- (4) After establishment of the FRMAC, BRP monitoring teams will be assigned other tasks as necessary.

E. Radiological Exposure Control

Requirements are set forth in Appendix 5.

F. Protective Action Recommendations (PAR)

Protection action recommendations are discussed between the licensee and BRP. The licensee issues its protective action recommendation to the senior official in the State Operations Center. The bases of protective action recommendations are discussed in Attachment E. The primary options for the general public are evacuation and sheltering. Evacuation or sheltering includes the entire plume exposure pathway EPZ as defined in Paragraph 13 of the Basic Document, Annex E. There are no plans for a partial evacuation. If the decision is made to evacuate or shelter the area around a nuclear power plant, the entire EPZ (360 degree) out to the plume exposure pathway EPZ boundary will be evacuated or sheltered.

G. Reentry, recovery and post-incident dosimetry response actions are described in Section 7, BRP Emergency Plan.

4. RESPONSIBILITIES

A. General

The division of responsibilities in the response to radiation incidents at nuclear power plants results in two general categories: the licensee and the offsite agencies. These categories are established, partly by statute and partly by consideration of the distribution of human and material resources suited to these emergencies.

B. Licensee

It is the basic tenet of BRP that the facility operator has the best knowledge of the status of his facility, in terms of identifying the problem, estimating release rates, predicting offsite concentrations and doses, and forecasting change in the situation. Consequently, the facility operator is responsible to provide timely protective actions to the State EOC (see Appendix 9, Annex E).

C. Offsite Agencies

- (1) Bureau of Radiation Protection - Abbreviated listings: (see Paragraph 6.B. (9). g., Basic Document of this Annex and the BRP Emergency Plan for a more detailed listing of BRP responsibilities).
 - a. Operate in-place routine surveillance program.
 - b. Provide field monitoring teams and equipment.
 - c. Receive and evaluate data from all technical organizations.
 - d. Prioritize all State sampling and analyses.
 - e. Determine if anti-contamination tactics need to be taken.
 - f. Determine need for bioassay for any segment of the offsite population or emergency workers.
 - g. Provide FRMAC with all State-generated radiological data.
 - h. Develop State sampling and analysis priorities for FRMAC.
 - i. Advise the State EOC of any required protective actions.

(2) State and County Agencies

- a. State agencies with direct interface with the Bureau of Radiation Protection (BRP) are the Department of Health, Department of Agriculture, Department of Environmental Protection (DEP) and Pennsylvania Emergency Management Agency (PEMA). (See Paragraphs 3, 6 and 18, Basic Document of this Annex, for a detailed listing of responsibilities.)
- b. County agencies do not directly interface with BRP.

(3) Federal Agencies

- a. Department of Energy
 - 1) Provide for aerial monitoring.
 - 2) Generate population dose estimates.
 - 3) Provide supplementary field monitoring teams with survey equipment and air sampling and radio analysis capability.
 - 4) Compile and preserve data from all monitoring parties.
 - 5) Monitor individuals for external contamination.
 - 6) Perform other duties as required by the Federal plan.
 - 7) Provide other technical support as necessary.
- b. Environmental Protection Agency
 - 1) Provide field team personnel as part of FRMAC operations.
 - 2) Provide supplementary mobile and/or stationary radio-analytic capability.
 - 3) Perform other duties as required by the Federal Plan.
 - 4) Assume responsibility for coordinating long-term Federal monitoring, if necessary.

c. Nuclear Regulatory Commission

- 1) Discuss all protective action recommendations originating at the NRC IRC or licensee's EOF with BRP before giving them to the Governor.
- 2) Assist BRP in data interpretation.
- 3) Provide all NRC generated data to the FRMAC.
- 4) Operate supplementary environmental TLD program.
- 5) Follow all plans and procedures as published in NUREG-0654 and the NRC Region I INCIDENT RESPONSE SUPPLEMENT.

5. BRP EMERGENCY ORGANIZATION

A. Key Personnel

A listing of key personnel by position/role and duty location is maintained at the BRP Headquarters.

B. Notification

The initial notification of BRP personnel operates on a callout cascade system (Attachment C).

C. Response Actions

Response actions of key personnel during the initial notification and continuing operations are reflected at Attachment C.

D. Organizational Diagram (see Attachment B)

6. SITE CHARACTERISTICS

Site characteristics for TMI, Peach Bottom, Beaver Valley, Susquehanna and Limerick Nuclear Power Plants are shown in Annex E, Appendix 24.

7. REFERENCES

A. NUREG 0396

B. NUREG 0654

C. Federal Register No. 217 P.P. 46542-46570

8. DEFINITIONS AND TERMS

(See Basic Document, Paragraph 13.)

9. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3.)

ATTACHMENTS:

- A. Emergency Facilities and Equipment
- B. BRP Emergency Organization
- C. Notifications and Communications
- D. Accident Assessment
- E. Protective Response
- F. List of Implementing Procedures

ATTACHMENT A

APPENDIX 6

EMERGENCY FACILITIES AND EQUIPMENT

1. STATE FACILITIES

A. State Emergency Operations Center (EOC)

- (1) The State EOC is located at PEMA Headquarters in Harrisburg. The State EOC serves as the location for overall coordination of State response activities and protective action decision-making, prior to the establishment of Federal facilities.
- (2) The functions of the BRP staff at the EOC are:
 - Accident assessment,
 - Dose assessment (which includes guidance and control of BRP field teams, field data collection, and dose projection),
 - Interpretation and assessment of utility protective action recommendations (PARs),
 - The development of BRP protective action recommendations (PARs),
 - Conveyance of PARs to PEMA and
 - General management of BRP response activities.

Designated BRP staff report to the State EOC upon its activation at Alert or higher emergency classification.

- (3) The BRP-EOC contains the following emergency equipment:
 - a. Computer for Emergency Response Data System (ERDS)
 - b. Computer with dose projection software
 - c. Maps with pre-selected monitoring locations for field sampling
 - d. Dedicated telephone lines to each nuclear power plant and the BRP-AC in addition to commercial telephone lines
 - e. Status boards to display reactor status and radiological information
 - f. DEP radio base station
 - g. Final Safety Analysis Reports (FSARs) and other reference documents for each nuclear power plant (pre-positioned or brought from BRP headquarters)

- h. Fax

B. BRP Assessment Center (BRP-AC)

- (1) The BRP-AC is located at the BRP Headquarters. The BRP-AC acts as a back-up facility to the State EOC for BRP functions.
- (2) The function of the BRP-AC is to act as a back-up facility to the State EOC for BRP functions. It is also used for training. The BRP-AC will be staffed on an exception basis.
- (3) The BRP-AC contains the following equipment:
 - a. Computer for Emergency Response Data System (ERDS)
 - b. Computer with dose projection software
 - c. Maps with pre-selected monitoring locations for field sampling
 - d. Dedicated telephone lines to each nuclear power plant (except BVPS) and to the EOC in addition to commercial phone lines
 - e. Status boards to display reactor status and radiological information
 - f. Final Safety Analysis Reports (FSARs) and other reference documents for each nuclear power plant
 - g. DEP radio base station
 - h. Fax

C. DEP Radiation Measurements Laboratory (RML)

- (1) The DEP Bureau of Laboratories' Radiation Measurements Laboratory is located in the Evangelical Press Building in Harrisburg. RML performs analysis of collected samples for radiation as part of the routine environmental monitoring program around each nuclear power plant. RML also performs analysis of emergency samples collected by State and Federal field monitoring teams.
- (2) Designated BRP staff is positioned at RML prior to delivery of emergency samples. The function of BRP staff at RML is review and communication of environmental sample data to BRP decision-makers at the EOC and/or FRMAC. BRP provides RML with analysis priorities and detection limits and assists with contamination control procedures.
- (3) The major RML instrumentation includes:

- Two multi-channel analyzers,
- Eight intrinsic germanium detectors (gamma),
- One extended range germanium detector (50% efficiency gamma),
- One low range germanium detector,
- Four automated thin window proportional counters (alpha and beta-gamma),
- One manual thin window proportional counter with two detectors (alpha and beta) and
- Two liquid scintillation systems (low energy beta and tritium).

2. FEDERAL FACILITIES

A. NRC Headquarters Operations Center

The NRC Headquarters Operations Center directs NRC response activities until the NRC authorities are transferred to the site. Early in an incident, the NRC Headquarters Operations Center staff provides assistance on assessing plant conditions and development of PARs. NRC Region I provides support for Pennsylvania incidents.

B. Federal Radiological Monitoring and Assessment Center (FRMAC)

- (1) The FRMAC is established to provide Federal assistance on radiological monitoring and assessment. The FRMAC provides a central location to house the technical resources provided by several different Federal agencies. Federal representation in the FRMAC is approximately 200-300 individuals. DOE is assigned the responsibility to establish and initially manage the FRMAC. The long-term management responsibility for the FRMAC is assigned to the EPA. The timeframe for establishment and full operation of a FRMAC in Pennsylvania is normally within 36-48 hours from the time of a request.
- (2) The FRMAC will be located in the vicinity of the incident location, but final selection of a site will be determined by the specific emergency conditions and will be coordinated with PEMA at the time of the incident. A potential FRMAC location near each nuclear power plant has been pre-identified by PEMA and is listed in Appendix 23 of Annex E of the Commonwealth of Pennsylvania Emergency Operations Plan.
- (3) In preparation for establishment of the FRMAC, a FRMAC advance party will arrive to finalize a FRMAC location and to facilitate the integration of State and Federal monitoring and assessment activities. Designated BRP staff will meet with the FRMAC advance party to provide information on State radiological assessment activities and establish initial State monitoring priorities for the FRMAC. BRP is the State agency that will be the

primary contact with the FRMAC. The FRMAC will respond to the requirements and priorities established by BRP.

- (4) Upon establishment of the FRMAC, designated BRP staff moves to the FRMAC and integrates into specific FRMAC functional areas. BRP staff at the FRMAC is responsible for coordinating all radiological assessment activities, in conjunction with Federal representatives. This includes coordinating all State environmental monitoring and field sampling activities from the FRMAC.

C. Disaster Field Office (DFO)

- (1) The DFO is established and managed by FEMA as the central location to coordinate all non-technical Federal assistance. Federal representation at the DFO is approximately 100-300 individuals. The timeframe for establishment and full operation of a DFO in Pennsylvania is normally within 36-48 hours from the time of a request.
- (2) The DFO will be located in the vicinity of the incident location, but final selection of a site will be determined by the specific emergency conditions and will be coordinated with State officials at the time of the incident. FEMA is responsible for coordination with FEMA officials in the selection of the DFO location.
- (3) Whenever the situation allows, a State Coordinating Office(r) (SCO) is collocated with the DFO. Designated BRP decision-making staff moves to the DFO/SCO once it is established, along with other decision-makers from the State EOC. The function of the BRP staff decision-makers at the DFO/SCO is to consolidate technical input into State protective action decisions.

3. LICENSEE FACILITIES

A. Emergency Operations Facility (EOF)

- (1) The EOF is maintained by the licensee and serves as the central location for coordinating response activities between onsite and offsite agencies. The EOF is manned by the licensee at Alert and activated at Site Area Emergency or higher classification.
- (2) As the lead Federal agency for commercial nuclear power plant incidents, NRC will be in charge of the Federal response from the EOF, once the authorities of the NRC are transferred from NRC Headquarters to the site. The EOF is also the initial rendezvous location for the DOE

Radiological Assistance Program (RAP) team, if Federal technical assistance has been requested.

- (3) The function of the BRP staff at the EOF is communication of reactor engineering and radiological information from the licensee to the BRP decision-makers and dose assessment staff at the State EOC. BRP staff also interface with the NRC representatives at the EOF. The EOF contains dedicated telephone lines and fax to the BRP-EOC and the BRP-AC.
- (4) Designated BRP staff are dispatched to the EOF at Alert or higher emergency classification. Deployment time for BRP staff depends on the reactor site and weather conditions. Estimated deployment times are:

Site	From BRP Headquarters	From Regional Office
Beaver Valley	6 hours	2 hours
Limerick	2 hours	2 hours
Peach Bottom	2 hours	2 hours
Susquehanna Steam	3 hours	3 hours
Three Mile Island	1 hour	1 hour

4. EMERGENCY MONITORING EQUIPMENT

A. BRP Field Monitoring Equipment

- (1) BRP field monitoring teams are equipped with portable survey meters and air sampling and analysis equipment for measuring radioiodine concentrations in air. Field measurement sensitivity for Iodine-131 meets $1\text{E-}7$ uCi/cc of air, in accordance with NUREG-0654.
- (2) BRP staff at the DEP Regional offices each has three complete sets of field monitoring equipment. Two sets of equipment are operational at all times and one set is held in reserve. One set of equipment is also kept in reserve at BRP Headquarters. The major items of equipment include:
 - a. Sodium iodide detector with single channel analysis for I-131 measurement in air sampling collection media
 - b. Air mover for collection of air samples
 - c. Collection media including silver zeolite and activated charcoal canisters and air particulate filters

- d. Energy compensated GM detector for ambient beta/gamma measurements
 - e. Thin window pancake GM detectors for air particulate filter counting
 - f. High range survey meter (0-1000 R/hr range)
- (3) All emergency equipment is inspected and operationally checked once each calendar quarter and inventoried after each use. All equipment is calibrated annually.

B. BRP Thermoluminescent Dosimetry System (TLD)

- (1) BRP maintains a network of TLDs around each nuclear power plant. BRP staff exchanges and analyses BRP TLDs.
- (2) BRP uses two manual TLD readers. The primary reader is used for final anneal and readout of all field TLDs. The second reader is used to anneal TLDs and as a backup for the primary reader.
- (3) A manufacturer's service representative performs routine maintenance and testing every six months. TLD reader calibration is performed quarterly, prior to the routine TLD exchange and readout. BRP also participates annually in the International Environmental Dosimeter Inter-comparison Project, sponsored by the Department of Energy.

ATTACHMENT B

APPENDIX 6

BRP EMERGENCY ORGANIZATION

1. INITIAL ACTIVATION

- A. Initial Activation applies at Alert or higher emergency classification. During Initial Activation, BRP staff is organized to coordinate all radiological assessment activities and protective action decision-making from the State EOC. (See Tab 1.)
- B. At Initial Activation, BRP staff report to the State EOC (the BRP-AC, if directed), the licensee EOF and the DEP Radiation Measurements Laboratory. Field monitoring teams are mobilized at the appropriate Regional office and are dispatched, as required.

2. FULL FEDERAL ACTIVATION

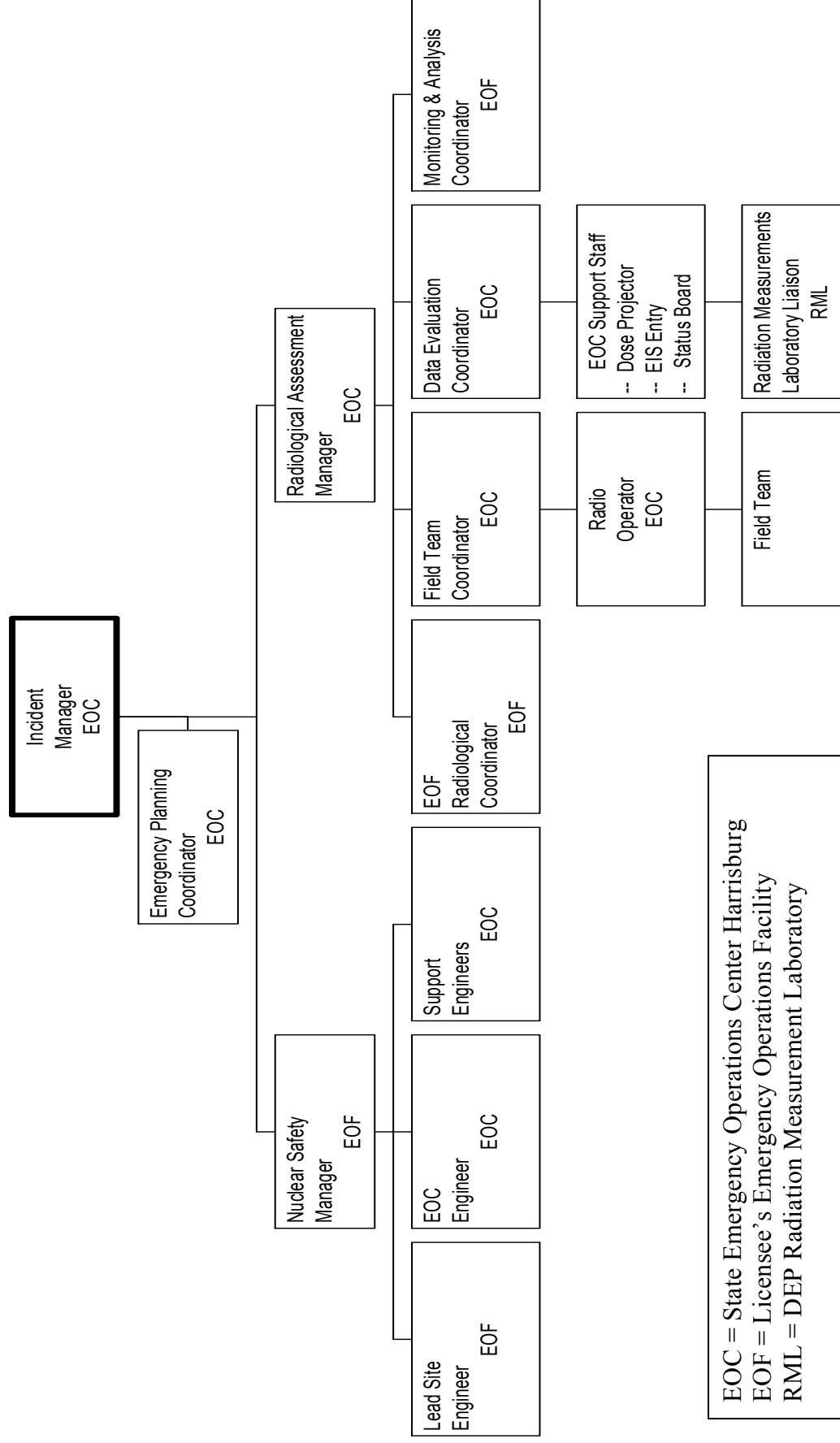
- A. Full Federal Activation applies after establishment of the FRMAC and the DFO. During Full Federal Activation, BRP staff is organized to coordinate all State radiological assessment and field sampling activities from the FRMAC. All protective action decision-making is coordinated from the DFO/SCO. (See Tab 2.)
- B. At Full Federal Activation, the Radiological Assessment Manager and support staff moves to the FRMAC and integrates into specific functional areas. The Incident Manager and support staff moves to the DFO/SCO. The Nuclear Safety Manager remains at the EOF to interface with NRC and licensee representatives.

TABS:

- 1. Initial Activation Chart
- 2. Full Federal Activation

TAB 1

INITIAL ACTIVATION CHART



TAB 1 (CONTINUED)

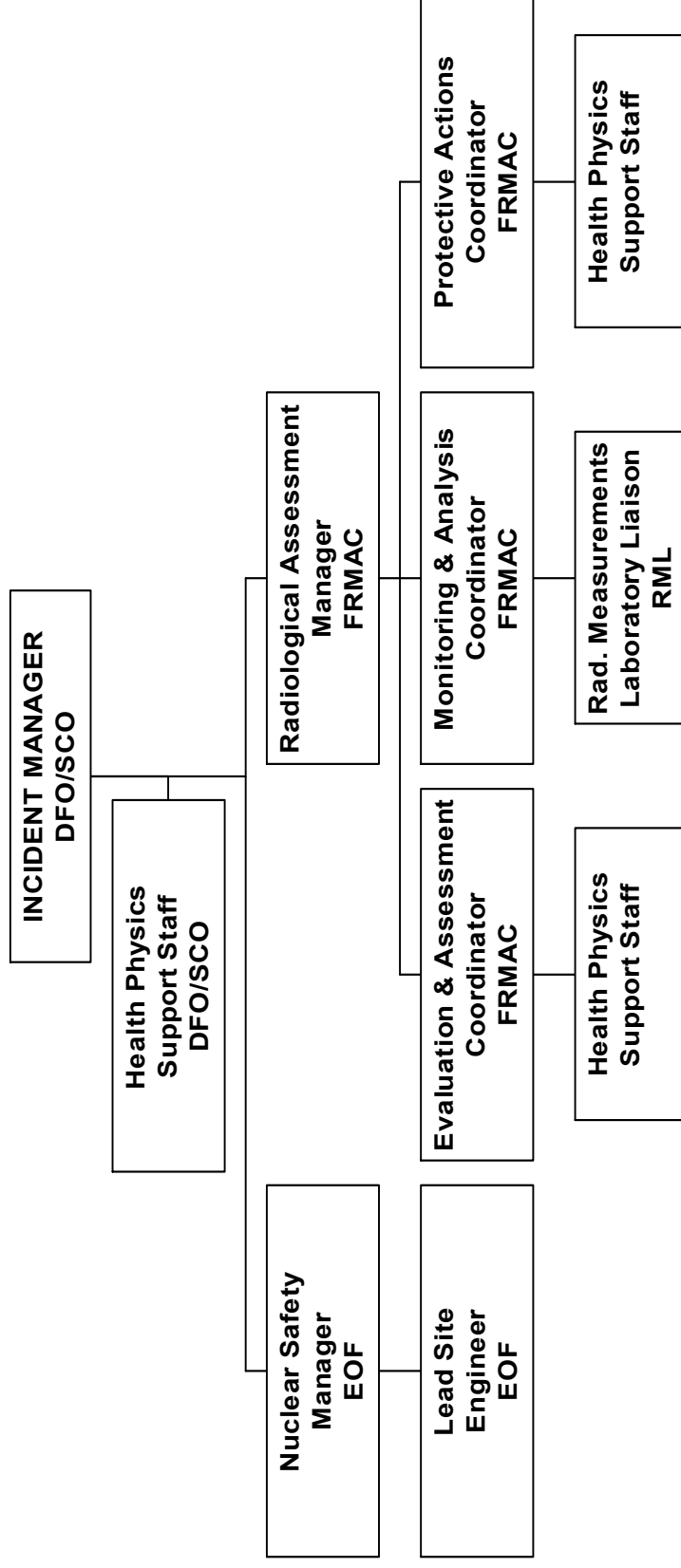
PRIMARY PERSONNEL ASSIGNMENTS FOR INITIAL ACTIVATION

Incident Manager:	Bureau Director
Nuclear Safety Manager:	Chief, Nuclear Safety Division
Radiological Assessment Manager:	Chief, Environmental Radiation Division
Emergency Planning Coordinator:	Chief, Emergency Response Section
Lead Site Engineer:	Assigned Nuclear Engineer
EOF Radiological Coordinators (2):	Regional Health Physicist BRP-HQ Health Physicist
EOC Engineer and Support Engineers:	Nuclear Engineers, Nuclear Safety Section
Field Monitoring Teams:	Regional Health Physicists
Data Evaluation Coordinator and EOC Support Staff:	BRP-HQ Health Physicists
Monitoring and Analysis Coordinator:	Chief, Environmental Surveillance Section
Radiation Measurements Laboratory Liaison:	Health Physicist, Environmental Surveillance Section

All other support positions will be filled from remaining BRP technical staff.

TAB 2

BRP EMERGENCY ORGANIZATION (FULL FEDERAL ACTIVATION)
(Full Federal Activation)



DFO = Disaster Field Office
 EOF = Licensee's Emergency Operations Facility
 RML = DEP Radiation Measurements Laboratory, Harrisburg
 FRMAC = Federal Radiological Monitoring and Assessment Center

TAB 2 (CONTINUED)

PRIMARY PERSONNEL ASSIGNMENTS FOR FULL FEDERAL ACTIVATION

Incident Manager:	Bureau Director
Nuclear Safety Manager:	Chief, Nuclear Safety Division
Radiological Assessment Manager:	Chief, Environmental Radiation Division
Lead Site Engineer:	Assigned Nuclear Engineer
Protective Actions Coordinator:	Chief, Emergency Response Section
Monitoring and Analysis Coordinator:	Chief, Environmental Surveillance Section
Evaluation and Assessment Coordinator:	Regional or BRP-HQ Health Physicist (EOF Radiological Coordinators)
Radiation Measurements Laboratory Liaison:	Health Physicist, Environmental Surveillance Section

All other support positions will be filled from remaining BRP technical staff.

ATTACHMENT C

APPENDIX 6

NOTIFICATIONS AND COMMUNICATIONS

1. NOTIFICATIONS

- A. Notification and mobilization of appropriate BRP personnel is based on the emergency classification.
- B. Initial notification of any emergency situation is made from the licensee to PEMA to BRP.
- C. For Unusual Events, the licensee makes notification within a reasonable time (usually 15 minutes). This notification by the licensee must be made prior to any public announcement. For Alert or higher emergency classification, the notification is made within 15 minutes of recognition of the emergency condition.
- D. Upon notification from PEMA, BRP will contact the licensee for preliminary assessment and protective action recommendations. The purpose of this first contact between BRP and the licensee is to verify that an emergency situation exists and to determine the need for immediate protective actions to protect the public within the first few hours. The loop is closed when BRP contacts PEMA again with appropriate information and/or protective action recommendations.
- E. PEMA maintains a roster of BRP staff designated as initial contacts. Upon notification from PEMA, the initial BRP contact begins a callout cascade, with each individual in sequence having specific notification responsibilities.
- F. For Initial Activation (Alert or higher classification), the full BRP callout cascade is completed. Notification at Initial Activation includes the Department of Energy at Brookhaven National Laboratory. DOE-Brookhaven is the BRP contact point for Federal technical assistance. At Initial Activation, BRP will also establish contact with neighboring States' radiation protection programs within the plume and ingestion EPZs.
- G. Notification procedures for Unusual Event, Initial Activation and change in emergency classification are found in the BRP Implementing Procedures.

2. COMMUNICATIONS

The BRP emergency communications equipment consists of commercial telephone, dedicated telephone, radio and fax.

(1) Commercial Telephone

BRP is linked by commercial telephone to various agencies as listed below:

- a. Licensee
- b. PEMA
- c. DEP
- d. Other State agencies
- e. DOE-Brookhaven
- f. Other Federal agencies
- g. Neighboring States

(2) Dedicated Telephone

BRP is linked to each nuclear power plant by dedicated telephone lines located in the BRP-EOC and BRP-AC.

(3) Radio

- a. BRP uses the DEP radio network during radiological emergencies for mobile communications and as a back up for telephone communications. Base stations are located at the BRP-EOC, BRP-AC, DEP Headquarters and the six DEP Regional offices. The base stations can access selected repeaters or a special microwave-VHF link to provide radio communications coverage for all the nuclear power plants and between Headquarters and the Regional offices (with the exception of the Northwest Regional Office).
- b. Vehicles for BRP field monitoring teams are equipped with mobile two-way radios. These radios are capable of mobile-to-mobile, mobile-to-portable or mobile-to-base communications either directly or through repeaters.

- c. BRP also has portable radios, which can be used as back-up for the base stations, or mobile field team radios, if necessary.

(4) Fax

BRP has a fax machine at the BRP-AC and BRP-EOC. BRP staff also has access to a fax machine at each licensee's EOF.

ATTACHMENT D

APPENDIX 6

ACCIDENT ASSESSMENT

1. ACCIDENT ASSESSMENT

Accident assessment is the process used for the identification and evaluation of actual or potential offsite consequences of an incident. This section discusses the assessment techniques used by BRP to evaluate the need for protective actions for offsite areas.

2. INFORMATION TRANSFER

- A. During a nuclear power station incident, several methods of information transfer are used in accident assessment, depending on the classification and time since onset. These are commercial telephone, dedicated telephone, DEP radio, the Emergency Response Data System (ERDS) and onsite evaluation.
- B. At Unusual Event, commercial or dedicated telephone is used to verify the message and to discuss aspects of the incident with the licensee, as necessary.
- C. For initial assessment at Alert or higher emergency classification, commercial or dedicated telephone is used to communicate information between the BRP-EOC and the licensee. In addition, BRP nuclear engineering and health physics staff are positioned at the licensee's EOF to communicate information resulting from the independent assessment of plant conditions and from face to face discussions with the licensee. Telephone contact between BRP and the licensee is retained until arrival and briefing of BRP staff at the EOF.
- D. The Emergency Response Data System (ERDS) becomes available at Alert. ERDS is used solely as a means for gathering information on plant parameters while eliminating the burden of voice inquiry and response and the consequences of transcription errors. Protective action requirements, which are based on deductions from ERDS data, shall be validated with the licensee before discussion with PEMA.
- E. Information from BRP field monitoring teams is reported via DEP radio to the BRP-EOC. These data are also communicated to BRP staff at the EOF for comparison with licensee field monitoring team results.

3. ASSESSMENT TECHNIQUES

- A. Identification of the occurrence of an incident is the responsibility of the licensee. The licensee has the best knowledge of reactor behavior, system parameters and available options for consequence mitigation. Upon recognition of an emergency condition, the licensee will classify the incident using established Emergency Classification Levels (ECLs). The ECLs are based on off-normal criteria in the plant itself or in its environment.
- B. BRP uses information provided by the licensee and independent assessments from BRP nuclear engineering and health physics staff to evaluate the need for protective action for offsite areas. If available, dose projections and actual field team measurements are also considered. However, dose projections and field measurements are not an absolute requirement in the development of protective action recommendations.
- C. At declaration of General Emergency, the licensee is required by NRC to furnish a PAR to offsite agencies. The Governor, based on BRP and PEMA advice, may accept the PAR provided by the licensee, or make a more or less restrictive protective action decision (PAD). A PAR may also be made by BRP, to the Governor, based on plant conditions, at classifications less severe than General Emergency.
- D. The NRC staff at the Region I Office at King-of-Prussia and the Headquarters Operations Center are available to BRP for backup accident assessment and general consultation.
- E. Accident assessment is also supported by the technical resources available through the FRERP, including establishment of the FRMAC. The FRMAC operates to support the State through specific requests from BRP. These are expressed in terms of missions and objectives.
- F. Engineering Assessment
 - (1) Nuclear power stations are designed, constructed and operated to isolate large inventories of radioactive material from the environment. Three major barriers operate to maintain this isolation. These include the fuel matrix and cladding, the reactor coolant system and the containment structure(s). Control of core reactivity and the availability of an adequate heat sink maintain the integrity of these barriers. For a PAR to be clearly indicated, two out of the three barriers to the environment must be lost, with a potential for or actual loss of the third barrier.

- (2) The first major consideration in assessment of off normal conditions focuses on the ability to achieve plant shutdown (trip) when called for by automatic systems, or when procedures call for a manual shutdown. Failure to trip continues heat production.
- (3) The second major consideration is the availability of adequate core cooling to prevent cladding failure and melting of the fuel matrix. Loss of adequate cooling, such as a substantial leak in the reactor coolant system, can be a facet of the initiating event. The outcome will depend on a continuing ability to deliver adequate makeup to compensate for coolant loss.
- (4) A third consideration is maintaining the integrity of the containment structure, including physical isolation of containment penetrations. Containment pressure generated during some accidents due to inadequate heat removal may threaten the integrity of the structure. Systems designed specifically for pressure reduction must function as needed.
- (5) Assurance of power for the operation of required safety-related equipment is another major consideration. Much of the plant's safety-related equipment depends on the availability of offsite power during an incident involving reactor trip. If offsite AC power is lost for any reason during such an incident, the operation of safety-related equipment will depend on the plant's diesel generators or backup batteries.

G. Dose Projection

- (1) A dose projection is a calculated estimation of the radiation dose expected to be delivered to offsite populations if action is not taken to avoid the projected dose. Dose projections apply only to future doses and do not include any dose received before the dose projection is made. Dose projections are compared with recommended PAGs to provide guidance for protective action decisions.
- (2) Dose projections used by BRP in the assessment process can include projections actually generated by BRP using input parameters from the licensee and projections made by the licensee or Federal agencies.
- (3) Dose projections are not an absolute requirement in the development of protective actions. Certain accident sequences can make it very apparent that protective actions will be required, and nothing will be gained by calculating the projected dose. Certain

accident sequences, combined with other considerations, may also lead to precautionary protective actions, with or without a dose projection or comparison with a PAG.

- (4) For purposes of dose assessment and dose projection calculations, the conversion values used are listed in the appropriate tables provided in the USEPA Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (EPA 400-R-92-001) or its successor document, unless otherwise indicated.

- a. Dose Projection Modeling

- 1) Dose projections have specific starting times and finite durations. Dose projection models usually tend to overestimate the actual dose delivered, due to inherent conservative assumptions in the models.
- 2) Dose projections can be based on calculations using a known mix of nuclides released from the plant, combined with meteorological conditions. Projections may also be based on contingency calculations, which use theoretical release rates resulting from anticipated reactor conditions or from unmonitored pathways.
- 3) Dose projections can also be made using field monitoring team data, corrected for time and location within the plume. However, field monitoring team data cannot stand alone as a means of dose projection or as the basis for making a protective action recommendation.
- 4) Early in the incident the licensee uses hand calculations for dose projection. Once the EOF becomes operational, the licensee uses advanced computer-based dose models, which include site-specific terrain features and meteorological parameters. These advanced projection methods are available in minutes to hours following EOF activation.
- 5) Dose projections made by BRP may use hand calculations or computer-based modeling. BRP hand calculation methods are found in the BRP Implementing Procedures. The computer model used by BRP is the Radiological Assessment System for Consequence Analysis (RASCAL), provided by NRC. Projections using RASCAL are available in minutes to hours following notification of an incident.

- 6) NRC also performs dose projections using RASCAL, which are available in minutes to hours following notification of an incident.
- 7) In addition, DOE can make available the Atmospheric Release Advisory Capability (ARAC). This system is available in minutes to hours following BRP request through DOE-Brookhaven.

4. RADIATION MEASUREMENTS

- A. Radiation measurements are used during reactor incidents to determine and assess the dose to the general population. Pathways known to be most capable of delivering dose to man include plume immersion and inhalation, deposited surface contamination and ingestion. Actual radiation measurements are used to verify dose projections for the various pathways, if circumstances permit.
- B. Field Monitoring Team Measurements
 - (1) The objective of field monitoring teams is the collection of data to determine whether offsite conditions are consistent with what is expected from the existing plant conditions or dose projections. Both licensee and BRP monitoring teams make measurements in the plume path. Depending on plume duration, these may be augmented by DOE RAP teams. Measurements consist of ambient beta/gamma exposure rates and air sampling and analysis for airborne radioactive iodine.
 - (2) Licensee monitoring teams are generally operated on a free ranging basis, since team members and their base coordinator are familiar with the site environs.
 - (3) The BRP monitoring teams are directed to pre-identified monitoring locations. These monitoring locations are identified on maps located in the BRP-EOC and BRP-AC.
- C. Aerial Measurements

The DOE Aerial Measuring System (AMS) is available for radiation measurements from aircraft. It may be available during plume passage, but its most likely use is in characterizing ground deposition. Requests for AMS are coordinated through DOE-Brookhaven. Availability depends on the location of the aircraft when the request is made.

D. Environmental Sampling Measurements

- (1) Environmental sampling efforts will focus on real sources of radiation dose in the environment. Areas demonstrated to be unaffected by the plume will be monitored only to the extent necessary to demonstrate continuing suitability for unrestricted residential and agricultural use.
- (2) No attempt will be made to study pathways in wildlife.
- (3) No attempt will be made to perform a materials balance, that is, accounting for all activity believed available for release during the incident.
- (4) Upon establishment of the FRMAC, all State field sampling and analysis activities will be coordinated from the FRMAC.
- (5) Routine Monitoring Program
 - a. Wide area field data from existing routine environmental monitoring programs will be available following cessation of uncontrolled releases. These programs, operated by the licensee and by BRP, use TLDs for ambient gamma measurement, air samplers for air particulates and radioiodine, and sampling of other environmental media. NRC also operates a TLD program. Although data from these programs will not be available for evaluating plume passage, they will be useful in post accident population dose assessment.
 - b. BRP operates a continuous environmental monitoring program in the environs of each nuclear power plant in Pennsylvania. The program at each plant consists of 30 quarterly TLD stations, four weekly air sampling stations, 2-3 monthly water sampling stations, two monthly dairy farms and annual fish, silt and vegetation sampling.
 - c. In the event of an incident, which involves a significant atmospheric release, changeup of TLDs will be delayed until uncontrolled releases have ceased. This assures that these detectors will "see" the entire incident. Air samplers will be changed out on schedule as conditions permit. Sampling of milk, water and other media will be coordinated from the FRMAC.
- (6) Radioanalytic Priorities

- a. Initial radioassay of environmental samples is performed by the RML in the Bureau of Laboratories. A major objective is to preserve the status of RML as an environmental radiation lab. Samples accepted for RML analysis will be evaluated to avoid the risk of serious lab contamination.
- b. Only those samples authorized by the BRP Radiological Assessment Manager will enter the analytic queue to RML. These may include samples collected by BRP field teams, DEP water teams, PA Department of Agriculture teams and selected samples collected by Federal agency personnel.
- c. Analytic priorities and analytic detection limits (LLD) will be controlled by BRP, until sampling activity has stabilized. Prioritization is based on the expected value of the data to the radiological assessment. A part of the prioritization is the selection of the LLDs for the assessment. LLD selection will weigh heavily on through-put. For example, an LLD of 2 pCi/l for I-131 in milk requires a counting time of 1000 minutes. Raising the LLD to 64 pCi/l reduces the required counting time to one minute. (The dose commitment to an infant thyroid from ingesting 60 pCi is one milliRem.)

ATTACHMENT E

APPENDIX 6

PROTECTIVE RESPONSE

1. GENERAL

This section summarizes protective action guidance for the general public. Appropriate protective actions are discussed and criteria are established for initiation and lifting of protective actions. The section also includes a discussion of dose limits and exposure control for emergency workers.

2. INCIDENT PHASES

A. Radiation incidents and the resulting offsite consequences are divided into three phases: emergency (early), intermediate and recovery (late). The three phases are defined in terms of implementation and completion of protective actions. A given incident may include none of these phases or all three phases. The phases may also overlap to some degree.

- (1) The emergency (early) phase begins with the recognition that protective actions are necessary for the protection of offsite populations against direct exposure from the plume. It continues through the completion of the protective actions.
- (2) The intermediate phase begins with the cessation of uncontrolled releases. It continues through the collection and assessment of monitoring information to determine if additional protective actions are needed due to ground deposition, and until these additional protective actions are completed. The intermediate phase also includes those radiological determinations necessary for lifting of emergency phase protective actions.
- (3) The recovery (late) phase begins with efforts to reduce offsite contamination to acceptable levels for unrestricted use. It continues through the completion of all offsite recovery operations.

B. These incident phases are used by BRP solely for purposes of dose accounting and application of protective action guidance. They are not related in any way to the emergency classification system specified in NUREG-0654.

3. PROTECTIVE ACTION GUIDES (PAGs)

- A. Protective action guides (PAGs) are projected doses to offsite individuals, sufficient to warrant protective actions for their avoidance. PAGs apply to individuals in the general public other than emergency workers. These values are developed during the planning for radiation emergencies and provide guidance for protective action decisions. The PAGs used in this plan are derived from the USEPA Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (EPA 400-R-92-001) or its successor document hereinafter called EPA-400, unless otherwise indicated.
- B. EPA-400 recommends the use of separate and distinct PAGs for each incident phase. The PAGs and appropriate protective actions for the emergency and intermediate phases are discussed in paragraphs E and G, respectively. PAGs and protective actions for the ingestion pathway are discussed separately in Appendix 7. Emergency worker dose limits are discussed separately in Appendix 5. The recovery phase is discussed in Appendix 16.
- C. Whole Body PAG
 - (1) EPA-400 redefines the earlier PAGs in terms of ICRP-26 Recommendations of the International Commission on Radiological Protection. The net effect is the consideration of dose from external sources and from internally deposited nuclides in combination.
 - (2) In nuclear power plant incidents, external dose may arise from cloud shine and immersion from the passing plume and ground deposition. As recommended in EPA-400, exposure from ground deposition is assumed to last four days. EPA-400 also assumes the external dose to be uniform over the whole body.
 - (3) For external sources, the individual dose equivalent to each organ is weighted on the basis of relative detriment and summed to determine the total detriment to the individual. The detriment is in terms of risk of fatal late effects. This sum is the Effective Dose Equivalent (EDE). It is expressed in Rem.
 - (4) The committed dose equivalent to an internal organ from inhalation, weighted on the basis of relative detriment to the whole body, is the Committed Effective Dose Equivalent (CEDE), expressed in Rem. The CEDE applies only when the plume contains nuclides which can bioaccumulate, or when the contribution from resuspension is significant.

- (5) In the 10 CFR 20 revision to adopt ICRP-26, NRC introduced the concept of Total Effective Dose Equivalent (TEDE), which is the sum of the EDE and the CEDE. The TEDE concept is used in this plan to define the whole body PAGs. TEDE is age independent.

$$\text{TEDE} = \text{EDE (plume)} + \text{EDE (ground)} + \text{CEDE (inhaled)}$$

- (6) Incidents at nuclear power stations can produce atmospheric releases consisting of several nuclides. The resulting plume will contain one of the components of TEDE, but not necessarily all three. Dose projections will take into account the fractional contributions of the several nuclides to the total TEDE.
- (7) External beta dose to skin and lens of the eye is not specifically addressed in this plan, since external gamma will drive protective actions from immersion and shine during plume passage. Internal beta from inhalation is taken into account in the conversion factors. External beta dose will be specifically considered when certain post-accident maneuvers, such as release of pure beta emitters such as Kr-85, may become necessary.

D. Supplementary Thyroid PAG

- (1) The thyroid gland bears a disproportionately high risk for non-fatal cancers and nodules. So as to limit these effects, EPA-400 provides an additional PAG for thyroid uptake of radioiodine by inhalation. This PAG is in terms of Committed Dose Equivalent (CDE) expressed in Rem.
- (2) Although EPA-400 recommends the adult thyroid as the reference gland for CDE, this plan continues the use of the child thyroid as the reference gland for the general public. This approach is more conservative than EPA-400.

E. Emergency Phase PAGs

- (1) Whole Body PAG

The emergency phase whole body PAG is 1 Rem TEDE for the general population. This PAG is age-independent.

- (2) Supplementary Thyroid PAG

This plan continues to use the child thyroid as the reference gland for the general public. The PAG for the child thyroid is 5 Rem CDE.

F. Emergency Phase Protective Actions

(1) Evacuation

Evacuation is the protective action of choice when the radiation risk avoided is greater than the risk of the evacuation itself. Evacuation completed prior to the onset of the release eliminates all of the available radiation risk to the population. Evacuation is the preferred protective action at a projected dose (whole body) of 1 Rem TEDE or a projected dose (child thyroid) of 5 Rem CDE.

(2) Shelter (Special Conditions)

- a. Shelter may be the preferred protective action in those instances where timely evacuation is not possible due to special conditions. Shelter may also be the preferred protective action for those events when the release duration is short compared with the estimated evacuation time and when ground deposition is not a factor. This means that shelter is indicated for puff releases consisting of noble gases. Under special conditions, sheltering shall be used at a projected dose (whole body) of 1 Rem TEDE or a projected dose (child thyroid) of 5 Rem CDE.
- b. At a projected dose (whole body) of 5 Rem TEDE or a projected dose (child thyroid) of 25 Rem CDE, evacuation is the only protective action option, regardless of special conditions.

(3) Special Groups

- a. There are certain groups within the general population who are not as mobile as the general population. These special groups include patients in hospitals, residents in long term care facilities and individuals in correctional facilities. EPA-400 recommends separate PAGs for these special groups.
- b. When a special group cannot be evacuated with the general population, sheltering should begin with the general population PAG. Sheltering of special groups shall be used at a projected dose of 1 Rem TEDE or a projected dose of 5 Rem CDE to an adult thyroid. For purposes of the thyroid PAG assignment, these special groups are assumed to be adults.

- c. The PAG for evacuation of special groups is a projected dose of 5 Rem TEDE or a projected dose of 25 Rem CDE to an adult thyroid.
- d. Special conditions may render a special group even less mobile. When special conditions preclude evacuation of special groups, the PAG for their evacuation is a projected dose of 10 Rem TEDE.
- e. At a projected dose of 10 Rem TEDE, evacuation of special groups is the only protective action option, regardless of special conditions.
- f. At a projected dose greater than 25 Rem CDE to an adult thyroid, thyroid protection is provided to special groups through the administration of potassium iodide (KI). Detailed information on KI administration to special groups is found in Appendix 5.

G. Intermediate Phase PAGs

- (1) The intermediate phase (relocation) PAG again uses the TEDE concept, with TEDE being the sum of the external exposure from ground deposition (EDE) and internal exposure from inhaled nuclides (CEDE). The TEDE considers the whole body detriment in terms of risk of fatal late effects.

(2) Whole Body PAG

- a. EPA-400 proposes the use of a projected dose of 2 Rem over the first year as the relocation PAG. It further indicates that the projected dose during pregnancy should be limited to 0.5 Rem. With the fetus as the limiting population, this plan uses a projected dose of 0.5 Rem TEDE (whole body) over the first year as the relocation PAG.
- b. EPA-400 also proposes relocation PAGs for the second year, and for the entire period from 0 to 50 years. As recommended by EPA-400, the second year relocation PAG is 0.5 Rem TEDE and the 50-year relocation PAG is 5 Rem TEDE.

(3) Supplementary Thyroid PAG

A separate PAG for thyroid from inhalation is not considered for the intermediate phase since uncontrolled releases will have ceased and resuspension of deposited iodines will not be sufficient to drive a

thyroid PAG from inhalation. This position will be verified through environmental monitoring.

H. Intermediate Phase Protective Actions

- (1) Following the completion of emergency phase protective actions and the cessation of significant uncontrolled releases, the location of restricted zones is determined. Restricted zones are those areas with ground deposition equal to or exceeding the relocation PAGs. Restricted zones are not necessarily limited to the 10-mile EPZ.
- (2) Potential deposition areas are identified by using the meteorological conditions prevailing during plume release, field monitoring team measurements and data from field team samples. Measurements from aircraft are then used to define the restricted zones, followed by verification from field team ground measurements.
- (3) Once the radiological characterization is completed, the restricted zones will be enlarged somewhat to allow a buffer zone where enhanced monitoring can be conducted to verify the stability of the deposited material, and to allow for possible migration of the contamination. The combined restricted/buffer zones will be designated so that roads define the outer edges and other features, which can facilitate access control.
- (4) Relocation
 - a. In the intermediate phase, protective actions focus on the relocation of the population still residing in the restricted zones. It is important to perform relocation of remaining populations as early as possible, since dose delivery is highest in the early days following release cessation due to the short-lived radioiodine component.
 - b. Evacuees from the restricted zones will also be relocated.
- (5) Controlled Entry
 - a. Although full time residence in the restricted zones is not permitted, the zones can be accessed under controlled conditions. Controlled entries may be conducted for protection of valuable property and functions, including law enforcement and firefighting, securing property, removing property, tending of livestock and control of industrial processes and public utilities.

- b. Controlled entries include the use of access control points, personnel dosimetry, appropriate protective clothing and contamination control practices, along with appropriate record keeping.
- c. Individuals from the general population accessing the restricted zones are considered to be radiation workers, with an annual occupational limit of 5 Rem TEDE. More information on dose limits for radiation workers is found in Appendix 5.
- d. Access to the restricted zones is not recommended for pregnant women, except with full advisement of the risk to the fetus.

ATTACHMENT F

APPENDIX 6

LIST OF IMPLEMENTING PROCEDURES

DEP/BRP/IP-001	Initial Notification Procedure, Unusual Event
DEP/BRP/IP-002	Initial Notification Procedure, Initial Activation
DEP/BRP/IP-003	Notification Procedure, Change of Classification
DEP/BRP/IP-101	Field Team Operations Procedure
DEP/BRP/IP-102	Field Airborne Radioiodine Sampling Procedure
DEP/BRP/IP-103	Emergency Equipment Maintenance Procedure
DEP/BRP/IP-201	Estimation of Airborne Consequences for Ground Level Sources
DEP/BRP/IP-202	“RASCAL” Dose Projection Procedure
DEP/BRP/IP-205	Estimation of Airborne Radiological Consequences Using Field Sampling Data
DEP/BRP/IP-209	Estimation of Liquid Release Consequences to Downstream Water Users
DEP/BRP/IP-211	Ingestion Pathway Dose Projections
DEP/BRP/IP-212	Reentry, Return, Relocation and Recovery

APPENDIX 7

ANNEX E

INGESTION EXPOSURE PATHWAY EMERGENCY PLANNING ZONE

1. PURPOSE

To describe the means to be used in minimizing the effects of radioactive contamination of the human food chain, including animal feeds and water, resulting from an incident at a nuclear power plant.

2. SITUATION AND ASSUMPTIONS

A. Situation

- (1) There are five 50-mile radius ingestion exposure pathway emergency planning zones (EPZ) associated with all five nuclear power plants within the Commonwealth. The EPZ for the Susquehanna Steam Electric Station lies entirely within Pennsylvania. The Three Mile Island Nuclear Station EPZ extends into Maryland; the Peach Bottom Atomic Power Station EPZ extends into Maryland, Delaware and New Jersey; the Limerick Generating Station EPZ extends into Maryland, Delaware and New Jersey; and the Beaver Valley Power Station EPZ extends into Ohio and West Virginia. (See Attachment F, Appendix 24.)
- (2) Portions of Pennsylvania also lie within the 50-mile ingestion exposure pathway EPZs of four nuclear power plants located beyond the boundaries of the Commonwealth. These four plants are Artificial Island Nuclear Station and Oyster Creek Nuclear Generating Station in New Jersey; the Indian Point Nuclear Power Station in New York; and, the Perry Nuclear Power Plant in Ohio. (See Attachment F, Appendix 24.)
- (3) There are 49 Counties within Pennsylvania that lie wholly or partially inside the 50-mile radius of one or more nuclear power plants. There are 32 Counties in contiguous States that lie wholly or partially inside the 50-mile radius of one or more nuclear power plants located in Pennsylvania. (See Attachment A.) Additionally, as a result of the Chernobyl disaster in 1986, the Pennsylvania Emergency Management Council has determined that all 67 Counties within the Commonwealth are to be designated as ingestion Counties.

- (4) In the event of a radioactive release from any of the nine nuclear power plants or any other events involving release or radioactive contamination affecting the Commonwealth, the deposition of radioactive contaminants on crops, other vegetation, bodies of surface water and ground surfaces could occur. As a result the ingestion of contaminated food products, milk and water could happen.
- (5) The Commonwealth of Pennsylvania, supported by appropriate Federal agencies, has the responsibility to take protective actions in the event that a radiological incident causes contamination of human foods or animal feeds.
- (6) The Commonwealth accepts the planning guidance of the Food and Drug Administration (FDA) concerning emergency action levels for dealing with accidental radioactive contamination of human food and animal feeds.

The decision to recommend protective actions generally should be based on known releases to the environment, radiological measurements, laboratory analyses, and integrated dose projections in the pathway of concern. Actions should not be taken without verification of the measured levels.

Examples of protective action information for the general public to minimize exposure to contaminated foods are available through multiple sources. See paragraph 6.C. of this Appendix for examples of reference materials.

B. Assumptions

- (1) Moderate or heavy rainfall may result in higher levels of deposition or surface contamination and may require protective actions at greater distances or perhaps condemnation of more food because of higher levels of contamination.
- (2) Radionuclides in the ingestion pathway may remain a long-term problem since some radionuclides in the soil may be taken up by vegetation including vegetables, fruit trees, grains and forage. This could affect future harvests.

- (3) Attention must be paid to potentially large variations in deposition, weathering, uptake and long-term behavior of environmental contaminants.

3. CONCEPT OF OPERATIONS

- A. Emergency response operations within the ingestion exposure pathway EPZ involve the identification of areas in which food and/or water may have become contaminated. Protective actions will be taken to minimize further contamination in those identified areas and to place restrictions, appropriate for protecting the public health, upon the use of tainted food or water.
- B. At the State level, PEMA serves as the operative arm in responding to and recovering from the ingestion exposure problem. Emergency response operations will be coordinated through the State EOC. The Pennsylvania Department of Agriculture (PDA), USDA State Emergency Board (SEB), and the Federal Radiological Monitoring and Assessment Center (FRMAC), will provide assistance in the form of personnel and agricultural expertise. The USDA Agencies (at the State level) comprise the USDA State Emergency Board, which coordinates their emergency work to assist the agricultural community within the Commonwealth. A member of the USDA SEB and a representative from the PDA are a part of the agriculture response cell at the State EOC.
- C. At the County level, the County EMA serves as the operative arm in responding to and recovering from the ingestion exposure problem. The USDA Agencies located in the County - Farm Service Agency (FSA), Cooperative Extension Service (CES) and the Natural Resource Conservation Service (NRCS) - may provide assistance in the form of personnel and agricultural expertise. Collectively, USDA agencies comprise the USDA CEB to coordinate their emergency work to assist the agricultural community within the County. A person from the USDA serves as the Agricultural Staff Officer or provides liaison to the County EOC staff.
- D. Protective actions, as announced by the State and County Emergency Boards may require modifications of food production, processing, and distribution cycle pathways in affected areas both within and outside of the ingestion exposure pathway EPZ.
- E. Protective actions will be based upon known releases to the environment, radiological measurements, laboratory analyses, and/or integrated dose projections.

- F. Protective actions will not be taken without verification by PEMA in coordination with BRP, PDA and appropriate Federal agencies, and a consideration of the health, economic, and social impacts of such actions.
- G. The public in the ingestion exposure EPZs will be notified about protective actions through some or all of the following means: EAS announcements, public service announcements on local radio and television stations, NOAA Weather Radio, and the print media.
- H. Target audiences for public information concerning contamination through ingestion exposure will be the general public, farmers, processors and distributors in the food production process and water suppliers located within the ingestion exposure pathway EPZ.
- I. Farm animals should be protected by sheltering with priority given to dairy animals. They should be fed from stored feed and water to prevent ingestion of radiation contaminated feed and water. These protective actions should continue until otherwise directed by the State Emergency Board.
- J. The Commonwealth will disseminate information upon the recommendation of BRP in coordination with the PDA/USDA State Emergency Board for implementing protective actions within the 50-mile ingestion EPZ. Once the protective action decision is made, the primary vehicle for dissemination of this information to the agricultural community is the USDA State Emergency Board in conjunction with the USDA County Emergency Board. The State and County EMA's are responsible for ensuring that the general public is informed of all ingestion protective action decisions.

4. ORGANIZATION AND RESPONSIBILITIES

A. Organization

(1) Pennsylvania Emergency Management Agency (PEMA)

The PEMA serves as the lead State agency in coordination with State and Federal agencies in the public education of and response to problems associated with the Ingestion Exposure Pathway Emergency Planning Zone. PEMA also provides direction and control over the ingestion response and recovery activities (through its Regional Offices for support and ingestion Counties, and directly for risk Counties) of all Counties in the Commonwealth.

(2) Federal Emergency Management Agency

The Federal response assistance for actual radiological emergencies is identified in the Federal Radiological Emergency Response Plan (FRERP). The FRERP provides the basis for implementing the response of specific Federal agencies and provision of coordinated Federal assistance to State and County governments for ingestion exposure pathway radiological emergencies.

(3) USDA State Emergency Board

The State Emergency Board is chaired by the FSA, USDA State Executive Director and provides advice, leadership and coordination to the USDA County Emergency Boards (CEBs).

The 10 USDA Agencies providing primary and alternate personnel to the USDA State Emergency Boards are:

Farm Service Agency; Animal and Plant Health Inspection Service; Cooperative State Research, Education and Extension Service; Food Consumer Service; Food Safety and Inspection Service; Forest Service; National Agricultural Statistics Service; Natural Resources Conservation Service; Rural Economic and Community Development; and Rural Utilities Service.

The USDA State Emergency Board members are usually located within the State in which they serve. The FSA State Executive Director (or his/her designated representative) serves as a member of the Agricultural Response Cell in the State EOC. In this capacity he/she assists and provides information to State government officials and coordinates USDA radiological emergency programs at the State level. He/she is also the primary emergency contact for State officials in the event Federal agricultural assistance is required.

(4) Pennsylvania Department of Agriculture (PDA)

The Pennsylvania Department of Agriculture serves as the State-coordinating agency in problems relevant to the agricultural community. The PDA works in close coordination with the USDA State Emergency Board (SEB), PEMA and BRP in the development and issuance of guidance to Counties concerning response procedures and action necessary to evaluate and prevent radioactive contamination of agricultural, dairy and food products. The PDA also issues guidance (through PEMA) concerning the control and disposition of such products should they become contaminated.

(5) Bureau of Radiation Protection (BRP)

The BRP provides accident assessment information for the ingestion exposure pathway to PEMA and other appropriate State agencies. The BRP will develop the initial sampling plan for execution by tasked agencies. The BRP develops the agricultural product-sampling plan; reviews laboratory test results and consults with PEMA and PDA in developing ingestion protective action recommendations.

(6) PEMA Regional Offices/EOCs

The PEMA Regional Offices provide overall direction and control over the ingestion response and recovery activities of all Counties (risk Counties excluded) located within the boundaries of their respective operational areas.

(7) County Emergency Management Agency

The County Emergency Management Agency serves as the lead County agency in coordination with State and County agencies in the public education of and response to problems associated with the Ingestion Exposure Pathway Emergency Planning Zone.

(8) USDA County Emergency Board

The FSA County Executive Director chairs the County Emergency Board. The CEB assists and provides agricultural information to County governments in the event of a radiological incident. The three USDA agencies providing personnel to the USDA County Emergency Board are Farm Service Agency, Cooperative Extension Service and Natural Resources Conservation Service. Generally, USDA County Emergency Board members are located within the County in which they serve; however there are exceptions. The FSA County Executive Director will provide the Agricultural Staff Officer or liaison to the County EOC. That person assists and provides information to County government officials and coordinates USDA radiological emergency programs at the County level. He/she is also the primary emergency contact for County officials in the event that State CEB agricultural assistance is required.

B. Responsibilities

(1) Commonwealth Departments and Agencies

a. Pennsylvania Emergency Management Agency

- 1) Act as lead agency in coordination with Federal and Commonwealth agencies and departments in public

education of and response to problems associated with the ingestion exposure pathway EPZ.

- 2) Notify (through the appropriate PEMA Regional Office) affected ingestion Counties at the Site Regional Emergency ECL.
- 3) Direct (through the appropriate PEMA Regional Office) affected ingestion County EOCs to activate and mobilize at General Emergency.
- 4) Maintain (in coordination with USDA) files cross-indexed to maps showing names and locations of all facilities processing milk products, large amounts of food or agricultural products (to include fertilizer, feed or seed) originating anywhere in the 50-mile ingestion pathway EPZs.
- 5) Provide overall direction and control during ingestion response and recovery operations.
- 6) Establish procedures and the capability to disseminate information on preventive and emergency protective actions to cope with the effects of radiological contamination of human food, water and animal feed. This will be accomplished annually for risk Counties.
- 7) In coordination with BRP, DOH, PDA and USDA issue guidance to ingestion exposure pathway Counties on procedures and actions necessary to prevent or mitigate radioactive contamination of milk, food and water.
- 8) Maintain (in coordination with PDA/USDA) files cross-indexed to maps showing agricultural land use (e.g., farms and dairies within the ingestion pathway EPZs.)
- 9) At General Emergency, disseminate to the target audience in the ingestion exposure pathway EPZ, public education information about radiation hazards in the ingestion pathway; protective actions to take; and, locations of contact points where additional information on the subject may be obtained.
- 10) In coordination with PDA, USDA, DMVA and PSP, assist BRP in the collection and transportation of milk, food/feed products, and water samples to the DEP Bureau

of Laboratories (BOL) or the Federal Radiological Monitoring and Assessment Center (FRMAC).

- 11) Provide necessary PRDs to Counties to equip sampling teams.

b. PEMA Regional Offices/EOCs

- 1) Provide overall direction and control over the ingestion response and recovery activities of affected Counties located within the boundaries of their respective operational Regions.
- 2) Notify (upon direction by the State EOC) affected Counties at the Site Area Emergency ECL.
- 3) Direct (upon activation from the State EOC) affected Counties to activate their EOCs at the General Emergency ECL.

c. PDA/USDA State Emergency Board

- 1) Develop and issue (through County emergency boards) guidance to County EMA's and the agricultural community concerning response procedures and actions necessary to prevent radioactive contamination of agricultural, dairy and food products.
- 2) Develop and issue (through County emergency boards) guidance to County EMA's and the agricultural community concerning the control and disposition of radiologically contaminated agricultural, dairy and food products.
- 3) Maintain (in coordination with the appropriate CEB) files cross-indexed to maps showing agricultural land use; e.g. farms, dairies, slaughter houses and meat processing plants within the 50-mile ingestion exposure pathway EPZs.
- 4) Maintain (in coordination with the appropriate CEB) files cross-indexed to maps showing names and locations of all facilities processing milk products, large amounts of food or agricultural products (to include fertilizer, food or seed) originating anywhere within the 50-mile ingestion exposure pathway EPZs.

- 5) Develop plans and/or response procedures to implement control of the processing or use of the above mentioned products should they become contaminated during an incident.
 - 6) Develop (in coordination with PEMA and BRP) guidance to ingestion exposure Counties on procedures and actions necessary to prevent or mitigate radiological-contamination of milk, food and feed products.
 - 7) Develop/distribute (in coordination with PEMA, BRP and the appropriate CEB) information about radiation hazards to the agricultural community in the ingestion pathway and protective actions to take.
 - 8) Develop (in coordination with PEMA, BRP, and the appropriate CEB) and execute an agricultural sampling plan.
 - 9) Provide field personnel to collect agricultural, dairy and food products for laboratory analysis.
 - 10) Coordinate (with PEMA, BRP and affected County EMA's) the delivery of agricultural samples to the DEP Bureau of Laboratories or FRMAC.
 - 11) Train and maintain a pool (at least two per County) of agricultural samplers.
 - 12) Establish (in coordination with PEMA) procedures and the capability to conduct surge training for additional agricultural samplers.
- d. Department of Community and Economic Development Conduct analysis of the economic disruption to agribusiness resulting from a nuclear power plant incident.
- e. Department of Environmental Protection (DEP)
- 1) Bureau of Radiation Protection
 - (a) Provide accident assessment and exposure information for the ingestion pathway.
 - (b) Provide sampling and analytic priorities.

- (c) Develop and issue guidance (through PEMA and PDA) to ingestion exposure pathway Counties regarding agricultural product sampling.
 - (d) Develop and issue guidance (through the DEP Emergency Response Director) regarding drinking water sampling.
 - (e) Review laboratory tests results and consult with PEMA and PDA in developing protective action recommendations.
 - (f) Develop and issue guidance (through PEMA and PDA) to ingestion exposure Counties regarding actions necessary to prevent or mitigate radioactive contamination of milk, food and water.
 - (g) Recommend protective actions to be taken within the ingestion exposure pathway EPZ.
 - (h) Prepare (in coordination with PEMA, PDA and DOH) public education information about radiation hazards in the ingestion exposure pathway EPZ.
- 2) DEP Regional Offices
- (a) Alert affected public water suppliers.
 - (b) Collect (as directed by BRP) appropriate public drinking water and surface water samples for incident assessment.
 - (c) Coordinate (with PEMA, BRP and affected County EMA's) the delivery of water samples to the DEP Bureau of Laboratories or FRMAC.
 - (d) Collect other samples as directed by BRP.
- 3) Bureau of Laboratories (BOL):
- (a) Receive and analyze field samples as directed by BRP.
 - (b) Submit all test results to BRP for evaluation.

f. Department of Health

In consultation with the Department of Agriculture, DEP, BRP and PEMA, issue appropriate health related advisories to the public concerning the consumption of specified foodstuffs and water.

g. Department of Labor and Industry

Conduct an analysis of the unemployment and loss of income resultant from economic disruption to agribusiness caused by the nuclear incident.

h. Pennsylvania State Police

Provide (upon request of PEMA) aerial delivery of agricultural or water samples from affected Counties to the FRMAC, or DEP's Bureau of Laboratories, within capabilities.

i. County EMA

- 1) Act as lead County agency in coordination with State and County agencies and departments in public education of and response to problems associated with portions of the County located within the ingestion exposure EPZ.
- 2) Provide overall direction and control during County ingestion response and recovery operations.
- 3) Develop/maintain a working relationship with the County Emergency Board; attend quarterly USDA CEB coordination meetings.
- 4) Understand the capabilities available from the USDA Agencies, which comprise the USDA CEB.
- 5) Develop a working knowledge of the agricultural entities within the County, which could be affected by the introduction/deposition of radionuclides.
- 6) Locate and make arrangements for (in coordination with the USDA CEB) access to files cross-indexed to maps showing the location of all farms, dairies, slaughter houses and meat processing plants within the ingestion exposure EPZ. Consider including the information in the

appropriate electronic database (i.e., EIS-c/e) backed-up with hard copy media or on disc.

- 7) Locate and make arrangements for (in coordination with the USDA CEB) access to files cross-indexed to maps showing the names and locations of all facilities processing milk products, large amounts of food or agricultural products (to include fertilizer, feed or seed) within the ingestion exposure EPZ. Consider entering information in the appropriate electronic database (i.e., EIS-c/e) and backed-up with hard copy media or on disc.
- 8) Activate and mobilize the County EOC upon notification of General Emergency by the appropriate PEMA Regional Office. (Risk and support Counties excluded.)
- 9) Establish (in coordination with PEMA and the USDA CEB) procedures and the capability to disseminate information on preventive and emergency protective actions to cope with the effects of radiological contamination of human food, water and animal feed.
- 10) Issue (in coordination with PEMA and the USDA CEB) guidance on procedures and actions necessary to prevent or mitigate radiological contamination of human food, water and animal feed.
- 11) Issue (in coordination with PEMA and the USDA CEB) instructions concerning the control and disposition of radioactively contaminated agricultural, dairy and food products.
- 12) Assist the USDA CEB, when applicable, in the registration of farmers requesting authorization to reenter restricted areas for the purpose of tending livestock.
- 13) Assist the agricultural sampling effort by:
 - (a) Providing a PRD and radiological briefing and situation report for incoming agricultural samplers.
 - (b) Providing incoming agricultural samplers with a mobile communications source, if requested.
 - (c) Providing a guide to assist incoming agricultural samplers with directions or a guide, if requested.

Note: RACES/ARES provide an excellent resource in the accomplishment of (b) and (c) above.

- (d) Providing sample-taking equipment (plastic bags, bottles), if necessary. (Provided to County by PDA.)
- (e) Conducting radiological monitoring of agricultural samplers upon mission completion.
- (f) Designating or coordinating agricultural sample drop-off points with agencies (e.g., PEMA, PDA and BRP).

j. USDA County Emergency Board

- 1) Farm Service Agency (FSA) County Executive Director serves as the chairperson of the USDA County Emergency Board and will:
 - (a) Develop and maintain a working relationship with the appropriate County EMA.
 - (b) Maintain files cross-indexed to maps showing the names and locations of all farms within the County. Ensure the County EMA has access to it.
 - (c) Develop and maintain files showing the names and locations of all food, feed, fertilizer and seed storage and distribution facilities located within the County. Ensure the County EMA has access to it.
 - (d) Maintain local information on crop acreage and production.
 - (e) Develop and maintain a list of food, feed or seed processing facilities located within the County including slaughter houses and packing plants.
 - (f) Maintain contact with local food processing storage and wholesale distribution facilities and determine availability and disposition of supplies.

- (g) Provide an Agricultural Staff Officer or liaison to each risk, support and ingestion County upon activation of the County EOC.
- (h) Designate (if required) local CEB personnel to assist in agricultural sampling of the affected area.
- (i) Serve as the primary point of contact for incoming agricultural sample-taking personnel and assist the sampling effort by:
 - i) Ensuring sample takers understand their mission instructions and have the necessary equipment.
 - ii) Providing pertinent information concerning sample locations (name of owner, location of farm, point of contact, etc.)
 - iii) Contacting sample location owners and informing him/her that sample takers are en route.

2) Cooperative Extension Service (CES)

- (a) Disseminate (in coordination with the County EMA) guidance to the agricultural community concerning response procedures and actions necessary to prevent radioactive contamination.
- (b) Disseminate (in coordination with the County EMA) guidance to the agricultural community concerning the control and disposition of radiologically contaminated agricultural, dairy and food products.
- (c) Disseminate (in coordination with the County EMA) information to the agricultural community concerning radiation hazards in the ingestion exposure pathway EPZ and the protective actions that should be taken.

3) Natural Resources Conservation Service (NRCS)

Estimate (in coordination with the USDA CEB and BRP) the effects of radiation on soils and the agricultural water supply.

k. Rural Economic and Community Development Service (RECDS)

Although RECDS is not currently a part of the USDA CEB, its staff can provide temporary housing for farm family evacuees who have been displaced from their homes as a result of a radiological incident, if requested.

5. ADMINISTRATION AND LOGISTICS - Not used

6. REFERENCES

A. Federal Guidelines

- (1) Federal Register, October 22, 1982, pages 47043-47083 Department of Health and Human Services, Food and Drug Administration:

Accidental Radioactive Contamination of Human Food and Animal Feeds and Recommendations for State and Local Governments.

- (2) U.S. Department of Health and Human Services:

Background for Protective Action Recommendations: Accidental Radioactive Contamination of Food and Animal Feeds, HHS Publication, FDA 82-8196, August 1982.

- (3) U.S. Environmental Protection Agency:

National Interim Primary Drinking Water Regulations, EPA Publication - 570/9-76-003, Appendix B.

- (4) Federal Emergency Management Agency:

Guidance on Offsite Emergency Radiation Measurement Systems, Phase I - Airborne Release, FEMA-REP-2, July 1987.

Guidance on Offsite Emergency Radiation Measurement Systems, Phase 2 - The Milk Pathway, FEMA-REP-12/September 1987.

Guidance on Offsite Emergency Radiation Measurement Systems, Phase 3, Water and Non-Dairy Food Pathway, WINCO-1012, October 1984*.

Guidance Memorandum IN-1, The Ingestion Exposure Pathway, February 26, 1988.

B. Commonwealth of Pennsylvania Guidelines

- (1) Department of Agriculture, Plan for Nuclear Power Generating Station Incidents, February 1980.
- (2) Department of Environmental Resources, Emergency Management Plan, January 1983 (Revised).
- (3) Department of Environmental Resources, Bureau of Radiation Protection. "Emergency Plan," January 1994.
- (4) Commonwealth of Pennsylvania, Department of Health, Disaster Preparedness and Recovery Plan, November 1982.

C. Information for Farmers

The Cooperative Extension Service, Pennsylvania State University, in cooperation with the Extension Service, U.S. Department of Agriculture and the Defense Civil Preparedness Agency, Department of Defense, "Disaster Handbook for Extension Agents," March 1983.

7. DEFINITIONS AND TERMS

(See Basic Document, paragraph 13)

8. TRAINING AND EXERCISES - Not used

9. PLAN DEVELOPMENT, MAINTENANCE AND DISTRIBUTION - Not used

10. ABBREVIATIONS/ACRONYMS

(See Basic Document, paragraph 3)

ATTACHMENTS:

- A. Ingestion Exposure Pathway EPZ Counties in Pennsylvania and Coterminous States
- B. Pathways for Ingestion
- C. Food Protection
- D. Milk, Food, Feed and Forage Crop Sampling
- E. Drinking Water Sampling

*WINCO is the acronym for Westinghouse Idaho Nuclear Company.

ATTACHMENT A

APPENDIX 7

INGESTION EXPOSURE PATHWAY EPZ COUNTIES IN PENNSYLVANIA AND COTERMINOUS STATES

COUNTY	BVPS	LGS	PBAPS	SSES	TMI	NJ	NY	OHIO
1. ADAMS			X		X			
2. ALLEGHENY	X							
3. ARMSTRONG	X							
4. BEAVER	X (1)							
5. BEDFORD (6)								
6. BERKS		X (1)	X	X	X	X (2)		
7. BLAIR	(6)							
8. BRADFORD				X				
9. BUCKS		X				X (2) (3)		
10. BUTLER	X							
11. CAMBRIA (6)								
12. CAMERON (6)								
13. CARBON		X		X				
14. CENTRE (6)								
15. CHESTER		X (1)	X (1)		X	X (2)		
16. CLARION	X							
17. CLEARFIELD (6)								
18. CLINTON (6)								
19. COLOMBIA				X (1)	X			
20. CRAWFORD								X (5)
21. CUMBERLAND			X		X (1)			
22. DAUPHIN			X	X	X (1)			
23. DELAWARE		X	X			X (2)		
24. ELK (6)								
25. ERIE								X (5)
26. FAYETTE	X							
27. FOREST (6)								
28. FRANKLIN					X			
29. FULTON (6)								
30. GREENE	X							
31. HUNTINGDON (6)								
32. INDIANA (6)								
33. JEFFERSON (6)								
34. JUNIATA					X			
35. LACKAWANNA				X				
36. LANCASTER		X	X (1)		X (1)	X (2)		
37. LAWRENCE	X							
38. LEBANON		X	X	X	X (1)			
39. LEHIGH		X		X				
40. LUZERNE				X (1)				
41. LYCOMING				X				
42. MCKEAN (6)								
43. MERCER	X							X (5)
44. MIFFLIN					X			

COUNTY	BVPS	LGS	PBAPS	SSES	TMI	NJ	NY	OHIO
45. MONROE					X			
46. MONTGOMERY		X (1)						
47. MONTGOMERY				X				
48. NORTHAMPTON		X		X				
49. NORTHAMPTON				X	X			
50. PERRY						X (2)		
51. PHILADELPHIA		X				X (2)		
						(3)		
52. PIKE							X (4)	
53. POTTER (6)								
54. SCHUYLKILL		X		X	X			
55. SNYDER				X	X			
56. SOMERSET (6)								
57. SULLIVAN				X				
58. SUSQUEHANNA				X				
59. TIOGA (6)								
60. UNION				X				
61. VENANGO	X							
62. WARREN (6)								
63. WASHINGTON	X							
64. WAYNE				X				
65. WESTMORELAND	X							
66. WYOMING				X				
67. YORK		X	X (1)		X (1)	X (2)		

NOTES

- (1) Also a risk County
- (2) Artificial Island Nuclear Generating Station
- (3) Oyster Creek Nuclear Generating Station
- (4) Indian Point Nuclear Power Station
- (5) Perry Nuclear Power Station
- (6) Counties outside the Ingestion Exposure Pathway EPZ of any nuclear power plant

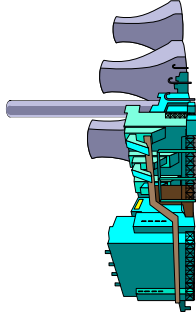
CONTIGUOUS STATEWAY
INGESTION EXPOSURE PATH
EMERGENCY PLANNING ZONE COUNTIES

	BVPS	LGS	PBAPS	SSes	TMI
OHIO					
Belmont	X				
Carroll	X				
Columbiana	X (1)				
Harrison	X				
Jefferson	X				
Mahoning	X				
Stark	X				
Trumbull	X				
Tuscarawas	X				
WEST VIRGINIA					
Brooks	X				
Hancock	X (1)				
Marshall	X				
Ohio	X				
DELAWARE					
Kent			X		
New Castle		X	X		
MARYLAND					
Anne Arundel			X		
Baltimore			X		X
Carroll			X		X
Cecil		X	X (1)		X
Frederick			X		X
Hartford			X (1)		X
Howard			X		
Kent			X		
Queen Annes			X		
NEW JERSEY					
Burlington		X			
Camden		X			
Glocester		X	X		
Hunterdon		X			
Mercer		X			
Salem		X	X		
Somerset		X			
Warren		X			

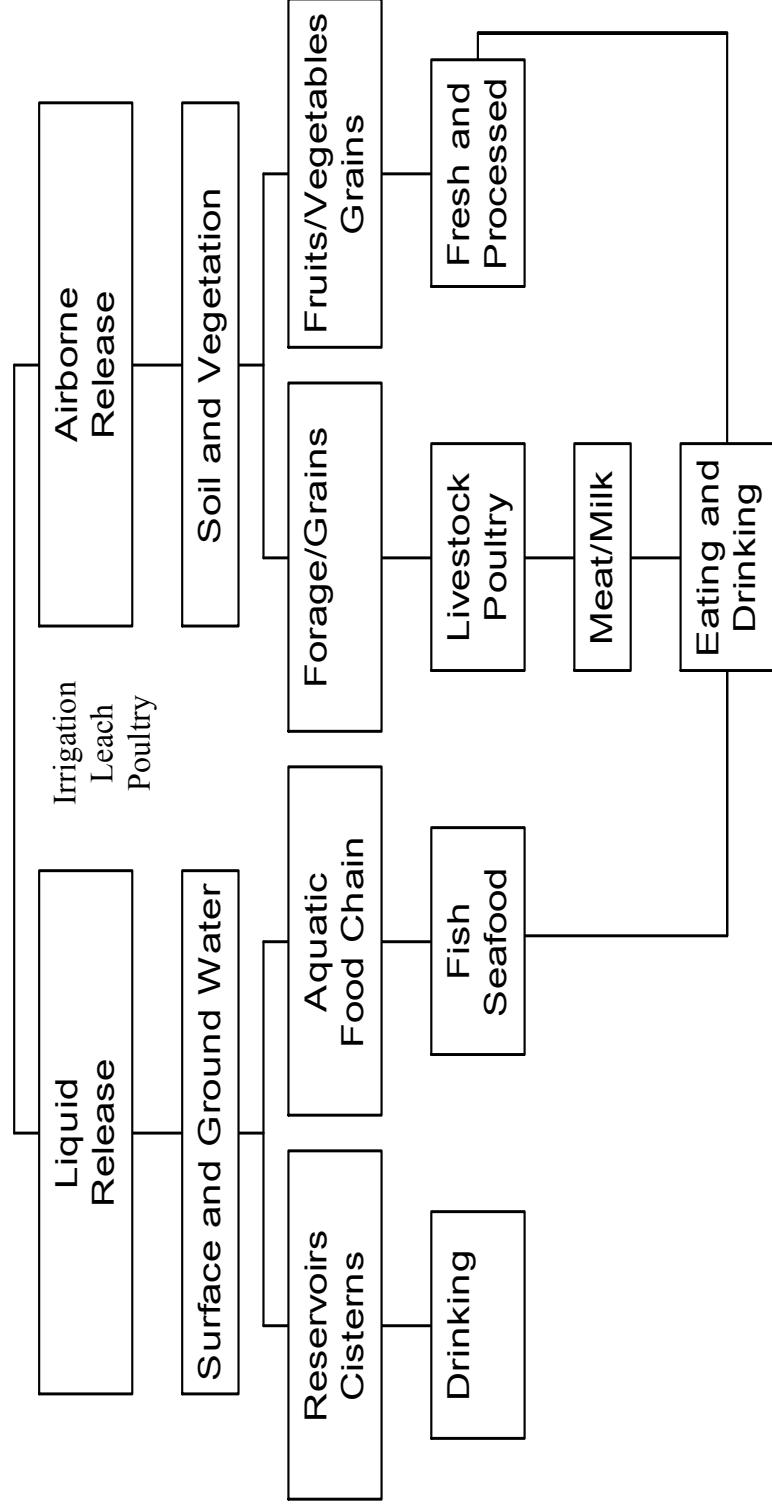
NOTE

(1) Also a risk County

ATTACHMENT B
APPENDIX 7
PATHWAYS FOR INGESTION



Reactor



Variables

1. Time of year
2. Type of soil
3. Type of water supply system
4. Weather conditions

ATTACHMENT C

APPENDIX 7

FOOD PROTECTION

1. GENERAL

- A. The Emergency Planning Zone for the ingestion pathway consists of a circular area of 50 miles radius around the nuclear power plant.
- B. Major potential pathways for ingestion include public water supply systems using surface water, fresh fluid milk and other food commodities.
- C. Fresh fluid milk will be isolated from the market at the Preventive PAG.
- D. Dose commitment resulting from the ingestion pathway is separate and distinct from doses received as a result of the accident from other pathways and accident phases.
- E. PAGs used for milk and food ingestion were developed by USHHS/FDA and published as Accidental Radioactive Contamination of Human Food and Animal Feeds; Recommendations for State and Local Agencies by FDA on August 13, 1998 (FDA 1998).
- F. Protective Action Guides (PAG) for drinking water have not been formally promulgated. For the purposes of this plan, PAG analogs for drinking water are used, which are related to the USEPA National Interim Primary Drinking Water Regulations, EPA-570-9/76-003, Appendix B.
- G. Protective actions for the ingestion exposure pathway EPZ are designed to reduce opportunities for consumption of radiologically contaminated food and water by humans and livestock. Protective action policy in this plan is early intervention to reduce or entirely avoid contamination of fresh fluid milk by removal of dairy animals from pasture.
- H. The need to apply protective actions in the event of a nuclear power plant accident will be determined on a case-by-case basis.
- I. Protective action recommendations are designed to be implemented within hours or days from the time the incident is recognized. The recommended actions should be continued long enough to avoid most of the projected dose.

- J. Determination of when to cease a protective action must be made on a case-by-case basis considering the nuclear incident and affected food supply.

2. FOOD AND MILK

A. Food and Milk Protective Action Guides (PAGs)

The PAGs used for milk and food were developed by HHS/FDA and published as Accidental Radioactive Contamination of Human Food and Animal Feeds: Recommendations For State And Local Agencies by FDA on August 1998 (FDA 1998). These Values are intended to include both the milk and food components of the diet and represent the dose commitment from ingestion over the entire episode.

- (1) The FDA guidance is described below.

a. Ingestion Protective Action Guides

A protective Action Guide (PAG) is the committed effective dose equivalent (CEDE) or committed dose equivalent (CDE) to an individual tissue or organ that warrants protective action following a release of radionuclides.

The Ingestion Pathway PAGs are:

0.5 Rem (5 mSv) committed effective dose equivalent (CEDE)

-or-

5.0 Rem (50 mSv) committed dose equivalent (CDE) to an individual tissue organ whichever is most limiting.

b. Derived Intervention Levels (DILs)

A Derived Intervention Level (DIL) corresponds to the radionuclide concentration in food present throughout the relevant period of time that, in the absence of any intervention, could lead to an individual receiving a radiation dose equal to the most limiting PAG.

Implementation and use of the DILs for nuclear reactor accidents (and other large scale nuclear events) is described in BRP implementing procedures.

FDA calculated Dils for specific radionuclides by taking into account the assumed annual dietary intake by critical segments of the population, the fraction of the food intake assumed to be contaminated and other related factors.

The FDA DILs provide a large margin of safety for the public because each DIL is set according to a conservatively safe level for the most vulnerable group of individuals. In addition, protective action would be taken if radionuclide concentrations were to reach or exceed a DIL at any point in time, even though such concentrations would need to be sustained throughout the relevant extended period of time for the radiation dose to actually reach the PAG. In practice, when FDA DILs are used, radiation doses to the vast majority of the affected public would be very small fractions of the PAG.

Food with concentrations of radionuclides below the DILs is permitted into commerce. However, State and local officials have the flexibility in whether or not to apply restrictions in special circumstances, such as permitting use of food by a population group with a unique dependency on certain food types.

- (2) Implementing Protective Actions when PAGs exceeded:
 - a. Protective actions should be considered for implementation in order to reduce the consequences in the ingestion pathway if the preventive or emergency PAGs are exceeded.
 - b. Protective actions are appropriate when the health benefit associated with the achievable reduction in dose outweighs the undesirable health, economic and social factors.
 - c. Once protective actions are initiated, they continue for a time period sufficient to mitigate the radiological consequences via the ingestion pathway.
 - d. Consideration of confiscation and condemnation will be discussed with PDA, USDA and FDA prior to implementation.

B. Fresh Fluid Milk

- (1) Although a number of radionuclides can be released to the atmosphere during an accident, only a few are biologically significant in the milk pathway. These include isotopes of iodine, the potassium congeners and the isotopes of cesium; and the calcium congeners, the isotopes of strontium.
- (2) Much attention is placed on the protection of fresh fluid cows' milk. The basis for this concern include:
 - a. The pasture-cow-milk-child thyroid pathway is very sensitive to transport of radioactive iodine. For example, a plume capable of delivering one Rem to a child thyroid by inhalation will deliver up to several hundred Rem to a child thyroid through ingestion of the

milk produced by cows grazing on a pasture visited by that plume. This is known as an amplification effect.

- b. Milk makes up a significant part of the diet of infants and young children.
- c. The physical and chemical properties of radioactive iodine tend to make these contaminants more available to the environment than solid nuclides during power station incidents.
- d. Due to the amplification effect, areas requiring protection of the milk supply may not require protective actions against direct plume exposure.
- e. The population at risk through milk consumption is usually larger than that at risk from direct plume exposure.
- f. The time between harvest and marketing of milk is several days, allowing little time for removal of I-131 by radioactive decay.

(3) Factors Influencing Milk Contamination:

The degree of contamination depends on several factors:

- a. The quantity of radioactive iodine, particularly I-131, actually released to the atmosphere is a major component for milk contamination. Other iodine, e.g. I-132, -133, -134, and -135, are taken into account for inhalation dose projection, but will not significantly contribute to milk contamination, due to their relatively short half-lives. (Assuming equivalent deposition, the intake of I-133 via milk is about 2% of I-131 intake.)
- b. Farming practices will affect milk contamination. Dairy animals subsisting greatly on contaminated pasture will produce higher concentrations than similar animals at the same location, subsisting on stored feed.
- c. The occurrence of precipitation during plume passage will increase iodine deposition due to scrubbing.
- d. For a given pasture contaminated with radioactive iodine, pastured goats will produce significantly higher milk concentrations than pastured cows.
- e. Radionuclides other than iodine may be released to the atmosphere during severe accidents. These include isotopes of Cesium (Cs-137 and -134), isotopes of Strontium (Sr-89 and -

90), Isotopes of Ruthenium (Ru- 103 and Ru-106), and the Iodine precursor, Tellurium-132. For severe incidents, however, protective actions against I-131 contamination in milk will protect the pathway from the other contaminants. An exception to this may be severe accidents involving spent fuel, since the radioactive iodine in the spent fuel will have decayed to low levels.

- f. Assuming a one shot deposition, the maximum milk concentration for Iodine will occur in two to four days; for Cesium and Strontium, 6-8 days.

(4) Fresh Fluid Milk Protective Action Options

Protective actions for fresh fluid milk will be discussed under two headings: (a) Protective Actions for Milk Prior to Confirmation of Contamination and (b) Protective Actions for Milk Confirmed to be Contaminated.

a. Protective Actions for Milk Prior to Confirmation of Contamination

Protective actions which can be taken for fresh fluid milk prior to confirmation of contamination consist of:

- 1) Simple precautionary actions to avoid or reduce the potential for contamination of milk (by moving dairy animals to shelter and providing protected feed and water).
 - The protective action policy in this plan for milk is early intervention to reduce or entirely avoid contamination of fresh fluid milk. This is accomplished by moving dairy animals from pasture to shelter and providing protected feed and water.
 - In Pennsylvania, the pasturing season runs from May through October, during which time removal from pasture will be an important protective action option. Half the dairy farms located within the Commonwealth are year-round feed lot operations where pasturing is not a significant part of the regimen and where removal from pasture may become a moot recommendation.

- This option is most effective when the action is completed before the deposition of iodine. Some iodine may be detectable in milk even with the implementation of this option, due to cattle intake by inhalation. This may amount to a few percent of what would have been seen if pasturing continued.
- The viability of this option will depend on the availability of stored feed. Silage is at low ebb in late spring before the first mowing.
- The major objective in removal from pasture is achieving the greatest protection against actual contamination of the product. This requires the timely development of a PAR. The PAR for removal from pasture will generally be based on dose projections and plant conditions. Field team sample results for airborne iodine may contribute to the decision, but are not required for PAR development.
- Moving dairy animals from pasture to shelter and providing them with protected feed and water, to a distance of 10 miles, is indicated when:

Projected child thyroid CDE from I-131 by inhalation exceeds one mRem (0.01 mSv) in one hour

OR

Declaration of General Emergency (or Site Area Emergency, at the discretion of BRP Incident Manager).

- Moving dairy animals from pasture to shelter and providing them with protected feed and water, to a distance of 50 miles, is indicated when:

Projected child thyroid CDE from I-131 by inhalation exceeds one mRem (0.01 mSv) in one hour at 10 miles,

OR

Accident conditions are such that particulate (such as Cs) may be released to the atmosphere.

Implementation of protective actions for dairy animals will be followed by sampling of milk producers in the plume path to the PAR distance (10 or 50 miles), and sampling of milk processors supplied by producers within the PAR.

- 2) Temporary embargoes to prevent the introduction into commerce of milk which is likely to be contaminated.

A temporary embargo of milk prevents the consumption of milk that is likely to be contaminated. Distribution and use of possibly contaminated milk is halted until the situation can be evaluated and monitoring and control actions instituted. Temporary embargoes are applied when the radionuclide concentrations are not yet known. Because there is potential for negative impact on the community, justification for this action must be significant. The embargo should remain in effect at least until results are obtained. A temporary embargo should be issued only upon declaration of General Emergency and if predictions of the extent and magnitude of the off-site contamination are persuasive. Implementation of a temporary embargo will be in the plume path to the PAR distance (10 or 50 miles).

Temporary embargo will originate at the milk producer.

b. Protective Actions for Milk Confirmed to be Contaminated

Protective actions which should be implemented when the contamination in milk equals or exceeds the DILs consist of:

- 1) Diversion of Contaminated Milk to Processed Food Products

Diversion of fresh milk to processed food products may be a protective action option in certain situations where milk concentrations exceed the DILs. It is viable option only when the contaminant is I-131 or similarly short-lived nuclide. This protective action uses time as a decontaminating mechanism, through radioactive decay. This option will have limited application since processing capacity for large volumes of milk is not always available. The manufacture of processed foods normally uses about 45% of the milk produced in Pennsylvania.

For this option certain parameters must be known and certain controls must be used. These include:

- The I-131 concentration in the milk, or an upper concentration limit, must be known to calculate the total time required for I-131 removal by radioactive decay.
- The customary storage time of the processed product must be long enough to allow for I-131 decay
- The process must be sampled to verify that the I-131 is retained in the product expected to be stored, and not inadvertently directed to another product. For example, in cheese making, iodine is understood to become protein bound. The whey should be uncontaminated and could go into other products. Sampling is needed to verify that this holds for the particular process used.
- The finished product should be analyzed to verify radiological acceptability.

2) Temporary Embargoes to Prevent Contaminated Milk From Being Introduced Into Commerce

- A temporary embargo to prevent the introduction of contaminated milk into commerce should be considered when the amount of contamination equals or exceeds the DILs, or when the presence of contamination is confirmed, but the concentrations are not yet known. The temporary embargo would continue until measurements confirm that concentrations are below the DILs.
- For milk concentrations equal to or exceeding the DILs for I-131, condemnation and disposal is the protective action, unless adequate processing and storage for I-131 decay becomes available.
- Deliberate dilution or blending to achieve acceptable concentrations is not an option, because this is a violation of the Federal Food, Drug and

Cosmetic Act (FDA 91). Dilution occurring during customary collection practices is not deliberate.

- Consideration of condemnation and disposal will be discussed with PA Department of Agriculture, USDA, and HHS/FDA prior to implementation.

C. Food Crops

Attention to potential food crop contamination will begin when the projected I-131 air concentration in offsite areas is sufficient to produce a projected child thyroid CDE from I-131 by inhalation exceeding one mRem (0.01mSv) in one hour. (3.8E-10 uCi/cc [1.4E-5 Bq/cc] in air, averaged over one hour, produces one milliRem (0.01mSv) projected child thyroid CDE by inhalation.)

(1) Factors Influencing Food Crop Contamination

During a reactor incident, food crops can become contaminated by foliar deposition (surface contamination) from airborne iodine and particulate, or by uptake by plant roots from soil contaminated by surface deposition.

The degree of food crop contamination is affected by several factors. Protective action options will depend on the following conditions:

- a. Incidents releasing no plume at all or a plume consisting only of noble gases will not lead to the contamination of surfaces, including crops in the field.
- b. Incidents which release iodine or particulate, and which occur just before harvest, will have the most impact on contamination of non-root crops by way of foliar deposition.
- c. Accidents which release iodine or particulate, and which occur between harvest and planting (winter), will not lead to foliar deposition. Contamination of food crops may occur by uptake of dissolved particulate through the plant root system, however, iodine will decay away before the succeeding growing season. Some surface contamination on foliage from particulate is also possible as a result of cultivation of the crop.
- d. Incidents which release iodine or particulate during the growing season may contaminate different kinds of food crops to varying degrees. Root crops are not directly contaminated by foliar deposition. For above ground crops and fruit in areas of equal ground deposition, the degree of contamination will depend on the footprint of the crop itself.

(2) Food Crop Protective Actions

For incidents occurring during the growing season, environmental monitoring/sampling will focus on identification of food crop acreage with deposition of I-131 and/or particulate. Food crops from these areas will be sampled and assessed at harvest, before proceeding to market. Evaluation of these food crops is tasked to the FRMAC.

For incidents not during the growing season, environmental monitoring/sampling will focus on identification of food crop acreage with deposition of particulate. Evaluation of future agricultural use of this acreage is tasked to the FRMAC.

Protective actions for food crops will be discussed under two headings:

a. Protective Actions for Food Crops Prior to Confirmation of Contamination:

- Temporary embargoes to prevent the introduction into commerce of food crops, which are likely to be contaminated. Distribution and use of possibly contaminated food crops is halted until the situation can be evaluated and monitoring and control actions instituted.
- Temporary embargoes are applied when the radionuclide concentrations are not yet known. Because there is potential for negative impact on the community, justification for this action must be significant. The embargo should remain in effect at least until results are obtained. A temporary embargo should be issued only upon declaration of General Emergency and if predictions of the extent and magnitude of the off-site contamination are persuasive. Implementation of a temporary embargo will be in the plume path to the PAR distance (10 or 50 miles).

Temporary embargoes will originate at the producer.

b. Protective Actions for Food Crops Confirmed to be Contaminated

Protective actions which should be implemented when the contamination in food crops equals or exceeds the DILs consist of:

(1) Normal Food Production and Processing Actions That Reduce the Amount of Contamination In or On the Food to Below the DILs

Normal food production and processing that could reduce the amount of radioactive contamination in or on the food crops include:

- Diversion of food crops to processed food products may be a protective action option when the only contaminant is I-131 or a similarly short-lived nuclide. This protective action uses time as a decontaminating mechanism, through radioactive decay. Food crops should be sampled prior to processing, with a recommended storage time depending on the decay time needed.
- Holding to allow for radioactive decay: This may be a protective action option when only contaminant is I-131 or similarly short-lived nuclide. This protective action uses time as a decontaminating mechanism, through radioactive decay. Food crops should be sampled prior to processing, with a recommended storage time depending on the decay time needed.
- Removal of surface contamination by brushing, washing, or peeling: This mechanical mechanism removes contamination from the surface of the food crop. It is quite effective against contamination from foliar deposition. However, it is not effective against internal contamination which occurs by uptake of dissolved particulate through the plant root system into the plant.

(2) Temporary Embargo

- A temporary embargo to prevent the introduction into commerce of food from a contaminated area should be considered when the amount of contamination equals or exceeds the DILs, or when the presence of contamination is confirmed, but the concentrations are not yet known. The temporary embargo would continue until measurements confirm that concentrations are below the DILs.

- For food crops equal to or exceeding the DILs, evaluation of these crops will be tasked to the FRMAC. Consideration of condemnation and disposal will be discussed with PA Department of Agriculture, USDA, and HHS/FDA prior to implementation.
- Deliberate blending of contaminated food with uncontaminated food to achieve acceptable concentrations is not permitted because this is a violation of the Federal Food, Drug and Cosmetic Act (FDA 91).

D. Meat

In certain incident situations, intake of cesium in meat for adults may exceed the milk pathway dose. Therefore, areas with cesium depositions approaching the DIL should lead to surveillance and protective actions for meat.

E. Animal Feeds

Limits on concentrations of radionuclides permitted in animal feeds are not given in FDA 1998. However, protective actions for animal feeds are included in FDA 1998 as measures to reduce or prevent subsequent contamination of human food.

Protective actions for food crops will be discussed under two headings:

- (1) Protective Actions for Food Crops Prior to Confirmation of Contamination:
 - a. Simple precaution's to avoid or reduce the potential for contamination of animal feeds: These include modest adjustment of normal operations prior to arrival of contamination. Typical precautionary actions include covering exposed products, moving animals to shelter, corralling livestock and providing protected feed and water.
 - b. Temporary embargoes to prevent the introduction into commerce of animal feeds which are likely to be contaminated: Distribution and use of possibly contaminated animal feeds is halted until the situation can be evaluated and monitoring and control action instituted. Temporary embargoes are applied when the concentrations are not yet known. Because there is potential for negative impact on the community, justification for this action must be significant. The embargo should remain in effect at least

until results are obtained. A temporary embargo on animal feed should be issued only upon declaration of General Emergency and if predictions of the extent and magnitude of the off-site contamination are persuasive. Implementation of a temporary embargo will be in the plume path to the PAR distance for milk protective actions (10 or 50 miles).

(2) Protective Actions Which can be Taken for Animal Feeds Confirmed to be Contaminated:

- a. Protective actions to reduce the impact of contamination in or on animal feeds, including pasture and water, should be taken on a case-by-case basis. Accurately forecasting the transfer of radioactive contamination through the agricultural pathway, from animal feed to human food, is problematic. The forecast is influenced by many factors, such as: the type of feed, (e.g., fresh pasture, grain), other intakes (e.g., other feeds, supplements), the chemical form of the radio-nuclide, medications being administered, the animal species, and the type of resulting human food (e.g., milk, meat, eggs).
- b. Protective actions that can be taken when animal feeds are contaminated include the substitution of uncontaminated water for contaminated water and the removal of lactating dairy animals and meat animals from contaminated feeds and pasture with substitution of contaminated feed. Corralling livestock in an uncontaminated area could also be effective. Evaluation of contaminated animal feeds and animal feed acreage is tasked to FRMAC.

F. Drinking Water

During a reactor incident, surface water may become contaminated as a result of the release of incident-related radioactive waste from the plant. The release may be controlled as part of a planned maneuver to protect against greater risks, or uncontrolled as in the case of the rupture or overflow of liquid radioactive waste treatment or storage tank. The water supplies at risk are downstream users of the receiving stream.

Water contamination can also occur due to direct deposition of airborne activity on the surface of supply streams, reservoirs, and uncovered impoundment's during plume passage. Surface water supplies in any direction can be impacted by plume deposition. Runoff from contaminated land areas to supply streams can also lead to contaminated water supplies.

(1) Drinking Water PAG Analogues

EPA has not formally promulgated protective Action Guides for drinking water. Appendix B of the EPA National Interim Primary Drinking Water Regulations, EPA-570-9/76-003; and Chapter 2 of the FEMA Guidance on Offsite Emergency Radiation Measurement System, Phase 3; Water and Non-Dairy Food Pathway, FEMA REP – 13, May 1990 contains the guidance on contamination of drinking water by radioactive material. (Note: FDA 1998 guidance is currently not applied to drinking water, pending EPA review.)

a. Airborne Release

For airborne releases, which result in direct deposition and runoff from contaminated land, the derived preventive response levels for drinking water in FEMA REP - 13, Chapter 2 are used and applied to drinking water. Both early emergency phase and long-term derived preventive response levels for drinking water are provided. The associated dose commitment at the preventive PAG is 0.5-Rem (5 mSv) whole body, bone marrow, and other organs and 1.5 Rem (15-mSv) thyroid.

b. Liquid Releases

For liquid releases into surface water during an emergency, PAG analogues related to Appendix B of EPA-570-9/76-003 are used.

(i) Controlled Releases

For controlled releases to surface water during the emergency phase, the EPA Appendix B concentrations, referred to as Maximum Contaminant Levels (MCL) will apply for drinking water. The associated dose commitment to any organ is 4 milliRem (0.04 mSv) per year.

(ii) Uncontrolled Releases

In these circumstances, the EPA Appendix B concentrations multiplied by 12 will apply for drinking water. This criterion assumes that uptake time will not exceed one year. The associated dose commitment to any organ is 50 milliRem (0.5 mSv).

(iii) Crisis Conditions

When no other source of drinking water is available and duration of the uptake is 30 days or less, the concentrations for drinking water may reach 1,000 times the EPA Appendix B concentrations. The associated dose commitment to any organ is 330 milliRem (3.3 mSv).

(2) Drinking Water Protective Actions

For Liquid release of radioactive waste from the plant, the most appropriate protective action available is curtailment of intake at public drinking water systems during passage of the contaminated water.

For water contamination from direct deposition or rainwater runoff from contaminated area, protective action options are less straightforward. Protective actions must be developed after characterization of deposition pattern and will take into account the operational features of the water treatment and storage facilities in question.

When contamination concentrations in domestic water supplies exceed the PAGs, the water may still be useful for other purposes, such as fire fighting and sanitation. Uses such as bathing, laundering, decontamination, and certain non-food production industrial uses will require evaluation at the time.

TAB 1

ATTACHMENT C

APPENDIX 7

INGESTION PROTECTIVE ACTION DECISION POINTS

The following data are provided for use as a quick reference to assist in the ingestion pathway decision making process.

DAIRY ANIMALS

<u>DECISION POINT</u>	<u>RECOMMENDATION</u>
Projected child thyroid dose from I-131 inhalation exceeds <u>1 mRem CDE in one hour</u> .	Remove dairy animals from pasture to a distance of <u>10 miles</u> .
Declaration of General Emergency	Remove dairy animals from pasture to a distance of <u>10 miles</u> .
Projected child thyroid dose from I-131 inhalation exceeds <u>1 mRem CDE in one hour at 10 miles</u> .	Remove dairy animals from pasture to a distance of <u>50 miles</u> .
Accident conditions are such that particulate may be released to the atmosphere.	Remove dairy animals from pasture to a distance of <u>50 miles</u> .
PAR implemented for dairy animals.	Sample milk producers in the plume path to the PAR distance (10 or 50 miles) on alternate days for a month. Sample milk processors supplied by producers within the PAR distance, twice a week for a month.
Identification of Restricted Zone.	Sampling done by health physicists at milk producers in the restricted zone. Recommend relocation of the herd. Further evacuation tasked to the FRMAC.
Identification of dairy farm acreage with ground deposition <u>less than</u> 0.1 preventive PAG for I-131 <u>and less than</u> 0.5 preventive PAG for particulate.	Remove restriction on pasturing.

DECISION POINT

RECOMMENDATION

MILK

Identification of milk producers with product at the preventive PAG.	Isolate the product from the market
Identification of milk contamination at the preventive PAG, <u>solely I-131</u> .	Consider diversion to processed food products. Option to be evaluated by the FRMAC.

MEAT ANIMALS

Identification of meat animal acreage with ground deposition at the cesium preventive PAG.	Remove meat animals from pasture.
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FOOD CROPS

Identification of food crop acreage with ground deposition at the preventive PAG for I-131 and/or particulate <u>during the growing season</u> .	Sample and assess at harvest. Evaluation is tasked to the FRMAC.
Identification of food crop acreage with ground deposition at the preventive PAG for I-131 and/or particulate <u>not during the growing season</u> .	Evaluation of future agricultural use is tasked to the FRMAC.
Identification of food crop acreage with <u>solely I-131</u> ground deposition at the preventive PAG.	Consider diversion to process food products. Sample and assess at harvest. Evaluation is tasked to the FRMAC.

ATTACHMENT D

APPENDIX 7

MILK, FOOD, FEED, AND FORAGE CROP SAMPLING

1. PURPOSE

To describe the process to be used in the collection, transport and delivery of agricultural samples for radioactivity analysis.

2. CONCEPT OF OPERATION

A. General

- (1) Sampling and analysis of milk is necessary to evaluate the effectiveness of protective actions, to evaluate ingestion pathway dose commitment and to verify that areas producing contaminated milk have been identified.
- (2) Following the implementation of a PAR for dairy animals, the effectiveness of the action is evaluated by sampling at the individual producers having pasturage in the plume path, to the PAR distance.
- (3) The first sample should represent the first milking after the start of the release. These farms should each continue to be sampled on alternate days until one month after the cessation of uncontrolled releases. At that time, if nuclides are still present in milk, the sampling schedule and the database will be reevaluated for continuation.
- (4) Verification that significant milk contamination is confined to the identified producers in the plume path is done through sampling at fresh milk processing plants supplied by farms within the PAR distance. These processors will be identified by the PA Department of Agriculture. Sampling at the processing plants will begin on the second or third day after the start of a release. These processors will be sampled twice per week until one month after uncontrolled releases cease. At that time, if nuclides are still present in milk at the processor, the sampling schedule and the database will be reevaluated for continuation.

B. Sampling Protocol

- (1) The initial determination to be made in the agricultural sampling process is whether or not there has been a radiological release. This

determination is a BRP responsibility. If there is no release or if the composition of the release consists of noble gases only, no agricultural sampling is required.

- (2) Once it is determined that a radioactive release has taken place, BRP shall ascertain the footprint of such deposition and transmit this data to the Agricultural Response Cell located in the State EOC.
- (3) The Agricultural Response Cell will analyze the deposition footprint and determine if the areas affected contain agricultural concerns (farms, dairies, apiaries, etc.). Should this be the case, land usage information is transmitted (by type) to BRP who shall develop sampling priorities. These sampling priorities are communicated to the Agricultural Response Cell in the form of sampling instructions which direct teams to collect samples of certain commodities at specific locations. If, after deposition footprint analysis, the Agricultural Response Cell determines that no farms, dairies or other comestible producing entities are present, BRP may convey sampling instructions to Pennsylvania Fish and Boat and Game Commissions for execution. The BRP may direct that both agricultural and non-agricultural samples be taken, depending upon conditions and circumstances at the time of the decision.
- (4) Upon receipt of sampling instructions from BRP, the PDA EPLO shall mobilize resources sufficient to accomplish all taskings. Should PDA, as a result of personnel resource shortfalls, not be able to dispatch the required number of sampling teams, a request for support will be passed from the PDA EPLO to the USDA EPLO. Equipment-related unmet needs are to be passed through prescribed channels.

Note: Agricultural sampling in areas designated as restricted zones will be conducted by health physicists, rather than PDA or USDA teams.

- (5) Sampling teams are responsible for their own transportation and (regardless of organizational assignment) shall report to the affected County EOC for a radiological situation briefing. Affected County EMA's are responsible for providing a mobile communications source and a guide to aid sampling teams in accomplishing their mission.
- (6) Upon mission completion, sampling teams are to transport all sample materials to a pre-designated drop point for shipment to the laboratory. They will be monitored for radiological contamination at an emergency worker decontamination station.

ATTACHMENT E

APPENDIX 7

DRINKING WATER SAMPLING

1. PURPOSE

To describe the process to be used in the collection, transport and delivery of drinking water samples for radioactivity analysis.

2. CONCEPT OF OPERATION

A. General

- (1) Sampling and analysis of water is necessary to evaluate the effectiveness of protective actions, to evaluate ingestion pathway dose commitment and to verify that contaminated water supplies have been identified.
- (2) Surface water may become contaminated from liquid radioactive waste releases from the plant. Water contamination can also occur due to direct deposition of airborne activity on streams and reservoirs, and from runoff from contaminated land areas.
- (3) For liquid releases, the Department of Environmental Protection (DEP) EOC Response Team will notify and relay protective action recommendations to all downstream public water supply systems. Finished drinking water samples will be collected daily for a week at all downstream public water systems. At that time, the sampling schedule and database will be re-evaluated for contamination. If appropriate, raw surface and/or groundwater samples will also be collected at the downstream public water systems.
- (4) For airborne releases, finished drinking water samples will be collected at all public water supply systems within the 50 mile EPZ, with priority given to public water systems within the plume deposition area. Public water supplies located within the deposition area should be sampled following plume passage and resample daily until a decision is reached on the potability of the water. Public water supplies located outside the deposition area should be sampled daily for a minimum of three days. At that time, the sampling schedule and database will be re-evaluated for continuation. If appropriate, surface and groundwater samples will also be collected within the plume deposition area.

B. Sampling Protocol

- (1) BRP is responsible for developing a water sampling plan, in consultation with the DEP State EOC Response Team.
- (2) The initial determination to be made in the water sampling process is whether or not there has been a radiological release, either airborne or liquid. This determination is a BRP responsibility. If there is no release, or if the airborne release consists only of noble gases, no water sampling is required.
- (3) Once it is determined that a radioactive release has taken place, BRP will transmit information on the type of release and affected area(s) to the DEP Response Team at the State EOC.
- (4) The DEP EOC Response Team will determine the public water supply systems within the affected area(s) and transmit this information to BRP, who will develop sampling priorities.
- (5) These sampling priorities are communicated to the DEP Response Team, who will mobilize resources sufficient to accomplish all tasking and coordinate water sampling within the 50 mile ingestion pathway zone.
- (6) Water sampling will be conducted by DEP personnel from the Regional Office(s) located near the nuclear power plant.

Note: Water sampling in the restricted zones will be conducted by health physicists, rather than DEP sampling teams.

- (7) Water sampling teams will report to the appropriate DEP Regional Office for a radiological situation briefing prior to deployment. Upon mission completion, sampling teams are to transport all samples to a pre-designated drop point for shipment to the laboratory. Sampling teams will then report to a designated emergency worker decontamination station for monitoring.

APPENDIX 8

ANNEX E

COMMUNICATIONS

1. PURPOSE

To describe the communications system and capabilities that are available for response to a nuclear power plant incident in the Commonwealth and to provide procedures for the establishment and maintenance of essential and effective Statewide communications to include communications with contiguous States and FEMA, during an incident.

2. SITUATION

A. Emergency Communications, Notifications and Coordination

PEMA is the lead State agency for overall coordination of emergency communication for response to an incident. The agency maintains a 24-hour capability to receive initial notification/escalation of an incident via telephone. (See Appendix 2 for general procedures for initial notifications/escalation.)

When the State EOC is activated, key personnel from PEMA and BRP are co-located. Existing dedicated telephone lines become the primary means of communication between the State EOC and the nuclear power plant.

B. Communications Available

Commercial and dedicated telephone circuits and satellite data and voice will be the means of emergency communications for coordination of response to an incident. Additional dedicated telephone lines may be installed to supplement commercial telephone lines.

Existing radio communications, as outlined in Section B.4.a-c below, will be used to supplement the telephone/satellite communications and to support coordination of field operations associated with an incident.

The State EOC has the following types of communications available:

(1) Telephone

In addition to commercial telephones, both PEMA and BRP are linked by dedicated line to each nuclear power plant (except Beaver Valley). A separate dedicated line exists between PEMA and BRP. In addition, a duplicate set of BRP dedicated lines has been installed in the State EOC. Secure communications are provided by the STU III secure telephone in the State EOC.

(2) Satellite

PEWANS

PEMA Emergency Warning and Notification Systems (PEWANS) is a satellite-based data communications system serving all 67 Counties, three Regional offices, the State Fire Academy, PEMA communications van and the State EOC, Harrisburg. The Emergency Information System (EIS) software and the Electronic Communications (ECOMM) module provides real time point-to-point transmission via satellite, of warnings, business text, and graphic information between PEMA and all County emergency management agencies, using a Statewide network of microcomputers. The State Emergency Voice Alerting Network (SEVAN) serves the same sites, as does PEWANS. However, it will be used primarily for early warning/emergency notification such as ECLs, protective action decisions or operational traffic when telephone lines are inoperative.

(3) Teletype

CLEAN

The State Police response team operates Commonwealth Law Enforcement Assistance Network (CLEAN). The terminal can be operated from either the response team cubicle or communications section at the option of the Pennsylvania State Police.

(4) Radio

a. PEMARS

Pennsylvania Emergency Management Agency Radio System (PEMARS) is an UHF repeater system, which functions as a

Regional repeater network. This permits direct communications between PEMA field personnel and County response members. Counties for all non-routine communications activities may use the PEMARS repeaters, where available.

b. Amateur Radio

1) RACES

Radio Amateur Civil Emergency Service (RACES) is a station licensed by the FCC in the Amateur Radio Service and certified by a responsible civil defense or emergency management organization to assist in providing alternate communications paths during long-term emergency situations or States of conflict.

2) ARES

Amateur Radio Emergency Service (ARES) is an American Radio Relay League (ARRL) sponsored organization used to provide emergency communications to State and County organizations outside the provision of RACES. In the plan it is usually shown as RACES/ARES.

c. Other Commonwealth Assets

1) State Police (PSP)

2) Department of Environmental Protection (DEP)

3) Turnpike Commission

4) Attorney General

5) Capitol Police

6) DMVA

Located in the State EOC is radio equipment, which is programmable for each of the above agencies, and others, which provides additional channels of radio communications for use in the State EOC in times of declared emergency.

d. EAS

Emergency Alert System (EAS) disseminates emergency information and instruction to the general public within the Commonwealth using the resources of the broadcast industry. EAS may be activated directly from the State EOC, but is usually activated at the County level.

e. FNARS

FEMA National Radio Station (FNARS) used by PEMA to communicate with other Federal agencies and contiguous States via High Frequency (HF) resources.

f. Secure Radio Operation

The Federal Communications Commission (FCC) has assigned frequencies to be used by the Commonwealth during disasters. These frequencies (between 2-10 Mhz) are to be used for Statewide communications and their use is governed by Part 90.264 of FCC rules.

g. SEVAN

The State Emergency Voice Alerting Network is a Statewide satellite open voice network between the State EOC, PEMA Regional EOCs, 67 Counties, City of Pittsburgh and the State Fire Academy.

(5) IFLOWS/ALERT

Integrated Flood Observation and Warning System/Alert System (IFLOWS/ALERT) is a network which assembles a report of rainfall received from participating Counties within the Commonwealth and provides information and message traffic capabilities similar to PEMARS above. IFLOWS/ALERT can be used as a supplementary communications system, but only with Counties participating in the program.

(6) NOAA

National Oceanographic and Atmospheric Administration (NOAA) provides weather-reporting services on a Regional basis for the Federal government. Under emergency conditions at a nuclear power plant, these services will broadcast pre-taped messages, which advise residents in the area to tune in their EBS station(s) for information on the incident. Activation of NOAA is made through, by and under the control of the National Weather Service. Coordination of activation of NOAA is conducted via commercial telephone or existing dedicated lines of the National Warning System (NAWAS) from the State EOC.

(7) Satellite Communications System

A digital data and voice Ku Band Satellite Communications System replaced leased telephone lines. The system uses very Small Aperture Terminal (VSAT) satellite technology. It is the backbone of the EIS/ECOMM network and is the Statewide emergency warning network. A mobile satellite unit can provide a satellite video broadcast to any site with a Ku band satellite TVRO system from the nuclear power plant.

3. CONCEPT OF OPERATIONS

- A. The capability of the Commonwealth of Pennsylvania to respond to an emergency at a nuclear power plant is predicated upon an operational communications network. This network includes twenty-four hour notification and telephone/satellite communications capabilities between all organizations and agencies involved in the emergency response operation. In addition, redundant radio communication systems are available between some interacting agencies and organizations.
- B. Existing communication systems (dedicated land lines, commercial telephone, radio nets and local police, fire and emergency medical nets) could be used at the time of an incident at nuclear power plants affecting the Commonwealth.
- C. RACES/ARES can be activated at the emergency action level of alert or higher at one of the nuclear power plants affecting the Commonwealth. The RACES/ARES nets can be used for communications between State, County and Municipal EOCs in the emergency area.
- D. Dedicated telephone circuits are used which links each nuclear power plant (except Beaver Valley) with the State EOC.
- E. Communications with Federal emergency response organizations can be established through the State EOC by means of telephone, the Federal National Asset Message System (FNAMS) and the National Warning System (NAWAS).
- F. Communications support to field operations of State and Federal agencies in the form of technical assistance and procurement of additional communications equipment, materials and supplies will be provided as necessary.

4. ORGANIZATION AND RESPONSIBILITIES

A. PEMA

PEMA is the lead State agency in the coordination of emergency communications to be used by all Federal, State, County and Municipal organizations.

B. Commonwealth Departments and Agencies

- (1) Coordinate with PEMA to ensure equipment and procedural compatibility.
- (2) Permit PEMA to use communications capabilities during disasters/emergencies.

C. Department of General Services

Provide support in the form of technical assistance and procurement of additional communications equipment, materials and supplies to field operations of State and Federal agencies, as necessary, through the Telephone Technology Services Division, Bureau of Telecommunications and Information Technology Services.

D. National Guard (when mobilized to State active duty)

Provide supplemental communications and alerting capability.

5. ADMINISTRATION AND LOGISTICS

A. Administration

(1) Acknowledgment and Verification

- a. Initial notifications and changes to Emergency Classification Levels.
- b. Requiring implementation of protective action decisions (sheltering, evacuation).

(2) 24-Hour Military System

Local time expressed in the 24-hour military system will be used in all transmissions.

(3) Media Representatives

Media representatives will be provided use of appropriate communications facilities proximate to, but separate from, the EOC.

(4) Clarity and Understanding of Messages

During emergency operations clarity and understanding of messages assume priority over use of brevity code systems.

(5) Testing

Communications resources of Commonwealth departments and agencies; risk and support Counties; and risk Municipal EMA's will be tested monthly.

B. Logistics

(1) Internal Procedures

Commonwealth departments/agencies and risk and support County governments will develop internal procedures to prevent overload conditions on telephone lines during emergencies.

(2) Emergency Power

Emergency power and fuel should be available for State, County and Municipal EOC communications facilities.

(3) Maintenance

State departments/agencies, Counties and Municipalities will inspect, inventory and operationally check emergency communications equipment at least once each calendar quarter and after each use. Sufficient reserves will be available to replace equipment removed for calibration or repair. Calibration of equipment will be conducted at intervals recommended by the manufacturer of the equipment.

6. REFERENCES

(See Basic Document, paragraph 12, "References".)

7. DEFINITIONS AND TERMS

(See Basic Document, paragraph 13, "Definitions".)

8. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3, "Abbreviations".)

APPENDIX 9

ANNEX E

NUCLEAR POWER PLANT RESPONSIBILITIES

1. PURPOSE

To specify the responsibilities accepted by management of the nuclear power plants located within the Commonwealth of Pennsylvania.

2. SITUATION

The nuclear power plants within the Commonwealth, their organizations and locations are:

Nuclear Power Plant	Organization	Parent County Location
Beaver Valley Power Station	First Energy Nuclear Operating Company	Beaver
Peach Bottom Atomic Power Station	Exelon Nuclear	York
Limerick Generating Station	Exelon Nuclear	Montgomery
Susquehanna Steam Electric Station	PPL Susquehanna LLC	Luzerne
Three Mile Island Nuclear Station	AmerGen Energy Company	Dauphin

3. CONCEPT OF OPERATIONS

See Basic Document.

4. RESPONSIBILITIES

Responsibilities accepted by management of nuclear power plants are:

- A. Coordinate nuclear power plant emergency operations plan with State and risk Counties.
- B. Provide current nuclear power plant emergency operations plan to PEMA and risk Counties.

- C. Provide appropriate documentation to PEMA of special relationships, agreements or other understandings with State, County and Municipal government authorities, and agencies or support organizations included in emergency planning and operations.
- D. Establish dedicated communication with the PEMA, Bureau of Radiation Protection (BRP) and risk Counties.

NOTE: Beaver Valley Power Station is an exception. It uses a multi-line commercial phone system.
- E. Provide notification and communications with PEMA, BRP and risk Counties as described in Appendices 2, 3 and 8.
- F. Provide (if requested) liaison with BRP.
- G. Provide technical information regarding plant status to BRP.
- H. Provide protective action recommendation (PAR) to the senior official in the State EOC.
- I. Develop dose projections for offsite areas in coordination with BRP.
- J. Notify the State and parent County EOCs at the time the decision is made to evacuate non-essential on-site personnel to permit off-site assistance and public information coordination as appropriate.
- K. Cooperate with BRP and PEMA in the assessment of an incident to include provision of accommodations at the EOF.
- L. Utilities will be responsible in assisting risk Municipalities in preparation of Municipal plans for offsite response to nuclear power plant incidents.
- M. Utilities will be responsible for assisting risk Municipalities in training for response to nuclear power plant incidents.
- N. Participate in incident training exercises and drills.
- O. Coordinate with PEMA and the risk Counties on the promotion of public education and information.
- P. Coordinate with appropriate risk County (ies) regarding the plans, deployment and training of emergency forces needed to respond to the nuclear power plant in event of an onsite emergency.
- Q. Provide emergency response training annually for State agencies, risk and support Counties and Offsite Response Organizations (OROs) providing emergency services directly to the facility.

- R. Provide and maintain a siren-alert system within the plume exposure pathway EPZ surrounding each nuclear power plant with activation controls located in each risk County EOC.
- S. Ensure that evacuation time estimate studies remain accurate and current. Coordinate these estimates with PEMA.

5. REFERENCES

(See Basic Document, paragraph 12, "References".)

6. DEFINITIONS AND TERMS

(See Basic Document, paragraph 13, "Definitions".)

7. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3, "Abbreviations".)

APPENDIX 10

ANNEX E

MASS CARE

1. PURPOSE

- A. To provide procedures for emergency care of evacuees to include reception, lodging, feeding, social services, nursing care and the operation of emergency registration and human locator systems.
- B. To provide for monitoring/decontamination of the general public along with the medical evacuation of radiologically contaminated victims if necessary.

2. ASSUMPTIONS

- A. A nuclear power plant incident may require that the population within the plume exposure pathway EPZ be evacuated to an area at least 20 miles from the nuclear power plant site.
- B. At least 80 percent of the population within the plume exposure pathway EPZ will make independent arrangements for relocation if evacuation becomes necessary.
- C. As many as 20 percent of the evacuees within the EPZ could require emergency mass care support.

3. CONCEPT OF OPERATIONS

- A. Each risk County Emergency Management Agency (EMA) is the primary agency for developing and coordinating a mass care program (See Attachment A). When more than one County is involved, PEMA will be included in the coordination process.
- B. Risk County EMA plans should provide reception centers and mass care facilities for 20 percent of the population within the EPZ. Risk Counties, in coordination with PEMA, will coordinate the required number of mass care spaces to be provided in other Counties when there are insufficient spaces available within their own County. Mass care centers are to be located at least 20 miles from the nuclear power plant.

- C. Support County EMA's will develop a mass care program in coordination with Risk County (ies). The program should be tailored and response procedures prepared to receive the requisite number of persons who may require mass care accommodations in event of a nuclear power plant incident.
- D. American Red Cross, under congressional mandate to render disaster assistance, will be prepared to cooperate and coordinate its activities to provide assistance. Written agreements with the Red Cross should be completed by the EMA. Upon request of the County emergency management agency, the local chapter(s) of the American Red Cross will provide mass care staff assistance to the emergency operations center (EOC) and will prepare to manage and fund designated mass care centers. These mass care centers may be programmed for mobilization in sequence as required by demand.
- E. Reception centers, established for the purpose of processing large numbers of evacuees for their assignment to mass care centers, will be under the control of the County EMA's who will arrange for staffing. Reception centers may be co-located with some mass care centers. Reception Centers should provide for the following:
 - (1) Strip maps and handouts for the evacuees.
 - (2) Adequate 24-hour staffing for smooth operation of the Reception Center
 - (3) Procedures to control traffic.
 - (4) An accounting/control system for filling mass cares centers.
- F. Monitoring/decontamination of the public and their belongings will be accomplished, in accordance with guidance provided in Appendix 5, at monitoring/decontamination centers usually co-located with mass care centers.

4. RESPONSIBILITIES

- A. General responsibilities usually common to both risk and support Counties are to:
 - (1) Develop and maintain radiological emergency response procedures to support emergency care of evacuees to include reception, decontamination, lodging, feeding and social services (see Attachment A).

- (2) Select mass care centers at least 20 miles from the nuclear power plant site.
- (3) Select and operate reception centers, which are located at least 15 miles from the plant and preferably 20 miles beyond.
- (4) Coordinate and seek agreement with the American Red Cross and the facility administration to provide management and staffing assistance of the mass care center.
- (5) Make provisions for training of staff and for their participation in drills and exercises.
- (6) Participate in radiological emergency response exercises and drills.

B. General responsibilities of the American Red Cross are to:

- (1) Staff and manage mass care centers, as required, in coordination with the risk and/or support County Emergency Management Agencies (EMA). (See Attachment A.)
- (2) Coordinate the services of other voluntary organizations (Salvation Army, church groups, civic clubs, etc.) during nuclear power plant incidents to ensure efficient utilization of available staff and resources.
- (3) Coordinate with the risk or support EMA and the administrator of the facilities designated as mass care centers to obtain written agreements regarding utilization of the facilities.
- (4) Maintain records and accountability of resources expended and costs accrued.
- (5) Maintain a listing of available staff and voluntary workers and provide them necessary training.
- (6) Participate in radiological emergency response exercises and drills.

5. REFERENCES

(See Basic Document, paragraph 12)

6. DEFINITIONS AND TERMS

(See Basic Document, paragraph 13)

7. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3)

ATTACHMENTS:

- A. Mass Care Operations
- B. Procedure for Use of U.S. Department of Agriculture, Foods for Disaster Mass Feeding
- C. Mass Care Center (Shelter) Registration
- D. Mass Care Daily Operations Report
- E. Sample Agreement for the Use of School Facilities as Mass Care Centers during Disasters
- F. Sample Statement of Agreement between County EMA and Chapter ARC

ATTACHMENT A

APPENDIX 10

MASS CARE OPERATIONS

1. COUNTY EMA RESPONSIBILITIES, RESPONSE ACTIONS AND PROCEDURES

- A. The County Emergency Management Agency is responsible for overall coordination of offsite radiological emergency planning and response operations. Red Cross cooperates in support of State and County governments by operating mass care centers in government designated facilities during evacuations.
- B. The Emergency Management Agency is responsible to provide response actions/procedures for:
 - (1) Emergency activation and operation of a mass care program. (The number and type of facilities to be opened depends upon the size of the emergency.)
 - (2) Pre-planning the availability of facilities needed for mass care and/or evacuation.
 - (3) Selection, classification and planning for the utilization of mass care center locations.
 - (4) Planning and organization work which includes advance written agreements with facility owners/directors and staff assignments.
 - (5) Coordination by risk Counties with those support Counties where Mass Care Centers will be provided if evacuation from the Risk County becomes necessary.
 - (6) Organizing a mass care staff.
 - (7) Developing the Mass Care Appendix to the County Radiological Emergency Response Plan. Assigning functional responsibilities to appropriate governmental departments and agencies, and coordinating planning with the local chapter of the American Red Cross. (A sample agreement is provided in Attachment F.)
 - (8) Establishing and maintaining resource lists.
 - (9) Listing shortfall requirements of supplies and personnel.

- (10) Directing and controlling emergency operations essential to the preservation and protection of life.
- (11) Opening and operating reception centers, pick-up points and central resource receiving point.
- (12) Designating and directing ARC to open and operate mass care centers.
- (13) Coordinating support from the County agencies providing welfare, health and transportation services.
- (14) Compiling statistical data and reports to document what was done and the costs.

2. AMERICAN RED CROSS RESPONSIBILITIES

- A. The Red Cross is required by congressional charter to undertake relief activities for disaster victims. A Statement of Agreement has been signed by the Governor of the Commonwealth of Pennsylvania and the Vice President/General Manager of the American National Red Cross to provide for cooperation and coordination between the Commonwealth and the Red Cross. This Statement of Agreement commits the Red Cross Chapters in the Commonwealth to initiate a mass care response.
- B. In peacetime nuclear accidents Red Cross Chapters initiate a mass care response, which involves mass, shelter (including disaster health services) and mass feeding operations.
- C. Red Cross Chapters through pre-planning ensure that available resources of other agencies, both public and private, augment Red Cross resources for mass care.
- D. Red Cross recognizes the primary responsibility of State and local public health authorities for the protection of the health in the community at all times and will cooperate with Public Health Services for contingencies and special situations.
- E. Recruit and train mass care managers, disaster feeding personnel, nurses, liaison personnel and supervisors to serve in Red Cross operated mass care centers, feeding centers and administrative positions.
- F. Upon notification of a Site Area Emergency, initiate the chapter disaster plan and notify key staff to move to headquarters and liaisons to EOCs. Mass care centers are opened with a skeletal staff as needed.

- G. Upon notification by the County EMA, mobilize and assign support staff for mass care centers and liaisons with communications equipment to mass care centers. Open additional centers, if appropriate.
- H. Establishes a Red Cross field headquarters to administer and support the operation.
- I. The national sector will make support available, including funding, manpower and material to augment the resources of the chapters and will direct the operation.
- J. Maintain records and accountability of resources expended and costs incurred.

3. ACTIONS OF MASS CARE CENTER MANAGERS

- A. In accordance with Red Cross procedure after being officially notified to open a building for the mass care center, the manager should:
 - (1) Proceed immediately to the building.
 - (2) Establish and maintain contact with the disaster headquarters.
 - (3) Alert basic staff and activate the building.
 - (4) Arrange the building for operation, and inventory supplies and equipment.
 - (5) Order supplies and equipment from the disaster headquarters and report any need for support such as medical services.
 - (6) Recruit additional personnel (evacuees may be recruited).
 - (7) Begin feeding beverages and snacks as soon as the shelter opens and begin regular meal service as soon as possible.
 - (8) Keep in constant touch with the mass care disaster headquarters, giving progress reports and a daily count of persons housed and fed.
- B. Reception and Registration - arrange for as soon as practicable.
- C. Food - arrange for feeding, supplies, special diet problems, menus and use of USDA foods and reports. (See Attachment B.)

- D. Disaster Health Services - care for the sick and injured, protect the residents and supervise the sanitation of the mass care center.
- E. Child Care - should be considered if the center remains open for more than a day or two.
- F. Recreation - if large numbers of persons are housed and if the center operation is prolonged.
- G. Maintenance of the Mass Care Center
 - (1) Acquire additional supplies and equipment as needed.
 - (2) Arrange for daily janitorial service.
 - (3) Arrange for the installation of additional temporary facilities such as showers and toilets if necessary.
 - (4) Prepare and supervise the use of the grounds and yard for parking and recreation as needed.
 - (5) Maintain a system of record keeping to document any damages and related expenses.
- H. Floor Plan and Space Allocation - Consideration should be given to the primary needs of reception and registration, feeding area, emergency medical care, sleeping area, storage and administration. Later consider secondary needs.

4. REQUIREMENTS FOR MASS CARE CENTERS

The County Emergency Management Agency selects the facilities for mass care centers in coordination with the American Red Cross. Designated mass care centers must meet established standards and a written agreement must be in place for the use of each facility. (See Tab 1 and Attachment E.)

5. LIAISON

- A. Liaison between the County Emergency Management Agency and its mass care officer and the Red Cross is maintained by the Red Cross Liaison in the County EOC.
- B. The Red Cross liaison in the County EOC maintains contact with the Red Cross disaster headquarters.

TAB:

- 1. Sample Considerations

TAB 1

ATTACHMENT A

SAMPLE CONSIDERATIONS

1. Determination of facility availability - Is it available all seasons of the year?
2. Locations - Is it in a floodplain or are there other detracting features that would limit or prevent use?
3. Is there space suitable for sleeping quarters and, when possible, separate rooms for the elderly, families with small children or for those requiring special care, including disabled persons.
4. Is the facility large enough for cooking, serving and the storing of food?
5. Is there an adequate supply of potable drinking water and water for other purposes?
6. Are there adequate heating, lighting, ventilation and a source of auxiliary power?
7. Are there toilet and bathing facilities and adequate garbage and water disposal?
8. Are there adequate fire and security protection capabilities?
9. Is there office space, an infirmary area and storage space for personal property?
10. Is there an adequate recreation area?
11. Is there adequate accessibility to transportation/parking facilities, etc?
12. Where possible, arrangements for the establishment of mass care centers should focus on schools, since these facilities provide most of the requirements noted immediately above. In addition, food supplies on hand are usually sufficient for immediate needs.
13. Procurement of additional food supplies is made per agreement with the Pennsylvania Department of Agriculture, Bureau of Government Donated Foods. (See Attachment B - Procedure for Use of U.S. Department of Agriculture, Foods for Disaster Mass feeding.)
14. Other suitable facilities are colleges, lodge halls, camp recreation and park buildings, motels, and hotels. Support facilities may also be required such as warehouses, restaurant facilities, office space, and mobile units.
15. In the preparation for use of facilities as mass care centers, written agreements are required for use of the buildings and staff personnel (See Attachment E). Once the applicable County Emergency Management Coordinator signs an appropriate written agreement, the Red Cross is responsible for securing necessary supporting agreements.

ATTACHMENT B

APPENDIX 10

PROCEDURE FOR USE OF U.S. DEPARTMENT OF AGRICULTURE FOODS FOR DISASTER MASS FEEDING

1. PURPOSE

The purpose of this procedure is to provide basic information and guidance for the use of government-donated food for mass feeding of disaster victims and workers.

2. BACKGROUND

- A. The Disaster Relief Act of 1984 authorizes the Secretary, U.S. Department of Agriculture to provide various relief services, including group feeding or distribution of food as a result of major disasters. The USDA Secretary makes available donated foods purchased by the USDA Food and Nutrition Services through the State Distributing Agency. In Pennsylvania, the Pennsylvania Department of Agriculture, Bureau of Government Donated Food handles these foods.
- B. The food purchased by USDA for use during disasters in the State of Pennsylvania is available to disaster relief agencies (Red Cross, Salvation Army, etc.) for mass care purposes. Household distribution can proceed only when commercial channels have been disrupted.
- C. Information on facilities, which have the capability to prepare foods, is available through the Bureau of Government Donated Food. The Pennsylvania Emergency Management Agency (PEMA) can function as an initial point of contact for this information.

3. GENERAL

- A. Disasters include natural disasters such as hurricanes, tornadoes, storms, floods, earthquakes, drought and fires, and man-made disasters such as explosions, fires, riots, and nuclear/chemical contamination.
- B. Disaster victims include those persons, who, because of acts of God or man-made disasters, are in need of emergency food assistance.

- C. The USDA donated foods become the property of the State. In Pennsylvania, the food items are stored in bulk warehouses and the Bureau of Government Donated Food manages them. Donated foods are also stored at participating schools and institutions to meet their program requirements.
- D. Transportation to move the food to the disaster area is the responsibility of the agency requesting the food. However, the Bureau of Government Donated Food will work with distribution contract vendors to provide transportation. There may be a small charge for storage and handling.
- E. Government donated food that is used by approved disaster relief organizations is without charge, but appropriate records must be maintained to ensure accountability, for in most cases the USDA will replace the food that is used.
- F. Food which may be on hand and available for mass care is listed in general categories at Tab 1.

4. PROCEDURES FOR OBTAINING USDA DONATED FOOD

- A. Group Feeding: The disaster relief agencies will request approval from PEMA for the use of donated food for group feeding. Contact the Bureau of Government Donated Food and provide the following information to the extent possible.
 - 1. Provide the description of disaster situation.
 - 2. Number of people requiring meals and length of feeding period.
 - 3. Quantity and types of food needed.
 - 4. Number and location of sites for group feeding.
- B. When the feeding is being done in school lunch facilities, call the Bureau of Government Donated Food immediately.
 - 1. The food will come from the school lunch inventory.
 - 2. When additional foods are required, the school lunch personnel will contact the Bureau of Government Donated Food. Transportation of food will be coordinated with requesting agency.
- C. Issuance of USDA food is made from the nearest warehouse or facility. The warehouse documents the amount and type food issued and signed receipts for the food will be required and filed.

5. PROCEDURES FOR REPORTING THE USE OF USDA DONATED FOOD

- A. After mass feeding is completed the disaster relief organization should contact the Bureau of Government Donated Food and complete the commodity distribution form (See Tab 2).
- B. The program for the use of USDA donated food will be considered completed when all unused food has been returned and all reports have been submitted and approved by the Bureau of Government Donated Food.

State Contacts:	Director Pennsylvania Emergency Management Agency
Address:	2605 Interstate Drive Harrisburg, Pennsylvania 17110-9364 Telephone Number (717) 651-2001
Bureau of Government Donated Food Contact:	Director of Field Operations 2301 North Cameron Street Harrisburg, Pennsylvania 17110 Telephone No. (717) 787-2940

6. PROCEDURE FOR RETURNING UNUSED FOOD

The Disaster Relief Organization will report the amount of unused food to the Bureau of Government Donated Food's representative who will submit instructions for its disposition. The Relief Organization will be required to complete form as shown in Tab 2.

7. CONCEPT OF OPERATION

- A. The Bureau of Government Donated Food, Department of Agriculture receives the request from the disaster agency, authorized by appropriate Federal or State officials (PEMA) to assist disaster victims.
- B. Once the request for assistance is approved, the Bureau of Government Donated Food field representative will arrange for distribution of the food items from the nearest storage facility to the requesting organization.

- C. Food items purchased by the school or donated by USDA specifically for the school lunch program may be used by disaster organizations for emergency feeding.
- D. Bureau of Government Donated Food determines nearest storage facility to area affected. The Bureau will work closely with the local Disaster Service (County Emergency Management Agency and American Red Cross).
- E. The USDA will attempt to replace any donated food used for disaster relief purposes with food of equal value, or in kind.
- F. Donated food distributed is to be used for mass feeding only.
- G. Distribution of donated food to "Households" may be distributed in area where the Food Stamp Program is in operation, so long as the U.S. Secretary of Agriculture finds that the commercial channels of food distribution have been disrupted because of an emergency situation caused by a national or other disaster. The Administrator, Food and Nutrition Service, has been given the authority by the USDA/Regional Secretary to make this determination.
- H. Individual families will be instructed to apply for "free food stamps" issued by local board of assistance at local sites, as designated.

TABS:

1. Food Categories
2. Report of Commodity Distribution for Disaster Relief

TAB 1

ATTACHMENT B

FOOD CATEGORIES

Categories of items available for disaster group feeding:

- **CANNED FRUITS AND VEGETABLES**
- **CANNED MEAT AND POULTRY**
- **FROZEN PRODUCTS**
- **REFRIGERATED PRODUCTS**
- **DRIED PRODUCTS**
- **DRIED PRODUCTS SUCH AS GRAINS, PEANUT ITEMS, PASTA PRODUCTS, SHORTENING, PEANUT BUTTER AND DRY MILK**

TAB 2

ATTACHMENT B

REPORT OF COMMODITY DISTRIBUTION FOR DISASTER RELIEF

Name of Disaster Relief Organization:

Contact Person:

Address:

Telephone:

FEEDING SITE LOCATIONS

- 1.
- 2.
- 3.
- 4.

Indicate Number of Feeding Days: _____

Approximate Number of Persons Served: _____

QUANTITY OF USDA COMMODITIES USED

<u>ITEM</u>	<u>CASES</u>	<u>ITEM</u>	<u>CASES</u>

Food disposition, after feeding site is closed: Contact the Government Donated Food contact person or the Bureau.

Schools: Attach list of donated foods taken from their own inventory and the remaining balance on hand.

Source: Pennsylvania Department of Agriculture, Bureau of Government Donated Food.

ATTACHMENT C

APPENDIX 10

MASS CARE CENTER (SHELTER) REGISTRATION

AMERICAN RED CROSS DISASTER SHELTER REGISTRATION

Family Last Name				Shelter Location	
Names	Ages	Medical Problem:	Referred to Nurse	Shelter Telephone Number	Date of Arrival
*Killed *Injured *Hospitalized					
Man				Pre-disaster Address and Telephone Number	
Woman (Include Maiden Name)				I (do) or (do not) authorize release of the above information concerning my whereabouts or general condition. Signature: Date Left Shelter: _____ Time Left Shelter: _____	
Children in Home					
Family Members Not in Shelter (Location if known)				Post-disaster Address and Telephone Number	
Shelter Master File				American Red Cross Form	

Facsimile of ARC Form No. 5972

SAMPLE

ATTACHMENT E

APPENDIX 10

AGREEMENT FOR THE USE OF
SCHOOL FACILITIES AS MASS CARE CENTERS
DURING DISASTERS

This agreement is made this ____ day of _____ 20__ by and between the School Board of the _____ School District and the _____ Chapter of the American Red Cross.

WITNESSETH:

WHEREAS, pursuant to the terms of Federal statutes, the American Red Cross provides emergency services on behalf of individuals and family victims of disaster; and

WHEREAS, pursuant to the terms of the Pennsylvania Emergency Management Services Code (35 Pa. C.S., as amended), the _____ County Emergency Management Agency has been designated as the coordinating agency for disaster operations in _____ County;

WHEREAS, pursuant to the authority vested in the _____ School Board, the officials of the _____ School District are authorized to permit the American Red Cross to use its school buildings, other buildings, grounds, and equipment for mass care centers required in the conduct of American Red Cross disaster relief activities and it is requested that they cooperate with the American Red Cross and the _____ County Emergency Management Agency for such purposes.

NOW THEREFORE, it is mutually agreed between the parties as follows:

1. _____ School District facilities shall be made available to the _____ County Emergency Management for use as mass care centers at such times as a disaster emergency has been declared by the County of _____ and/or the Commonwealth of Pennsylvania. School District personnel shall retain full authority and responsibility for the protection of school property.
2. In cases where disaster emergencies are not officially declared, _____ School District administrators shall make district facilities available for mass care use upon the request of the _____ County Emergency Management Agency.

3. Emergency facility use will not commence, in either 1 or 2 above, until the primary responsibility of student welfare and safety has been resolved.
4. The American Red Cross agrees to operate said facilities on behalf of the _____ County Emergency Management Agency and the American Red Cross agrees that it shall exercise reasonable care in the conduct of its activities in such facilities and further agrees to replace or reimburse _____ School District for any school food or supplies that may be used by the American Red Cross, or damage caused to district property by American Red Cross personnel in the conduct of their relief activities in said mass care centers.

In witness whereof, the School Board of the _____ School District has caused this Agreement to be executed by the President of the _____ School Board, the American Red Cross has caused this Agreement to be executed by the _____ Chapter and the _____ County Emergency Management Agency has caused this Agreement to be executed by the Agency's Director, said Agreement is effective as of the date set forth above.

Signed: _____
(Name), Executive Director
_____ Chapter American Red Cross

Signed: _____
(Name), President
_____ School Board

Signed: _____
(Name), Coordinator
_____ County Emergency Management Agency

SAMPLE
ATTACHMENT F
APPENDIX 10
STATEMENT OF AGREEMENT
BETWEEN
THE COUNTY EMERGENCY MANAGEMENT AGENCY
AND
THE CHAPTER OF THE AMERICAN RED CROSS

1. PURPOSE

The purpose of this Statement of Agreement is to provide for cooperation and coordination between _____ County Emergency Management Agency and the _____ Chapter of the American Red Cross in carrying out their assigned responsibilities in the event of natural or man-made disasters or enemy attack.

2. DEFINITION OF DISASTER

A disaster is an occurrence that causes human suffering or creates human needs that the victims cannot alleviate without assistance. Followings are the examples of disaster occurrences: hurricane, tornado, storm, nuclear power plant accident, flood, high water, wind-driven water, tidal wave, earthquake, drought, blizzard, pestilence, famine, fire, explosion, volcanic eruption, building collapse, transportation wreck, enemy attack, or other situation

3. AUTHORITY

A. The Statement of Agreement between the Commonwealth of Pennsylvania and the American National Red Cross, finalized on July 21, 1987. The agreement States that there are to be cooperative arrangements for planning, preparedness and disaster operations between the Pennsylvania Emergency Management Agency and the American Red Cross. It encourages the County Emergency Management Agency and the local American Red Cross Chapters to establish similar arrangements.

B. _____ Chapter of the American Red Cross

The American Red Cross (ARC) through its _____ Chapter is an instrumentality of the United States Government, with a Congressional

Charter, codified at 36 U.S.C., Section 1 et. seq., and the Disaster Relief Act of 1974 (P.L. 93-288).

C. County of _____

The _____ County Emergency Management Agency (County EMA) was established in accordance with Section 7501 of the Pennsylvania Emergency Management Services Code (35 Pa. C.S., as amended). The County Emergency Management Agency has been designated as the Agency responsible for management of County emergency operations.

4. RESPONSIBILITIES - County Emergency Management Agency

A. _____ COUNTY EMA will devote its primary efforts to the Countywide dissemination of warnings, human rescue, emergency medical care, evacuation and other property protection measures. The _____ County EMA will, as necessary and practical, provide initial emergency care and other vital assistance immediately required by people in need.

B. The _____ County EMA Coordinator will represent the County as a full member of the _____ ARC Chapter's disaster committee.

C. _____ County EMA will act as the County's coordinating agency for mass care activities as follows:

1. Selection of and planning for the utilization of mass care centers.
2. Planning and coordination with the ARC to include obtaining written agreements with the ARC and owners/directors or School Boards of facilities to be used as mass care centers.
3. Notifying the ARC of the occurrence of an incident and determining the time, number and type of facilities to be opened based upon the size of the disaster. Advising the ARC when its support is no longer required.
4. Assist the ARC in recruiting and training volunteers to fulfill mass care functions throughout the County. The County EMA will keep the ARC informed regarding available training opportunities and, in cases where both parties offer similar training, attempt to consolidate the training into one program.
5. Reporting unmet needs to the appropriate PEMA Area Office.

5. RESPONSIBILITIES - Chapter of The American Red Cross

- A. The ARC will respond to those disasters as defined in para. 2.
- B. The _____ ARC and the _____ County EMA agree to coordinate their emergency response activities in an interdependent manner.
- C. For those disasters that require the activation of a _____ County Emergency Operations Center, the ARC will provide an experienced representative to represent the ARC at the County EOC upon request.
- D. The ARC will coordinate the disaster relief efforts of other voluntary agencies with which it has written agreements for mutual cooperation in times of disaster.
- E. The ARC will pre-plan the availability and staffing of facilities needed for mass care.
- F. The ARC will select key staff members for each mass care center and train them in advance to function effectively on a 24-hour basis during emergencies. Those pre-selected should include Center Managers and Assistants, Nursing Staff, Family Service Counselors, Food Service Personnel, Storekeepers and Maintenance Staff.
- G. The ARC Chapter _____ is responsible for recruiting and training volunteers to fulfill its functions throughout the jurisdiction of the Chapter. The ARC should keep the County EMA informed regarding available training opportunities and, where training programs are similar, attempt to consolidate the training into a single program.
- H. When the _____ County EMA decides it is necessary to open one or more mass care centers, the ARC is responsible for notifying the pre-designated mass care center managers.
- I. Since the ARC requires early notification in order to be able to respond adequately to disasters, the _____ Chapter will provide the _____ County EMA with a list of key personnel and their phone numbers for alert/notification purposes.
- J. The ARC will participate in obtaining written agreements with the County and owners/directors or School Boards of facilities to be used as mass care centers.
- K. The ARC will report its unmet needs at the mass care centers to the _____ County EMA.

6. PLANNING AND IMPLEMENTATION

- A. Cooperative arrangements for planning, exchange of information and continuing liaison regarding preparedness and disaster operations will be developed and maintained by the _____ County EMA and the _____ ARC Chapter.
- B. All disaster planning will take into account the cooperative and mutually supporting nature of the two parties.

IN WITNESS THEREOF, the parties hereto have executed this Statement of Agreement on the dates indicated.

COUNTY OF _____ Chapter
of the American Red Cross

By: _____

_____ County Emergency

Date: _____

By:

Title:

Management Coordinator

Date: _____

APPENDIX 11

ANNEX E

HEALTH AND MEDICAL SUPPORT

1. PURPOSE

- A. To describe and assign responsibility for medical services and health matters in response to nuclear power plant incidents.
- B. To plan and ensure that health care and medical services, both long and short term, will be available to the general population in the event of a nuclear power plant incident.

2. SITUATION

(See Basic Document.)

3. CONCEPT OF OPERATIONS

- A. The basic principle governing emergency medical care operations is the orderly and effective movement of injured persons to hospitals capable of treating the injury. In so far as possible and practical, the general movement of injured persons will follow the same procedures as day-to-day emergencies.
- B. County and Municipal health and medical support activities in response to nuclear power plant incidents will be coordinated at the County Emergency Management Agency by the County Health and Medical Services Officer. The Department of Health in conjunction with PEMA will coordinate State support of these activities.
- C. Hospitals capable of treating contaminated/irradiated individuals will be predesignated for each risk County at a location about 20 miles from the nuclear power plant site, but not greater than 50 miles.
- D. Hospitals serving risk and support Counties should reduce their in-patient census as early as possible to make room for anticipated patient transfer from risk County medical facilities and/or newly injured evacuees. The Pennsylvania Department of Health will provide advice.

- E. Government departments and agencies at all levels will coordinate their efforts to ensure the best possible health and medical support to the affected population during the radiological emergency.

4. ORGANIZATION AND RESPONSIBILITIES

- A. Department of Health (see Basic Document, paragraph. 6.B. (15))

- (1) The Secretary will coordinate all health and medical related support activities with the Pennsylvania Emergency Management Agency (PEMA).
- (2) Advise when KI should be taken and by whom.

- B. Department of Agriculture (see Basic Document, paragraph. 6.B. (3))

Identify and control, by sampling procedures, foodstuffs that may become contaminated and made unsuitable for consumption (See Appendix 7).

- C. Bureau of Radiation Protection (BRP), Department of Environmental Protection (See Basic Document, paragraph. 6.B. (9), paragraph. 6.B. (10) and Appendix 7)

- D. Pennsylvania Emergency Management Agency

- (1) Assist the Department of Health and County emergency management agencies to develop procedures for distributing thyroid- blocking agents as described in Appendix 5.
- (2) Coordinate with the Secretary of Health through the DOH Emergency Response Team on significant health needs and health hazards associated with the nuclear power plant.
- (3) In coordination with the Department of Health and risk and support County EMCs, obtain agreements with hospitals for treatment of contaminated injured personnel.

- E. Risk and Support County Emergency Management Agencies

- (1) Implement protective action decisions.
- (2) Coordinate emergency medical services to include maintenance of routine coverage.
- (3) Provide for medical support to include ambulance services.

- (4) Conduct personnel monitoring for the general population and decontaminate individuals as necessary.
- (5) Conduct vehicle monitoring and decontaminate privately owned vehicles as necessary.
- (6) Provide for the health protection of emergency workers.
- (7) Provide assistance to mobility-impaired persons, hospitals and nursing homes in the event of an evacuation.
- (8) Notify designated MS-1 hospitals when an incident at a nuclear power plant escalates to a Site Area Emergency. (See Attachment A and Paragraph. 5.D., Appendix 21.)
- (9) Identify the hospitals, nursing homes, and other institutions located within the plume exposure pathway EPZ. (See Attachments B-F.)
- (10) Support and assist hospitals, nursing homes, and other institutions with their health and medical unmet needs in accordance with coordinated plans.

F. Hospitals and Nursing Homes (See Attachments B-F)

When directed by the County EMA in coordination with PEMA and the Department of Health, hospitals and nursing homes within the plume exposure pathway EPZ will implement the provisions of their radiological emergency response plans to:

- (1) Offer KI to staff and patients (upon advice by the Secretary of Health).
- (2) Reduce the number of inpatients, if feasible.
- (3) Initiate specific protective actions:
 - a. Shelter - Stay indoors and limit exposure to outside air.
 - b. Prepare for possible evacuation.
 - c. Coordinate with designated relocation site(s).
 - d. Finalize arrangements for transportation requirements.
 - e. Evacuate to relocation sites.

G. Hospitals in General Support (See Attachments G-K)

Hospitals serving risk and support Counties implement their radiological emergency response plans upon notification by the County emergency management agency, in coordination with PEMA and the Department of Health, to include:

- (1) Reduce hospital census. The degree to which hospitals effect patient reduction is judgmental and related to the anticipated need. The Pennsylvania Department of Health will provide advice.
- (2) Initiate emergency preparedness measures:
 - a. Identify areas for -
 - 1) Monitoring for radiological contamination
 - 2) Triage
 - 3) Personnel decontamination
 - 4) Personal property labeling
 - 5) Emergency care and treatment
 - 6) Logistical control of patient and visitor traffic
 - 7) Temporary storage of contaminated items
 - 8) Relocation of evacuated patients
 - b. Arrange for -
 - 1) Emergency staffing
 - 2) Positioning of personnel radiological monitoring equipment
 - 3) Continued communications with the County emergency management agency

5. REFERENCES

- A. "Guidance Memorandum MS-1 - Medical Services," Federal Emergency Management Agency, September 17, 1986 (51 FR 32904).
- B. "Radiation Emergency Response Plan," Department of Health, Commonwealth of Pennsylvania.

6. DEFINITIONS AND TERMS

See Basic Document, paragraph 13.)

7. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3.)

ATTACHMENTS:

- A. List of Designated MS-1 Hospitals Capable of Evaluation and Emergency Treatment of Contaminated Injured
- B. List of Medical/Nursing Facilities Located within the Plume Exposure Pathway EPZ for Beaver Valley Power Station (BVPS)
- C. List of Medical/Nursing Facilities Located within the Plume Exposure Pathway EPZ for Limerick Generating Station (LGS)
- D. List of Medical/Nursing Facilities Located Within the Plume Exposure Pathway EPZ for Peach Bottom Atomic Power Station (PBAPS)
- E. List of Medical/Nursing Facilities Located Within the Plume Exposure Pathway EPZ for Susquehanna Steam Electric Station (SSES)
- F. List of Medical/Nursing Facilities Located within the Plume Exposure Pathway EPZ for Three Mile Island Nuclear Station (TMI)
- G. List of Hospitals for Beaver Valley Power Station Serving in a General Support Capacity
- H. List of Hospitals for Limerick Generating Station Serving in a General Support Capacity

- I. List of Hospitals for Peach Bottom Atomic Power Station Serving in a General Support Capacity
- J. List of Hospitals for Susquehanna Steam Electric Station Serving in a General Support Capacity
- K. List of Hospitals for Three Mile Island Nuclear Station Serving in a General Support Capacity
- L. Agreement for Radiological Emergency Medical Service

ATTACHMENT A

APPENDIX 11

LIST OF DESIGNATED MS-1 HOSPITALS
CAPABLE OF EVALUATION AND EMERGENCY
TREATMENT OF CONTAMINATED INJURED

NUCLEAR POWER PLANT	COUNTY	HOSPITALS	TYPE FACILITY *	CAPACITY **	SPECIAL RAD CAPABILITY ***	COUNTY SUPPORTED
Beaver Valley Power Station	Lawrence County	Ellwood City Hospital 724 Pershing Street Ellwood City, PA 16117 (724) 725-6822	General	83	Nuclear Medicine	Beaver
	Washington County	Washington Hospital 155 Welson Avenue Washington, PA 15301 (724) 223-3354	General	334		Beaver
Limerick Generating Station	Berks County	Reading Hospital & Medical Center Sixth Avenue & Spruce Street Reading, PA 19603 (610) 988-8000	Comprehensive	622	Nuclear Medicine	Berks
	Chester County	Brandywine Hospital & Trauma Center 201 Reeceville Road Coatesville, PA 19320 (610) 383-8000	General	204	Nuclear <u>Medicine</u>	Chester

NUCLEAR POWER PLANT	COUNTY	HOSPITALS	TYPE FACILITY *	CAPACITY **	SPECIAL RAD CAPABILITY ***	COUNTY SUPPORTED
	Lehigh County	Lehigh Valley Hospital 1200 S. Cedar Crest Boulevard Allentown, PA 18105 (610) 402-8000	Comprehensive	659	Nuclear Medicine	Lehigh Montgomery
	Montgomery County	Abington Memorial Hospital 1200 Old York Road Abington, PA 19001 (215) 481-2000	Comprehensive	508	Nuclear Medicine	Montgomery
		Holy Redeemer Hospital & Medical Center 1648 Huntington Pike Meadow Brook, PA 19046 (215) 947-3000	General	268	Nuclear Medicine	Montgomery
Peach Bottom Atomic Power Station	Chester County	Brandywine Hospital & Trauma Center 201 Reeceville Road Coatesville, PA 19320 (610) 383-8000	General	204	Nuclear Medicine	Chester
	Lancaster County	Ephrata Community Hospital 169 Martin Avenue Ephrata, PA 19320 (717) 733-0311	General	109	Nuclear Medicine	Lancaster
	York County	York Hospital 1001 South George Street York, PA 17405 (717) 851-2345	General	542	Nuclear Medicine	York

NUCLEAR POWER PLANT	COUNTY	HOSPITALS	TYPE FACILITY *	CAPACITY **	SPECIAL RAD CAPABILITY ***	COUNTY SUPPORTED
Susquehanna Steam Electric Station	Luzerne County	Geisinger Wyoming Valley Medical Center 1000 East Mountain Drive Wilkes-Barre, PA 18711 (570) 826-7760	General	185	Nuclear Medicine	Luzerne
		Mercy Hospital 25 Church Street Wilkes-Barre, PA 18765 (570) 826-3176	General	223	Nuclear Medicine	Luzerne
	<u>Lycoming County</u>	Williamsport Hospital & Medical Center 777 Rural Avenue Williamsport, PA 17701 (570) 321-2222	Comprehensive	238	Nuclear Medicine	Columbia
	Columbia County	Bloomsburg Hospital 549 East Fair Street Bloomsburg, PA 17815 (570) 387-2178	General	117	Nuclear Medicine	Columbia
Three Mile Island Nuclear Station	Adams County	Gettysburg Hospital 147 Gettys Street Gettysburg, PA 17325-0748 (717) 337-4111	General	76	Nuclear Medicine	York
	Cumberland County	Carlisle Hospital 246 Parker Street Carlisle, PA 17013 (717) 249-1212	General	207	Nuclear Medicine	Cumberland Dauphin York
	Lancaster County		General	109	Nuclear Medicine	Lancaster

NUCLEAR POWER PLANT	COUNTY	HOSPITALS	TYPE FACILITY *	CAPACITY **	SPECIAL RAD CAPABILITY ***	COUNTY SUPPORTED
	Lebanon County	Good Samaritan Hospital Fourth and Walnut Street Lebanon, PA 17042 (717) 270-7500	General	186	Nuclear Medicine	Dauphin Lebanon
	York County	Hanover Hospital 300 Highland Avenue Hanover, PA 17331 (717) 637-3711	General	165	Nuclear Medicine	York

Notes:

- * Meets the requirements specified in FEMA Guidance Memorandum MS-1, "Medical Services", dated November 13, 1986.
- ** Beds set up and staffed. Directory of Pennsylvania Hospitals, revised June 1996. For nursing homes, bed data as of December 31, 1994.
- *** Members of the staff are available who have received training in the use, removal, handling, and storage of radioactive materials used in nuclear medicine.

ATTACHMENT B

APPENDIX 11

LIST OF MEDICAL/NURSING FACILITIES LOCATED WITHIN THE
PLUME EXPOSURE PATHWAY EMERGENCY PLANNING ZONE FOR THE
BEAVER VALLEY POWER STATION

1. HOSPITALS

County	Hospital	Resident Capacity	Total Staff Capacity *	Distance From Nuclear Power Plant (miles)	Heliport/ Helipad yes/no
Beaver County	Medical Center of Beaver County 1000 Dutch Ridge Road Beaver, PA 15009 Telephone: (724) 773-2100	439	1906	8.6	No
	Aliquippa Hospital Association 2500 Hospital Drive Aliquippa, PA 15001 Telephone: (724) 857-1212	167	582	8.6	No

**Includes full professional and full and part-time paid technical staff.*

2. NURSING HOMES

County	Nursing Home	Resident Capacity	Total Staff Capacity *	Distance From Nuclear Power Plant (miles)	Heliport/ Helipad yes/no
Beaver County	Beaver Valley Geriatric Center 246 Friendship Circle Beaver, PA 15009 Telephone: (724) 775-7100	672	663	8.6	No
	Golfview Manor 616 Golf Course Road Aliquippa, PA 15001 Telephone: (724) 375-0345	67	70	8	No
	Beaver Valley Nursing Center 257 Georgetown Road Beaver Falls, PA 15010 Telephone: (724) 846-8200	120	120	10	No
	Feltrops Personal Care Home Route #1, Box 281 South Beaver Township, PA Telephone: (724) 643-4888	57	40	9.6	No
	Trinity Oaks Care Center Chapel Road Beaver, PA 15009 Telephone: (724) 728-6257	50	20	9	No
	Knox Personal Care Home R.D. #2 Georgetown, PA 15043 Telephone: (724) 543-4222	50	20	6	No

**Includes full professional and full and part-time paid technical staff.*

ATTACHMENT C

APPENDIX 11

LIST OF MEDICAL/NURSING FACILITIES LOCATED WITHIN THE
PLUME EXPOSURE PATHWAY EMERGENCY PLANNING ZONE FOR THE
LIMERICK GENERATING STATION

1. HOSPITALS

County	Hospital	Resident Capacity	Total Staff Capacity *	Distance From Nuclear Power Plant (miles)	Heliport/ Helipad yes/no
Montgomery County	Eagleville Hospital P.O. Box 45, 100 Eagleville Road Eagleville, PA 19408 (610) 539-6000	159	326	10.5	No
	Pottstown Memorial Medical Ctr 1600 East High Street Pottstown, PA 19464 Telephone: (610) 327-7000	295	1096	2	No
Chester County	Phoenixville Hospital 140 Nutt Road Phoenixville, PA 19460 Telephone: (610) 983-1000	126	580	8.7	Yes
Berks County	NONE	-	-	-	-

**Includes full professional and full and part-time paid technical staff.*

2. NURSING HOMES

County	Nursing Home	Resident Capacity	Total Staff Capacity *	Distance From Nuclear Power Plant (miles)	Heliport/ Helipad yes/no
Montgomery County	Manor Care 724 North Charlotte Street Pottstown, PA 19464 (610) 323-1837	165	107	3.5	No
	Montgomery County Geriatric and Rehabilitation Center 1600 Black Rock Road Royersford, PA 19468 (610) 948-8800	591	644	6	No
	River Crest Center Mont Clare, PA 19435	100	50	7.5	No
	Frederick Mennonite Home 2849 Big Road Frederick, PA 19435 (610) 754-7878	62			
CHESTER COUNTY	Coventry Manor Nursing Home 3031 Chestnut Hill Road Pottstown, PA 19465 (610) 469-6228	41	48	6.5	No
	Manatawny Manor Nursing Home Route 724 and Old Schuylkill Road Pottstown, PA 19464 (610) 327-0840	253	1255	4.3	No
	Phoenixville Manor* 833 South Main Street Phoenixville, PA 19460 (610) 933-5867	144	125	8.7	No

**Includes full professional and full and part-time paid technical staff.*

County	Nursing Home	Resident Capacity	Total Staff Capacity *	Distance From Nuclear Power Plant (miles)	Heliport/ Helipad yes/no
Chester County (cont.)	Southeast Pennsylvania Veterans Center Spring City, PA 19475 <i>(Note: State-owned facility, Department of Military and Veterans Affairs)</i> A - Ambulatory N – Non-Ambulatory	112 – A 192 - AN	316	3	No
Berks County	NONE	-	-	-	-

**Includes full professional and full and part-time paid technical staff.*

ATTACHMENT D

APPENDIX 11

LIST OF MEDICAL/NURSING FACILITIES LOCATED WITHIN THE
PLUME EXPOSURE PATHWAY EMERGENCY PLANNING ZONE FOR THE
PEACH BOTTOM ATOMIC POWER STATION

1. HOSPITALS

County	Hospital	Resident Capacity	Total Staff Capacity *	Distance From Nuclear Power Plant (miles)	Heliport/ Helipad yes/no
York County	NONE	-	-	-	-
Lancaster County	NONE	-	-	-	-
Chester County	NONE	-	-	-	

**Includes full professional and full and part-time paid technical staff.*

2. NURSING HOMES/PERSONAL CARE HOMES

County	Nursing Home	Resident Capacity	Total Staff Capacity *	Distance From Nuclear Power Plant (miles)	Heliport/ Helipad yes/no
Chester County	NONE	-	-	-	-
Lancaster County	Quarryville Presbyterian Retirement Community 625 Robert Fulton Highway Quarryville, PA 17566 Telephone: 717-786-7321	158	340	10.5	No
	Country View Manor 12 Friendly Drive Quarryville, PA 17566 Telephone: 717-284-3350	24	9	10.5	No
York County	Woodland Center for Nursing 780 Woodland Avenue Lewisberry, PA 17339 Telephone: 717-938-9370	130	-	10	No

*Includes full professional and full and part-time paid technical staff.

ATTACHMENT E

APPENDIX 11

LIST OF MEDICAL/NURSING FACILITIES LOCATED WITHIN THE
PLUME EXPOSURE PATHWAY EMERGENCY PLANNING ZONE FOR THE
SUSQUEHANNA STEAM ELECTRIC STATION

1. HOSPITALS

County	Hospital	Resident Capacity	Total Staff Capacity *	Distance From Nuclear Power Plant (miles)	Heliport/ Helipad yes/no
Luzerne County	Mercy Special Care Hospital 128 West Washington St Nanticoke, PA 18634 Telephone: (570) 735-5000	94	125	7-10	No**
Columbia County	Berwick Hospital Center 701 East 16th Street Berwick, PA 18603 Telephone: (570) 759-5000	169	551	4.5	**

**Includes full professional and full and part-time paid technical staff.*

***No facility but a field adjacent is large enough to handle takeoff and landings.*

2. NURSING HOMES/PERSONAL CARE HOMES

County	Nursing Home	Resident Capacity	Total Staff Capacity *	Distance From Nuclear Power Plant (miles)	Heliport/ Helipad yes/no
Luzerne County	Bonham Nursing Center R.R 1, Box 64 Stillwater, PA 17878 Telephone: (570) 864-3174	58	70	8	**
	Butler Valley Manor Home Route 309 Drums, PA 18222 Telephone: (570) 788-4175	37	45	9	**
	Fritzingertown Senior Living Community Box 1162 Old Turn Pike Road Drums, PA 18222 Telephone: (570) 788-4178	248	27	10	**
	Mercy Health Care Center 147 Newport Street Nanticoke, PA 18634 Telephone: (570) 735-7300	110	110	10	**
	Birchwood Nursing Rehab Ctr 395 Middle Road Nanticoke, PA 18634 Telephone: (570) 735-2973	121	140	10	**
	Johnson's Home for the Aged R. D. Box 72 Wapwallopen, PA 18660 Telephone: (570) 379-3673	19	6	4	No
	Laurel Personal Care Center Route 239, Box 7C Shickshinny, PA 18655 Telephone: (570) 542-2691	70	20	4	No
	Paradise Manor Box 1918, R.D. #1 Berwick, PA 18603 Telephone: 717-752-5822	6	5	5	No

County	Nursing Home	Resident Capacity	Total Staff Capacity *	Distance From Nuclear Power Plant (miles)	Heliport/ Helipad yes/no
Luzerne County (cont.)	Green Valley Gardens II R.R. 1, Box 1900 Drums, PA 18222 Telephone: (570) 788-6052	24	9	8	No
	Clearbrook Lodge R.D. #2, Box 2166 Shickshinny, PA 18655 Telephone: (570) 864-3116	47	18	3.5	No
	Sunny Knoll Box 310, R.D. #2 Drums, PA 18222 Telephone: (570) 788-4448	22	11	9	No
	Morton House P.O. Box 54 Rock Glen, PA 18246 Telephone: (570) 384-4000	35	14	9	No
	Green Valley Gardens R.D. #1, Box 1955 Drums, PA 18222 Telephone: (570) 788-2052	24	10	10	No
	West Ridge Personal Care Home 541 South Hanover Street Nanticoke, PA 18634 Telephone: (570) 735-6898	14	1	10	No
	Simonitis Personal Care Home 44 West Main Street Nanticoke, PA 18634 Telephone: (570) 735-5670	7	4	10	No
Columbia County	Berwick Retirement Village 801 East 16th Street Berwick, PA 18603 Telephone: (570) 759-5463	120	500	4.5	**
	Outlook Pointe Commons 1050 W. Front Street Berwick, PA 18603 Telephone: (570) 759-33155	72			

**Includes full professional and full and part-time paid technical staff.*

***No facility but a field adjacent is large enough to handle takeoff and landings.*

ATTACHMENT F

APPENDIX 11

LIST OF MEDICAL/NURSING FACILITIES LOCATED WITHIN THE
PLUME EXPOSURE PATHWAY EMERGENCY PLANNING ZONE FOR THE
THREE MILE ISLAND NUCLEAR STATION

1. HOSPITALS

County	Hospital	Resident Capacity	Total Staff Capacity *	Distance From Nuclear Power Plant (miles)	Heliport/ Helipad yes/no
Dauphin County	University Hospital, Milton S. Hershey Medical Center 500 University Drive Hershey, PA 17033 Telephone: (717) 531- 8521	504	2415	9.5	Yes
Lancaster County	None	-	-	-	-
York County	None	-	-	-	-
Cumberland County	None	-	-	-	-
Lebanon County	None	-	-	-	-

**Includes full professional and full and part-time technical staff.*

2. NURSING HOMES

County	Nursing Home	Resident Capacity	Total Staff Capacity *	Distance From Nuclear Power Plant (miles)	Heliport/ Helipad yes/no
Dauphin County	Middletown Home 999 West Harrisburg Pike Middletown, PA 17057 Telephone: (717) 944-3351	102	100	3	No
	Children's Care Center (Cares for severely retarded children) Hummelstown/Middletown Road near Vine Street Exit Telephone: (717) 566-3267	80	130	3.5	No
	Frey Village Retirement Center 1020 North Union Street Middletown, PA 17057 Telephone: (717) 944-0451	136	164	5	Yes
	Dauphin Manor and Aspin Ctr** Paxton and South 28th Streets Harrisburg, PA 17111 Telephone: (717) 564-4580	425 22**	421	9	No
	Integrated Health Services of Hershey Ruhenhaus Lane Hershey, PA 17033 Telephone: (717) 533-3351	213	166	6	No
Lancaster County	Manor Care Health Service 320 South Market Street Elizabethtown, PA 17022 Telephone: 717-367-1377	73	61	6	No
	Masonic Homes One Masonic Drive Elizabethtown, PA 17022 Telephone: (717) 367-1121	453	707	7.2	No

**Includes full professional and full and part-time technical staff.*

County	Nursing Home	Resident Capacity	Total Staff Capacity *	Distance From Nuclear Power Plant (miles)	Heliport/ Helipad yes/no
Lancaster County (cont.)	Rheems Nursing Center Broad & Heisey Strts Rheems, PA 17570 Telephone: (717) 367-1831	18	33	8.5	No
York County	Fairview Retirement Community 780 Woodland Avenue Lewisberry, PA 17339 Telephone: (717) 938-9370	120	70	5	No
Cumberland County	None	-	-	-	-
Lebanon County	None	-	-	-	

**Includes full professional and full and part-time technical staff.*

ATTACHMENT G

APPENDIX 11

HOSPITALS SERVING IN A GENERAL
SUPPORT CAPACITY TO THE
BEAVER VALLEY POWER STATION

A listing of hospitals capable of providing general support capacity when needed in the event of an incident at the Beaver Valley Power Station are found in the Pennsylvania Department of Health. A copy of the directory is maintained in the State and Beaver County EOCs.

ATTACHMENT H

APPENDIX 11

HOSPITALS SERVING IN A GENERAL SUPPORT CAPACITY FOR THE LIMERICK GENERATING STATION

A listing of hospitals capable of providing general support capacity when needed in the event of an incident at the Limerick Generating Station are found in the Pennsylvania Department of Health. A copy of the directory is maintained in the State and risk County EOCs.

ATTACHMENT I

APPENDIX 11

HOSPITALS SERVING IN A GENERAL
SUPPORT CAPACITY TO THE
PEACH BOTTOM ATOMIC POWER STATION

A listing of hospitals capable of providing general support capacity when needed in the event of an incident at the Peach Bottom Atomic Power Station are found in the Pennsylvania Department of Health. A copy of the directory is maintained in the State and risk County EOCs.

ATTACHMENT J

APPENDIX 11

HOSPITALS SERVING IN A GENERAL
SUPPORT CAPACITY TO THE
SUSQUEHANNA STEAM ELECTRIC STATION

A listing of hospitals capable of providing general support capacity when needed in the event of an incident at the Susquehanna Steam Electric Station are found in the Pennsylvania Department of Health. A copy of the directory is maintained in the State and risk County EOCs.

ATTACHMENT K

APPENDIX 11

HOSPITALS SERVING IN A GENERAL
SUPPORT CAPACITY TO THE
THREE MILE ISLAND NUCLEAR STATION

A listing of hospitals capable of providing general support capacity when needed in the event of an incident at the Three Mile Island Nuclear Station are found in the Pennsylvania Department of Health. A copy of the Directory is maintained in the State and risk County EOCs.

SAMPLE

ATTACHMENT L

APPENDIX 11

AGREEMENT FOR RADIOLOGICAL
EMERGENCY MEDICAL SERVICES

1. PURPOSE

The purpose of this agreement is to provide for cooperation and coordination between the Pennsylvania Emergency Management Agency (PEMA), the Lancaster County Emergency Management Agency (County), and the Ephrata Community Hospital (Hospital) in providing medical services for contaminated injured individuals in the event of an accident at the Peach Bottom Atomic Power Station.

2. SCOPE OF ACTIVITY

- A. Should individuals become contaminated and otherwise physically injured; contaminated and exposed to dangerous levels of radiation; or exposed to dangerous levels of radiation as a result of an accident at the Peach Bottom Atomic Power Station, PEMA or the County will request the assistance of the Hospital in providing medical services for those individuals. In response to this request, the Hospital warrants that the medical personnel, equipment and capabilities set forth in Paragraph 3 will be made available to assess and treat those individuals who are transported to the Hospital in order to receive those medical services.
- B. An annual medical emergency drill will be conducted, in coordination with the County and PEMA, by the Hospital involving a simulated contaminated individual and a supporting ambulance service. When appropriate, this drill may be conducted as part of the required biennial nuclear power plant exercise. A drill is defined as a supervised instruction period aimed at testing, developing and maintaining skills in the transport, evaluation and treatment of a simulated contaminated injured individual.

3. SCOPE OF MEDICAL SERVICES

The hospital will provide the following services under the terms of this Agreement:

- A. Within 2 hours after receiving the request for assistance from PEMA or the County, at least one physician and one nurse, who are radiologically trained will be available to supervise the evaluation and treatment of radiologically "contaminated injured" individuals.
- B. Radiological monitoring equipment will be available to evaluate and treat radiologically "contaminated injured" individuals.
- C. Adequate technical information will be provided through in-service training and treatment protocols to assist hospital personnel in the proper evaluation and treatment of injured and radiation contaminated patients. The training sessions and treatment protocols should contain, at a minimum, information on the following areas:
 - (1) Procedural guidelines for the stabilization of general, burn, shock and multiple injured patients (reference may be made to existing protocols on this same subject);
 - (2) Contingency planning for the evacuation of patients exposed to high levels of radiation and who are, therefore, at risk for acute radiation sickness, bone marrow depression or other radiation induced illness. The planning shall also provide for the timely evacuation of patients to a Commonwealth designated trauma center when the extent of the patients' other injuries so warrant;
 - (3) Procedural guidelines for the handling and/or disposal of contaminated objects, clothing, tissue, or fluids. The latter shall be interpreted to mean the patients' bodily fluids or liquids to clean the patients.

The aforementioned protocol will be subject to review and approval by the Pennsylvania Emergency Management Agency or its designee.

4. ACCREDITATION

The hospital warrants that it is accredited by the Joint Commission on Accreditation of Hospitals (JCAH) and that it will provide the medical services Stated in this Agreement in accordance with that accreditation.

IN WITNESS WHEREOF, the undersigned parties, by their respective
Officers, have duly executed this agreement on the ____ day of _____,
_____.

PENNSYLVANIA EMERGENCY MANAGEMENT AGENCY

By: _____

Title: Director

LANCASTER COUNTY EMERGENCY MANAGEMENT AGENCY

By: _____

Title: Emergency Management Coordinator

EPHRATA COMMUNITY HOSPITAL

By: _____

Title: Administrator

APPENDIX 12

ANNEX E

RESPONSE BY SCHOOLS AND COLLEGES

1. PURPOSE

To provide guidance for the protection of school and college students in the event of a nuclear power plant incident by delineating responsibilities for developing and reviewing response procedures needed for their safety. To establish a concept of operations for sheltering, evacuation or modified operations should there be a nuclear power plant incident.

2. SITUATION

Protective actions could become necessary for the safety and welfare of students at schools and colleges if an incident occurs at a nuclear power plant.

3. CONCEPT OF OPERATIONS

A. General Concept

- (1) The safety of school and college students is a key factor in any protective action decision. Evacuation of students, staff and faculty will be simultaneous, i.e., in one lift. County, Municipal, college and school plans will reflect this policy.
- (2) Two critical situations will exist when considering sheltering or evacuation of school students from the plume exposure pathway EPZ.
 - a. When both the schools attended and the pupils' homes are located within the plume exposure pathway EPZ, students must be evacuated from the schools they attend to host schools where they will be retained under school officials' custody until they are picked up by their parents or guardians.
 - b. When the schools attended are outside the plume exposure pathway EPZ and the pupils' homes are inside it, students will be retained in the schools they attend under school officials' custody until they are picked up by their parents. If their parents do not pick them up, they may be evacuated to host schools as predetermined in the plans developed by responsible school district superintendents.

- (3) During an incident, school districts will not authorize early dismissal if the school children's homes are within the EPZ without coordination with the respective County Emergency Management Agency and concurrence by PEMA. Students will not be sent home at any time when an evacuation is imminent or in progress. School and college officials remain responsible for making decisions to protect their students.

B. Actions to Be Taken Following Each Incident Classification:

- (1) Unusual Event

No action required.

- (2) Alert

- a. School district superintendents, private schools and colleges with schools or students living in the plume exposure pathway EPZ are notified of the situation by the County Emergency Management Coordinators.
- b. The school district superintendents, principals/directors of private schools and college officials within the plume exposure pathway EPZ will review emergency plans and determine status of transportation resources.
- c. Risk school district superintendents will notify host school district superintendents and other hosts of the emergency. Support Counties will confirm that host schools have been notified.
- d. School bus resources will be placed on standby for possible movement of students.
- e. RACES (or other non-telephonic) communications are established with risk school districts.

- (3) Site Area Emergency

- a. If initial notification is of a Site Area Emergency, take the response actions under Alert and those listed below. When notification is an

escalation to Site Area Emergency, the actions listed below should be taken in addition to those previously taken under Alert.

- b. County Emergency Management Coordinators inform school district superintendents, principals/directors of private schools and colleges of the Site Area Emergency.
- c. School district superintendents, principals/directors of private schools and college presidents prepare for possible sheltering or evacuation.
- d. Recommendation to shelter or evacuate schools and colleges will be made by the Governor in coordination with PEMA and the Department of Education, if appropriate, and will be announced by the State EOC through County Emergency Management Agency channels to school district superintendents and college officials.
- e. Risk school district superintendents notify host school district superintendents and other hosts of the need to receive students. Support Counties will confirm that host schools have been notified.
- f. School district superintendents will deploy school bus resources for possible movement of students.
- g. If the Governor orders or recommends an evacuation, or the evacuation appears to be imminent, at a time when classes are not in session, the school district superintendents, principals/directors of private schools and college officials will receive information from the State EOC through the respective risk or support County Emergency Management Coordinator advising them not to reopen the schools until the emergency is over.
- h. The County EMC notifies Emergency Alert Stations to broadcast designated announcements. School districts will notify the broadcast stations, which support their normal closing/delay announcements. The appropriate Municipal Emergency Operations Centers will be informed of the decision. County Emergency Operations Centers will report school closings to State EOC.

(4) General Emergency

- a. If initial notification is of a General Emergency, take the response actions under Alert and Site Area Emergency and those listed below. When notification is of escalation to General Emergency,

take the response actions listed below in addition to those previously taken for Alert and Site Area Emergency.

- b. If the Governor recommends a protective action, either sheltering or evacuation, the decision will be provided by PEMA to the respective County Emergency Management Agency, which will advise the appropriate school officials.
- c. If an evacuation from the school is required, teachers will accompany students to host schools and will be expected to remain with students until relieved.
- d. Evacuated school students will remain the responsibility of the respective risk school officials until released to parents, guardians or other duly authorized individuals.

4. RESPONSIBILITIES

A. Pennsylvania Emergency Management Agency (PEMA)

- (1) Provide guidance for the preparation of plans and response procedures needed for the safety of students in the event of a nuclear power plant incident.
- (2) Provide information through County Emergency Management Coordinators to school district superintendents, principals/directors of private schools and college presidents concerning the need for development of plans for school closings and for evacuation or sheltering of students.
- (3) Coordinate school evacuation, sheltering or modified operations with the Department of Education.

B. Department of Education

- (1) Provide planning guidance to school district superintendents, principals/directors of private schools and college presidents outlining responsibilities for the evacuation or sheltering of students.
- (2) Support the preparation of school district, private school and college plans and their coordination with the County Emergency Management Coordinator to ensure that they are in consonance with County RERP.
- (3) In conjunction with PEMA, exercise reviewing authority for school district plans.

**Change 4
March 2002**

- (4) Encourage the distribution of approved plans to appropriate County Emergency Management Agencies and PEMA.
- (5) Encourage school districts to include nonpublic registered schools, licensed private academic schools (profit and nonprofit) and non-public, private accredited schools in their plans.

C. County Emergency Management Coordinators

- (1) Include essential information concerning school evacuation in County RERP and pre-emergency information sources such as telephone book inserts, e.g., the location of host schools (student pickup points) where parents may pick up their children following a school evacuation.
- (2) Provide a School Services Officer on the EOC staff with responsibility to include:
 - a. Supply information and advice on school matters to the County Emergency Management Coordinator.
 - b. Notify school districts, private schools and colleges of nuclear power plant incidents and transmit protective action decisions.
 - c. Coordinate support and resource needs of school districts, private schools and colleges.
- (3) Brief school district superintendents and directors of private schools and colleges on pertinent information in County RERP.
- (4) Advise the directors of private schools to prepare their own plans using private resources to maximum extent feasible, and to notify the County Emergency Operations Center of any unmet emergency resource requirements.

D. Risk School Districts, including those that have students who live in the approximately 10-mile Emergency Planning Zone

- (1) Develop school district Emergency Response Plans to include emergency alert/notification and protective actions for each school.
- (2) Provide guidance for the development of individual public and private school emergency plans.
- (3) Ensure that a school district plan is developed in conformance with the County RERP and the School Planning Guide.

- (4) For the successful implementation of the emergency plan ensure that the necessary communications systems (radio and/or telephone) are available.
- (5) Coordinate the availability of school buses for transportation in the event evacuation becomes necessary. Provide for simultaneous (one lift) evacuation of all students, staff and faculty. Ensure that signed agreements are accomplished with bus providers to provide for transportation in the event of a radiological incident at a nuclear power plant.
- (6) Develop and maintain necessary agreements with designated host school districts.
- (7) Educate school principals/directors within the school district concerning emergency actions.
- (8) Maintain communication with the County Emergency Operations Center and the appropriate Intermediate Unit.
- (9) Determine unmet needs and inform the County Emergency Management Agency.
- (10) In coordination with the County, the risk school district will exercise authority for school closure under the authority provided by the School District Board of School Directors.
- (11) Provide an alternate location for school administration in the event of an evacuation.
- (12) Maintain expense records of personnel and resource utilization in the event of a District Emergency Response Plan implementation.
- (13) After evacuation, ascertain all resources needed to return district building to normal and report them to the County Emergency Management Agency.
- (14) Provide training for district personnel used in the implementation of the Radiological Emergency Response Procedures.
- (15) The risk school is responsible, to the extent possible, for providing first aid and social services to students.

E. Host School Districts

- (1) A formal agreement must be established between the risk school district and the host school district for the assignment of host schools to receive and provide temporary housing to the evacuated students.
- (2) The host school is designated as the site where parents are to regain custody of their evacuated children.
- (3) The staff of the host school district should assist the staff of the risk school district with the supervision of evacuated students while they are at the host school.
- (4) The host school is responsible, to the extent possible, for providing first aid and social services to students.
- (5) The host school should consider the possibility of early dismissal for its own students.
- (6) Cooperate with the County Emergency Management Coordinator and the American Red Cross in the operation of Mass Care Centers in selected school facilities.

F. Private Schools

Develop emergency plans in accordance with guidance received from the risk school district and the County Emergency Management Agency.

G. Colleges

Develop emergency plans in accordance with guidance received from the County Emergency Management Agency.

5. REFERENCES

(See Basic Document, paragraph 12.)

6. DEFINITIONS AND TERMS

(See Basic Document, paragraph 13.)

7. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3.)

APPENDIX 13

ANNEX E

MILITARY SUPPORT

1. PURPOSE

To specify missions, procedures, and responsibilities of the Pennsylvania Army National Guard (PAARNG) in the support of State agencies and Counties in the event of a nuclear power plant incident.

2. SITUATION

See Basic Document.

3. CONCEPT OF OPERATIONS

- A. County emergency management agencies confirm to PEMA their need for direct support from PAARNG.
- B. PEMA requests the activation of the PAARNG.
- C. The Governor, upon advice of PEMA and the Adjutant General, decides when to order the PAARNG to State Active Duty (SAD).
- D. When ordered to SAD, the PAARNG deploys a battalion in direct support to each risk County. (See Attachment A.)
- E. Operational control of PAARNG remains with the Adjutant General or designated deputy.
- F. It is estimated that the respective PAARNG units could be mobilized and ready for deployment within six hours. The lead-time required to mobilize and deploy National Guard units will be considered before assigning specific missions.

4. RESPONSIBILITIES

- A. Upon order to SAD, the PAARNG is responsible for providing direct support to the risk Counties in the form of traffic control, security (to include access control), search and rescue, emergency transportation, emergency fuel on major evacuation routes, emergency clearing of roads

and evacuation. Such emergency assistance will be as a supplement to the resources of the Municipal and County governments and other State agencies.

- B. County and Municipal authorities are responsible for identifying specific requirements for National Guard assistance within their respective political subdivisions. These identified requirements will be communicated to the National Guard liaison person assigned to the County EOC or, in the absence of a liaison person, the PEMA EOC for subsequent referral to the Department of Military and Veterans Affairs (DMVA) Emergency Preparedness Liaison Officer (EPLO). Requests will identify the type of assistance needed, location, time (if applicable) and the name of the individual responsible for making the request.

5. COORDINATION

- A. The supporting National Guard unit will provide liaison personnel at the designated risk County EOC, after activation of the PAARNG.
- B. Direct coordination between the risk Counties and their supporting PAARNG battalions is authorized.

6. REFERENCE

Pennsylvania National Guard OPLAN 95-1, Joint Emergency Operation Plan (JEOP) August 1995

7. DEFINITIONS AND TERMS

(See Basic Document, paragraph 13.)

8. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3.)

ATTACHMENT:

- A. National Guard Task Organization

ATTACHMENT A

APPENDIX 13

NATIONAL GUARD TASK ORGANIZATION

<u>SITE</u>	<u>RISK COUNTY</u>	<u>PRIMARY BN</u>	<u>BACKUP BN</u>
Beaver Valley Power Station	Beaver (Parent County)	28 SIGNAL 835 5 th Ave, Coraopolis, PA 15108-1598	1-107 FA 820 Frank Ave. New Castle, PA 16101-5208
Limerick Generating Station	Montgomery (Parent County)	1-111 MX 1046 Belvoir Rd Norristown, PA 19401-2806	2-103 AR 900 Adams Ave Scranton, PA 18510-1004
	Chester	1-213 ADA 111 Armory Drive Spring City, PA 19475-1231	1-109 MX 900 Adams Avenue Scranton, PA 18510-1004
	Berks	1-109 FA POB 1028 280 Market Street Wilkes-Barre, PA 18703-1028	3-103 AR POB 291, R.D. #2 Lewisburg, PA 17837-0291
Peach Bottom Atomic Power Station	York (Parent County)	2-112 MX POB 589 28 Armory Lane Lewis Town, PA 17044-0589	2-103 AR 900 Adams Avenue Scranton, PA 18510-1004
	Lancaster	1-213 ADA 111 Armory Drive Spring City, PA 19475-1231	1-111 MX 1046 Belvoir Rd Norristown, PA 19401-2806
	Chester	1-111 MX 1046 Belvoir Rd Norristown, PA 19401-2806	1-104 CAV SQDN 5350 Ogontz Ave Philadelphia, PA 19141-1693

NATIONAL GUARD TASK ORGANIZATION

<u>SITE</u>	<u>RISK COUNTY</u>	<u>PRIMARY BN</u>	<u>BACKUP BN</u>
Susquehanna Steam Electric Station	Luzerne (Parent County)	1-109 FA POB 1028 280 Market Street Wilkes-Barre, PA 18703-1028	1-109 MX 900 Adams Avenue Scranton, PA 18510-1004
	Columbia	2-103 AR 900 Adams Avenue Scranton, PA 18510-1004	3-103 AR POB 291, R.D. #2 Lewisburg, PA 17837-0291
Three Mile Island Nuclear Station	Dauphin (Parent County)	3-103 AR POB 291, R.D. #2 Lewisburg, PA 17837-0291	1-109 FA POB 1028 280 Market Street Wilkes-Barre, PA 18703-1028
	York	2-112 MX POB 589 28 Armory Lane Lewis Town, PA 17044-0589	2-103 AR 900 Adams Avenue Scranton, PA 18510-1004
	Cumberland	1-108 FA 504 Cavalry Road Carlisle, PA 17013-1699	1-103 AR 565 Walters Avenue Johnstown, PA 15907-1298
	Lebanon	1-109 MX 900 Adams Avenue Scranton, PA 18510-1004	1-104 CAV SQDN 5350 Ogontz Ave Philadelphia, PA 19141-1693
	Lancaster	1-213 ADA 111 Armory Drive Spring City, PA 19475-1231	1-111 MX 1046 Belvoir Rd Norristown, PA 19401-2806

Abbreviations:

ADA - Air Defense Artillery
CAV - Cavalry
MX - Mechanized Infantry

AR - Armor Bn - Battalion
FA - Field Artillery

APPENDIX 14

ANNEX E

AIR TRAFFIC CONTROL

1. PURPOSE

To outline procedures for restricting and controlling the airspace around a nuclear power plant when an incident occurs and establish priorities for aircraft involved in emergency operations.

2 SITUATION

- A. Experience has shown that any incident at a nuclear power plant can result in congested air traffic over the site, which may impede or interfere with emergency operations.
- B. It is necessary to restrict air traffic around a nuclear power plant when an incident escalates to the point where radioactive releases into the atmosphere are occurring and are expected to exceed EPA Protective Action Guidelines for off-site exposure levels.

3. CONCEPT OF OPERATIONS

- A. When an incident occurs at a nuclear power plant, the Pennsylvania Department of Transportation's Bureau of Aviation will request the Federal Aviation Administration (FAA) to impose temporary flight restrictions within 2.5 miles and to an altitude of 5,000 feet above ground level at the facility site. (See Attachments A - E.)
- B. Upon confirmation that the FAA has imposed the requested temporary flight restrictions and issues a NOTAM (Notice to Airmen), the State EOC will issue a news release (See suggested content, Attachment F) about the FAA's action. The purpose of this news release will be to call attention to the NOTAM. Copies of the news release will be provided to the Risk County (ies).
- C. The FAA will provide air traffic control for the temporarily restricted airspace. These control measures include (1) recognizing and accepting the priorities of aircraft missions as established by the Commonwealth and communicated to the FAA, and (2) providing separation among aircraft as per FAA regulations. (See Attachment G.)

- D. State EOC will be the State's coordinator (with the FAA and with all agencies wanting to enter the restricted airspace) with regard to the temporary airspace restriction and will assign the mission priority to aircraft intending to enter the restricted area.
- E. State EPC (PennDOT EPLO) will establish and maintain telephone communication with the FAA's coordination facility and involved air traffic facilities (See Attachment H). State EOC will assign "call signs" to aircraft based upon the mission of the flight, which the FAA will recognize as the Commonwealth of Pennsylvania's priority in dealing with the emergency. Call signs and corresponding guidelines for establishing a priority for each aircraft follows:

<u>CALL SIGN</u>	<u>MISSION</u>	<u>PROBABLE AGENCY</u>
Power Plant 1	Life saving (air evacuation)	Pennsylvania State Police, National Guard, Department of Defense
Power Plant 2	Plume monitoring – special emergency flight	Department of Energy*, Nuclear Regulatory Commission, Utility, Department of Defense
Power Plant 3	Plume monitoring – routine	Department of Energy*, Nuclear Regulatory Commission, Utility, Department of Defense
Power Plant 4	Emergency situation observation	President, Governor, PEMA, FEMA
Power Plant 5	Other governmental	Other Federal and State agencies and local government officials
Power Plant 6	News coverage	Television networks, major newspapers, local (within 50 miles) TV stations, newspapers and all other media

The call sign with the lowest number has the highest priority, e.g., the FAA will give priority to "Power Plant 3" over "Power Plant 5." The FAA will exercise its judgment about how many aircraft can operate safely in the restricted area and authorize entry accordingly.

- F. The State EOC will inform the FAA when the restrictions are no longer required.

**Department of Energy (DOE) - As per the Federal Radiological Emergency Response Plan (FRRERP), DOE will be responsible for coordinating among all off-site technical people from all Federal government agencies. Therefore, personnel from Federal agencies other than DOE who conduct plume monitoring from the air must coordinate with the DOE Technical Director who in turn will coordinate with State. These agencies may include: The Environmental Protection Agency, the Nuclear Emergency Search Team, and DOE- contracted firms such as Brookhaven National Laboratory and Oak Ridge National Laboratory as well as other public or private agencies officially asked to provide services.*

4. ORGANIZATION AND RESPONSIBILITIES

A. Pennsylvania Emergency Management Agency (PEMA) (See Basic Document.)

B. Department of Transportation (PennDOT) (See Basic Document.)

Upon request provide an aviation specialist to the State EOC. This aviation specialist will be the point of contact for all personnel desiring to enter the restricted area around the nuclear power plant after the FAA has imposed temporary flight restriction.

C. Federal Aviation Administration. (See Basic Document.)

5. REFERENCE

Federal Aviation Administration, Federal Air Regulation, Part 91.91, Section 4, "Flight Restrictions," paragraph. 640-648.

6. DEFINITIONS AND TERMS

(See Basic Document, paragraph 13.)

7. ABBREVIATIONS/ACRONYMS

(See Basic Document Enclosure 3.)

ATTACHMENTS:

- A. Procedures for Requesting the FAA to Impose Temporary Flight Restrictions around the Beaver Valley Power Station
- B. Procedures for Requesting the FAA to Impose Temporary Flight Restrictions around the Limerick Generating Station
- C. Procedures for Requesting the FAA to Impose Temporary Flight Restrictions around the Peach Bottom Atomic Power Station
- D. Procedures for Requesting the FAA to Impose Temporary Flight Restrictions around the Susquehanna Steam Electric Station
- E. Procedures for Requesting the FAA to Impose Temporary Flight Restrictions around Three Mile Island Nuclear Station

- F. Sample Format for a News Release about Restricted Airspace
- G. Federal Aviation Administration, Air Traffic Control Regulations for Response to Incidents at Nuclear Power Plants
- H. Flight Restrictions Operations Points Per Nuclear Power Plant

ATTACHMENT A

APPENDIX 14

PROCEDURES FOR REQUESTING THE FAA TO IMPOSE TEMPORARY FLIGHT RESTRICTIONS AROUND THE BEAVER VALLEY POWER STATION

1. The State EOC (PennDOT EPLO) will contact the Watch Supervisor at the FAA Cleveland Center (phone: 440-774-0426) and request that temporary flight restrictions (as per Federal Air Regulation 91.91) be imposed around Beaver Valley Power Station.
2. The following information will be provided to the Watch Supervisor:
 - A. Caller's name and organization.
 - B. Brief description of the situation. Example: "An incident at the Beaver Valley Power Station has occurred and the emergency is classified a (an) Alert, Site Area Emergency, General Emergency) which is the (second, third, fourth) stage in a four stage classification scheme.
 - C. Duration of the temporary flight restrictions may extend for several days; PEMA will notify the FAA when the restrictions are no longer needed.
 - D. The restricted airspace shall extend 2-1/2 statute miles around the plant to an altitude of 5,000 feet above ground level. The plant is 735 feet above mean sea level, and is located on the Ohio River five miles from the West Virginia-Pennsylvania border and 15 miles northwest of Greater Pittsburgh Airport. Geographic coordinates of the plant are 40° 37' 18" latitude and 80° 26' 2" longitude.
 - E. Aircraft conducting radiation measurements and air sampling will be operating in and around the restricted areas.
 - F. Emergency aircraft entering the restricted area will operate from the Beaver County Airport.
 - G. All aircraft, including those carrying news representatives or other persons on official business, must contact the State EOC (717-651-2001) for assignment of a flight priority before operating in restricted airspace.
 - H. Call signs assigned by PEMA will be recognized by the FAA in authorizing entry into the restricted area.

ATTACHMENT B

APPENDIX 14

PROCEDURES FOR REQUESTING THE FAA TO IMPOSE TEMPORARY FLIGHT RESTRICTIONS AROUND THE LIMERICK GENERATING STATION

1. The State EOC (PennDOT EPLO) will contact the Watch Supervisor at the FAA New York Center (phone: 631-468-5959) and request that temporary flight restrictions (as per Federal Air Regulation 91.91) be imposed around Limerick Generating Station.
2. The following information will be provided to the Watch Supervisor:
 - A. Caller's name and organization.
 - B. Brief description of the situation. Example: "An incident at the Limerick Generating Station has occurred and the emergency is classified a (an) (Alert, Site Emergency, General Emergency) which is the (second, third, fourth) stage in a four stage classification scheme."
 - C. Duration of the temporary flight restrictions may extend for several days; PEMA will notify the FAA when the restrictions are no longer needed.
 - D. The restricted airspace shall extend 2-1/2 statute miles around the plant to an altitude of 5,000 feet above ground level. The plant is 217 feet above mean sea level, and is located on the Schuylkill River four miles east southeast of Pottstown Airport. Geographic coordinates of the plant are 40° 13' 27" latitude and 75° 35' 15" longitude.
 - E. Aircraft conducting radiation measurements and air sampling will be operating in and around the restricted areas.
 - F. Emergency aircraft entering the restricted area will operate from the Willow Grove Naval Air Station.
 - G. All aircraft, including those carrying news representatives or other persons on official business, must contact the State EOC (717-651-2001) for assignment of a flight priority before operating in restricted airspace.
 - H. In authorizing entry into the restricted area, the FAA will recognize call signs assigned by PEMA

ATTACHMENT C

APPENDIX 14

PROCEDURES FOR REQUESTING THE FAA TO IMPOSE TEMPORARY FLIGHT RESTRICTIONS AROUND THE PEACH BOTTOM ATOMIC POWER STATION

1. The State EOC (PennDOT EPLO) will contact the Watch Supervisor at the FAA Washington Center (phone: 703-771-3470) and request that temporary flight restrictions (as per Federal Air Regulation 91.91) be imposed around Peach Bottom Atomic Power Station.
2. The following information will be provided to the Watch Supervisor:
 - A. Caller's name and organization
 - B. Brief description of the situation. Example: "An incident at the Peach Bottom Atomic Power Station has occurred and the emergency is classified a (an) (Alert, Site Area Emergency, General Emergency) which is the (second, third, fourth) stage in a four stage classification scheme."
 - C. Duration of the temporary flight restrictions may extend for several days; PEMA will notify the FAA when the restrictions are no longer needed.
 - D. The restricted airspace shall extend 2-1/2 statute miles around the plant to an altitude of 5,000 feet above ground level. The plant is 116 feet above mean sea level, and is located on the west bank of the Susquehanna River about 2-3/4 statute miles north of the Pennsylvania-Maryland border. Geographic coordinates of the plant are 39° 45' 32" latitude and 76° 16' 9" longitude.
 - E. Aircraft conducting radiation measurements and air sampling will be operating in and around the restricted areas.
 - F. Emergency aircraft entering the restricted area will operate from the Lancaster Airport.
 - G. All aircraft, including those carrying news representatives or other persons on official business, must contact the State EOC (717-651-2001) for assignment of a flight priority before operating in restricted airspace.
 - H. In authorizing entry into the restricted area, the FAA will recognize call signs assigned by PEMA

ATTACHMENT D

APPENDIX 14

PROCEDURES FOR REQUESTING THE FAA TO IMPOSE TEMPORARY FLIGHT RESTRICTIONS AROUND THE SUSQUEHANNA STEAM ELECTRIC STATION

1. The State EOC (PennDOT EPLO) will contact the Watch Supervisor at the FAA New York Center (phone: 631-468-5959) and request that temporary flight restrictions (as per Federal Air Regulation 91.91) be imposed around Susquehanna Steam Electric Station.
2. The following information will be provided to the Watch Supervisor:
 - A. Caller's name and organization
 - B. Brief description of the situation. Example: "An incident at the Susquehanna Steam Electric Station has occurred and the emergency is classified a (an) (Alert, Site Area Emergency, General Emergency) which is the (second, third, fourth) stage in a four stage classification scheme."
 - C. Duration of the temporary flight restrictions may extend for several days; PEMA will notify the FAA when the restrictions are no longer needed.
 - D. The restricted airspace shall extend 2-1/2 statute miles around the plant to an altitude of 5,000 feet above ground level. The plant is 670 above feet mean sea level, and is located adjacent to the Susquehanna River about 10-1/2 statute miles northwest of the Hazleton Airport. Geographic coordinates of the plant are 41° 5' 30" latitude and 76° 8' 55" longitude.
 - E. Aircraft conducting radiation measurements and air sampling will be operating in and around the restricted areas.
 - F. Emergency aircraft entering the restricted area will operate from the Wilkes-Barre/Scranton International Airport
 - G. All aircraft, including those carrying news representatives or other persons on official business, must contact the State EOC (717-651-2001) for assignment of a flight priority before operating in restricted airspace.
 - H. In authorizing entry into the restricted area, the FAA will recognize call signs assigned by PEMA

ATTACHMENT E

APPENDIX 14

PROCEDURES FOR REQUESTING THE FAA TO IMPOSE TEMPORARY FLIGHT RESTRICTIONS AROUND THE THREE MILE ISLAND NUCLEAR STATION

1. The State EOC (PennDOT EPLO) will contact the Watch Supervisor at the FAA New York Center (phone: 516-468-1080) and request that temporary flight restrictions (as per Federal Air Regulation 91.91) be imposed around Three Mile Island Nuclear Station.
2. The following information will be provided to the Watch Supervisor:
 - A. Caller's name and organization.
 - B. Brief description of the situation. Example: "An incident at the plant has occurred and the emergency is classified a (an) (Alert, Site Area Emergency, General Emergency) which is the (second, third, fourth) stage in a four stage classification scheme."
 - C. Duration of the temporary flight restrictions may extend for several days; PEMA will notify the FAA when the restrictions are no longer needed.
 - D. The restricted airspace shall extend 2-1/2 statute miles around the plant to an altitude of 5,000 feet above ground level. The plant is 300 feet above mean sea level, and is located on an island in the Susquehanna River about 2-1/2 miles south southeast of Harrisburg International Airport. Geographic coordinates of the plant are 40° 9' 12" latitude; 76° 43' 25" longitude.
 - E. Aircraft conducting radiation measurements and air sampling will be operating in and around the restricted areas.
 - F. Emergency aircraft entering the restricted area will operate from the Lancaster Airport.
 - G. All aircraft, including those carrying news representatives or other persons on official business, must contact the State EOC (717-651-2001) for assignment of a flight priority before operating in restricted airspace.
 - H. Call signs assigned by PEMA will be recognized by the FAA in authorizing entry into the restricted area.
 - I. Aircraft using Harrisburg International Airport for takeoff or landing may enter the restricted area contingent on the emergency situation by obtaining airspace clearance from the FAA as required by Federal Aviation Regulations.

ATTACHMENT F

APPENDIX 14

SAMPLE FORMAT FOR A
NEWS RELEASE ABOUT RESTRICTED AIRSPACE

(Note: Prior to issuance of such a news release all facts should be verified with the FAA to include the exact wording of the NOTAM issued.)

Proposed content: “At the request of the State EOC the Federal Aviation Administration has placed temporary flight restrictions around the (plant). The restrictions are now in effect and the FAA has issued a NOTAM (Notice to airmen) indicating that the restricted airspace extends 2-1/2 miles around the plant to a height of 5,000 feet above the plant or an elevation of (# feet) mean sea level.”

“The temporary flight restrictions are imposed in order to prevent possible mid-air collisions due to crowding caused by sightseers and other unnecessary flights and to give priority to aircraft on official missions such as monitoring and sampling the air above and around the plant. All aircraft carrying persons wishing to enter the restricted area must leave from the (name the airport). At the (name the airport) the pilot can receive a priority rating which the FAA will recognize for authorized entry into the restricted area by contacting State EOC (717-651-2001) and justifying the purpose of the flight into the temporary restricted area.”

“Pilots anticipating flight in the vicinity of the (plant) are urged to read the FAA NOTAM which has been disseminated.”

ATTACHMENT G

APPENDIX 14

FEDERAL AVIATION ADMINISTRATION AIR TRAFFIC CONTROL REGULATIONS FOR RESPONSE TO INCIDENTS AT NUCLEAR POWER PLANTS

Section 4: FLIGHT RESTRICTIONS

640 TEMPORARY FLIGHT RESTRICTIONS (FAR 91.91)

- a. The purposes for designating an area within which temporary flight restrictions apply are to:
 - (1) Protect persons and property in the air or on the surface from an existing or imminent hazard associated with an incident on the surface when the presence of low flying aircraft would magnify, alter, spread, or compound that hazard;
 - (2) Provide a safe environment for the operation of disaster relief aircraft; or
 - (3) Prevent an unsafe congestion of sightseeing aircraft above an incident or event, which may generate a high degree of public interest.
- b. Except as provided for in paragraph 641, when the conditions of paragraph 640a(1) or (2) are involved, the NOTAM will only be implemented by or through the ARTCC having jurisdiction over the area concerned.
- c. Except as provided for in paragraph 641, when the conditions of paragraph 640a(3) are involved, temporary flight restrictions may be established only at the direction of the Air Traffic District (ATD) having oversight of the airspace concerned.

641 HIJACKING

- a. When hijacking situations are involved, temporary flight restrictions will be implemented at the request of the Washington headquarters Office of Civil Aviation Security.
- b. Time permitting, the request will be made to the ATD. Otherwise, it will be made directly to the facility concerned. Connotations of a disaster area type operation will not be implied.

Example: FLIGHT RESTRICTIONS MINNER VIRGINIA AIRPORT, PURSUANT TO FAR 91.91(b) TEMPORARY FLIGHT RESTRICTIONS ARE EFFECTIVE IMMEDIATELY AND UNTIL FURTHER NOTICE WITHIN A ONE NAUTICAL MILE RADIUS OF THE DAVIS

AIRPORT AT AND BELOW 5,000 FEET MSL TO PROVIDE A SAFE ENVIRONMENT FOR RESCUE ACTIVITIES. VIRGINIA STATE POLICE ARE IN CHARGE 695 847 1877. CHANDLER FSS 792 555 1211 IS THE FAA COORDINATION FACILITY.

- c. Upon receipt of the request, the facility will establish temporary flight restrictions under paragraph 640a(1). If the facility receiving the request is other than an ARTCC, that facility shall inform the appropriate ARTCC.

642 REQUESTING AUTHORITIES

- a. Temporary flight restrictions will be recommended or requested for conditions under paragraph 640a(1) by military major command headquarters, Regional directors of the Office of Emergency Planning, Civil Defense State Directors, State Governors, or other similar authority.
- b. Temporary flight restrictions will be recommended or requested for conditions under paragraph 640a(2) by:
 - (1) Military commanders serving as Regional, sub-Regional, or sector SAR coordinators;
 - (2) Military commanders directing or coordinating air operations associated with disaster relief; or
 - (3) Civil authorities directing or coordinating organized relief air operations. This includes representatives of the Office of Emergency Planning, U.S. Forest Service, and State aeronautical agencies.
- c. Temporary flight restrictions will be recommended or requested for conditions under paragraph 640a(3) by similar authorities as those listed in paragraph 642b, local authorities, and sponsors of events which may generate a high degree of public interest.

643 DEGREE OF RESTRICTIONS

- a. NOTAM's issued pursuant to FAR 91.91 are regulatory actions, and all restrictions issued must consider the impact on nonparticipating aircraft operations. Accordingly, restrictions shall be kept to a minimum, yet permit achievement of the necessary objectives.
- b. Requests for NOTAM's citing FAR 91.91(b) (paragraph 640a(1) conditions) must come from one of the authorities listed in paragraph 642a because the resulting restrictions will prohibit all flight in the designated area except those which will participate in the hazard relief activities and which must be directed by the official-in-charge of on scene emergency response activities. Situations warranting such drastic restrictions include:
 - (1) Toxic gas leaks or spills, flammable agents, or fumes which if fanned by rotor or propeller wash, could endanger persons or property on the surface, or if entered, could endanger persons or property in the air.

- (2) Imminent volcano eruptions, which could endanger airborne aircraft and occupants.
 - (3) Nuclear accidents or incidents.
 - (4) Hijackings.
 - (5) Other accidents or incidents where the presence of flying aircraft could be detrimental to rescue or preventive measures being taken.
- c. Request for temporary flight restrictions which would cite FAR 91.91(c) (paragraph 640a(2) may only be honored for situations involving air rescue or air relief activities. Such activities include:
 - (1) Forest fires which are being fought by releasing fire retardants from aircraft.
 - (2) Aircraft relief activities following a disaster (earthquake, tidal wave, flood, etc.)
- d. The amount of airspace needed to protect persons and property or provide a safe environment for rescue/relief aircraft operations can normally be limited to 2,000 feet above ground level and to a 5 nautical mile radius.
- e. Normally, incidents occurring within an airport traffic control area or a TCA can be handled through existing procedures and should not require the issuance of temporary flight restrictions under FAR 91.91. However, the Air Traffic manager, or his designee, may make a determination that FAR 91.91 restrictions are appropriate and advise the Air Route Traffic Control Center (ARTCC) accordingly.

644 PILOT COMPLIANCE WITH FAR 91.91 RESTRICTIONS

It is the pilot's responsibility to comply with FAR 91.91 when planning flight for, or conducting flight in, an area where temporary flight restrictions are in effect.

645 COORDINATION

- a. Air traffic facilities shall coordinate their efforts to the maximum extent possible in rendering assistance to the agency conducting the relief activity, the pilots engaged in airborne relief operations, and the official-in-charge of on scene emergency response activities.

- b. The facilities receiving information concerning requests/direction shall maintain a chronological log of all related actions on a discrete FAA Form 7230-4. The ARTCC shall obtain the following information, as appropriate, from the notifying agency/office or facility and include the information on FAA Form 7230-4:
 - (1) The name and the organization of the person recommending or requesting the temporary flight restrictions.
 - (2) A brief description of the situation.
 - (3) The estimated duration of the restrictions.
 - (4) The name of the agency responsible for on-scene emergency activities and the telephone or other communications contact.
 - (5) A description of the affected area by reference to prominent geographical features depicted on aeronautical charts if possible, otherwise, by geographical coordinates and VHF omni-directional radio distance measuring equipment (VORDME) fix when the latter is available.
 - (6) A description of the material or the activity posing a hazard to persons and property in the air.
 - (7) A description of the hazard that would be magnified, spread, or compounded by low flying aircraft or rotor wash.
 - (8) The nature of the airborne relief, the proposed aircraft operations, and the location of the relief aircraft's base.
 - (9) The contact point or the radio frequency for handling news media requests to operate at altitudes used by relief aircraft.
- c. If a request for a temporary flight restricted area is not approved as requested, indicate the basis for the non-approval. Also, indicate any alternative procedures utilized.
- d. The ARTCC shall designate the Flight Service Station (FSS) nearest the incident site as the "coordination facility" and shall forward the information contained in paragraph 645b to that station for NOTAM dissemination. If a large area is involved, such as one which might be caused by a flood or a forest fire, the coordination facility should be the FSS nearest the emergency control operations base or the FSS at the ARTCC location whichever is more appropriate.

- e. When FAA communications assistance is required, the designated FSS shall function as the primary communications facility for coordination between the emergency control authorities and the affected aircraft.
- f. The ARTCC shall act as liaison between the emergency control authorities and the designated FSS if adequate communications cannot be established between them.

646 ATC AUTHORIZED OPERATIONS

Only when flight restrictions are implemented under FAR 91.91(c) or (d) may ATC authorize operations in the areas that would be otherwise prohibited and only when such flights are conducted under IFR clearance and transiting the area. However, this provision is not to be interpreted as authority to authorize local IFR flights into the affected area.

Note: The AT facility may relay authorizations from the on-scene official in cases where news media aircraft operations are approved at the altitudes used by relief aircraft.

647 MESSAGE CONTENT

To preclude misunderstanding, the implementing NOTAM shall contain the information listed below as appropriate. The FAR is explicit as to what operations are prohibited, restricted, or allowed. Embellishment, no matter how well intended, is contrary to regulations. Therefore, the facility originating temporary flight restrictions shall format NOTAM's in accordance with the instructions below.

- a. The introductory phrase "FLIGHT RESTRICTIONS (list appropriate location name or geographical references) EFFECTIVE (time/date) UNTIL (termination time/date)." When the actual termination time/date cannot be determined but can be approximated, use the estimated time/date. However, in natural disasters, such as an earthquake, use the phrase "UNTIL FURTHER NOTICE" in lieu of a termination time/date. "PURSUANT TO FAR 91.91 (appropriate subparagraph letter) TEMPORARY FLIGHT RESTRICTIONS ARE IN EFFECT....";
- b. A clear definition of the area in nautical miles;
- c. The altitudes affected;
- d. The FAA coordination facility and the commercial telephone number;
- e. The reason for the temporary flight restrictions;

Note: In cases of sensitive incidents, such as a hijacking, general terms, such as RESCUE OPERATION IN PROGRESS, will be sufficient.

- f. The agency directing the relief activities and the commercial telephone number;

- g. Other information considered appropriate by the issuing authority.

Examples: FAR 91.91(b) Restrictions (paragraph 640a(1)):

FLIGHT RESTRICTIONS PEPPARD VIRGINIA EFFECTIVE IMMEDIATELY UNTIL 1200 UTC JANUARY 20, 1986. PURSUANT TO FAR 91.91B TEMPORARY FLIGHT RESTRICTIONS ARE IN EFFECT. RESCUE OPERATIONS IN PROGRESS. ONLY RELIEF AIRCRAFT OPERATIONS UNDER DIRECTION OF THE DEPARTMENT OF DEFENSE ARE AUTHORIZED IN THE AIRSPACE AT AND BELOW 5,000 FEET MSL WITHIN A 2 MILE RADIUS OF FALSETTI AFB PEPPARD VIRGINIA. COMMANDER FALSETTI AFB IN CHARGE 897 946 5543. FERNALD FSS IS THE FAA COORDINATION FACILITY 792 555 6141.

FAR 91.91(c) Restrictions (paragraph 640(2)):

FLIGHT RESTRICTIONS 25 MILES EAST OF BECKER IDAHO EFFECTIVE IMMEDIATELY UNTIL 2359 JANUARY 20, 1986. PURSUANT TO FAR 91.91C TEMPORARY FLIGHT RESTRICTIONS ARE IN EFFECT WITHIN A 4 MILE RADIUS OF THE INTERSECTION OF COUNTY ROADS 564 AND 315 AT AND BELOW 3500 FEET MSL TO PROVIDE A SAFE ENVIRONMENT FOR FIRE FIGHTING AIRCRAFT OPERATIONS. DAVIS COUNTY SHERIFFS DEPARTMENT 792 555 8122 IS IN CHARGE OF ON SCENE EMERGENCY RESPONSE ACTIVITIES. ARCHER FSS 792 555 1681 IS THE FAA COORDINATION FACILITY.

FAR 91.91(c) Restrictions (paragraph 640a(3)):

FLIGHT RESTRICTIONS CAREY TENNESSEE DUE TO OLYMPIC ACTIVITY. EFFECTIVE 1100 UTC JUNE 18, 1986 UNTIL 0200 UTC July 19, 1986. PURSUANT TO FAR 91.91D TEMPORARY FLIGHT RESTRICTIONS ARE IN EFFECT WITHIN A 3 MILE RADIUS OF THE SYLVESTER SPORTS COMPLEX AT AND BELOW 2500 FEET MSL. TENNESSEE DEPARTMENT OF TRANSPORTATION IS IN CHARGE 423 772 6331. LEAH FSS 423 555 6742 IS THE FAA COORDINATION FACILITY.

648 REVISIONS AND CANCELLATIONS

- a. When restrictions are necessary beyond the published termination date/time, the ARTCC shall ensure that a revised NOTAM and an appropriate cancellation are issued.
- b. When the ARTCC within whose area the restrictions are established receives information from the Air Traffic District (ATD) or the agency that requested the restrictions are not longer required, the ARTCC shall take action to cancel them. If the information is received by another facility, that facility shall notify the ARTCC, which will take appropriate action.
- c. When it is obvious that the restrictions are no longer required but no information to that effect has been received, the ARTCC shall take action to ascertain the status of the restrictions from the ATD or the agency that requested the restrictions.

649 RESERVED

ATTACHMENT H

APPENDIX 14

FLIGHT RESTRICTIONS OPERATIONS POINTS PER NUCLEAR POWER PLANT

<u>NUCLEAR POWER PLANT</u>	<u>LOCATION OF GROUND COORDINATION POST</u>	<u>FAA REGIONAL CENTER CONTACT</u>
Beaver Valley Power Station	Beaver County Airport	Watch Supervisor FAA Cleveland Center Phone: 440-774-0426
Limerick Generating Station	Willow Grove Naval Air Station	Watch Supervisor FAA New York Center Phone: 631-468-5959
Peach Bottom Atomic Power Station	Lancaster Airport	Watch Supervisor FAA Washington Center Phone: 703-771-3470
Susquehanna Steam Electric Station	Wilkes-Barre/Scranton International Airport	Watch Supervisor FAA New York Center Phone: 631-468-5959
Three Mile Island Nuclear Station	Harrisburg International Airport	Watch Supervisor FAA New York Center Phone: 631-468-5959

APPENDIX 15

ANNEX E

RECOVERY

(REENTRY, RETURN AND RELOCATION)

1. PURPOSE

Designate criteria governing the relaxation of protective actions in the plume and ingestion EPZs. Outline the scope of recovery operations and identify activities, which must be carried out to return the affected offsite area around the nuclear power plant to its pre-incident condition (as nearly as possible). Provide guidance for State and local efforts to seek reimbursement of public and private costs incurred in response to a nuclear power plant incident.

2. SITUATION

- A. An incident at a nuclear power plant involving the uncontrolled release of radioactive contaminants to the offsite area has occurred requiring the implementation of protective actions. The uncontrolled release has stopped and further uncontrolled release of radioactive contaminants from the site is unlikely.
- B. There may have been a Presidential Declaration of Emergency.
- C. Responsible Federal and State agencies have determined that the criteria designated herein governing relaxation of protective actions against exposure to radiation from the release have been met. (See paragraph 3.D.)
- D. The Governor determines that recovery operations may begin.

3. CONCEPT OF OPERATIONS

- A. The Chairman of the State Emergency Management Council or Director of PEMA, acting on behalf of the Governor of Pennsylvania, shall create a State Recovery Task Force to develop a plan to guide recovery of offsite areas affected by an incident at a nuclear power plant. The structure, functions and responsibilities of the State Recovery Task Force are described in Paragraphs 5 and 6, this Appendix.

- B. Counties affected by the evacuation ascertain the operability of essential public services in their Municipalities and inform PEMA of their status. Residents of Municipalities will not be authorized to return to their domiciles until essential public services are operable. Essential public services include electric, gas, sewage treatment, heating fuel delivery, trash removal, telephone, mail service, road clearance and appropriate social services (i.e., visiting nurses, homebound meal delivery, etc.)
- C. Until the Governor declares that recovery operations may commence, reentry to evacuated areas shall be restricted to those initially designated volunteer and professional emergency workers as well as certain farmers, industrial workers, institutional workers, onsite personnel and others who apply and qualify for emergency worker entry authorization. Evacuated residents will not routinely be admitted.
- D. Recovery Dose Limits:
- (1) General
- The principle of As Low As Reasonably Achievable (ALARA) applies, as appropriate, to the criteria found herein in relation to radiation dosage.
- (2) Reentry
- a. Emergency Workers
- The following Protective Action Guides (PAGs) will apply:
- 1) Whole Body Exposure
- (a) The Protective Action Guide (PAG) for maximum permissible whole body exposure specified by the Environmental Protection Agency (EPA) and Bureau of Radiation Protection (BRP) is 25 Rem.
- (b) The BRP specifies an upper limit of 75 Rem whole body-dose for life saving missions, but this limit is subject to special approval, conditions, and measures.
- 2) Selected Evacuated Residents
- (a) NRC and State BRP evaluations have determined that no further unauthorized radioactive release requiring protective action is likely.

(b) Projected radiation exposure over a three-month period will not be in excess of 1.25 Rem.

(c) Recovery Workers

Radiation exposure will be limited to 5 Rem annually. ALARA principle always applies.

(3) Return - General Public

- a. NRC and State BRP evaluations have determined that no further radioactive release requiring protective action is likely.
- b. Projected radiation exposure above background over a one-year period will not exceed 0.5 Rem.
- c. Essential public services, e.g. public water, electricity, sewage treatment, etc. are operable.
- d. The Counties and Municipalities have reestablished governmental functions.

4. DEFINITIONS

- A. Controlled Entry Points (CEPs) - Locations through which authorized access to and egress from exclusionary and restricted zones can be accomplished.
- B. Essential Public Services - The group of operating systems, which together form the basic framework for societal support. These include fire, police, EMS, water and sewage treatment, gas and electric utilities, trash removal, telephone and mail service, social services and road clearance.
- C. Selected Evacuated Residents - Relocated adults with proof of former residence who wish to retrieve personal property.
- D. Exclusionary Zone - That Region, usually within the plume EPZ, in which the full extent of radioactive contamination has not been verified. (In the early stages of the incident, this may include the entire plume EPZ.) Emergency workers will be the only personnel authorized access to exclusionary zones.
- E. Recovery - The generic term used for the overall process of decontamination and/or restoration of essential services and infrastructure to allow for resumption of normal activity in areas in which protective actions have been implemented.

- F. Recovery Operations - Activities carried out to return the offsite area around the nuclear plant as nearly as possible to its pre-incident condition.
- G. Recovery Workers - These include Non-pregnant adults performing governmental functions or public service, farmers, institutional, industrial, or commercial employees.
- H. Reentry - The temporary return of those authorized by the Governor for a prescribed period into the exclusionary or restricted zones.
- I. Relocation - A protective action implemented during the recovery whereby evacuees or sheltered individuals residing in areas exceeding relocation PAGs are removed and/or excluded from return to restricted zones until directed by the Commonwealth and are accommodated at a new location for an extended period - months to years.
- J. Restricted Zone - That Region expected to meet or exceed plume PAGs up to four days after termination of the incident or exceed relocation PAGs for continuous occupancy as defined in Annex E. It may also include a buffer zone to prevent radioactive contaminants from being deposited in unrestricted areas.
- K. Restoration Activities – These activities are equivalent to recovery operations.
- L. Return - The permanent return of citizens, businesses, governments, and institutions to their dwellings, places of employment, or operating sites after restricted areas have been determined by the Commonwealth to be safe for occupancy.

5. ORGANIZATION

A. State Recovery Task Force (SRTF)

Membership

The State Recovery Task Force is chaired by the Chairman of the State Emergency Management Council, or in his/her absence, the Director of Pennsylvania Emergency Management Agency (PEMA) and consists of one or more representatives from each of the following agencies or organizations:

State Representatives (Primary)

Pennsylvania Department of Agriculture
 U.S. Department of Agriculture (State Emergency Board)
 Department of Education
 Department of Environmental Protection

Department of Health
Department of Insurance
Department of Military and Veterans Affairs
Department of Public Welfare
Department of Transportation
Pennsylvania Emergency Management Agency
Pennsylvania State Police
Bureau of Radiation Protection
American Red Cross

State Representatives (Secondary)

Representatives from these State agencies may be added as deemed appropriate to completing the responsibilities of the SRTF once the task force is activated.

Civil Service Commission
Department of Aging
Department of the Auditor General
Department of Banking
Department of Community and Economic Development
Department of Corrections
Department of General Services
Department of Labor and Industry
Department of Revenue
Fish and Boat Commission
Game Commission
Liquor Control Board
Office of Attorney General
Office of the Budget
Office of General Counsel
Pennsylvania Human Relations Commission
PA Infrastructure Investment Authority (PENNVEST)
Pennsylvania Turnpike Commission

County Representatives

Appropriate representation from each of the affected Counties will be included on the task force. Representatives of Counties may be requested to participate based upon actual effects of radiation deposition resulting from the accident.

Utility Representatives

Representatives of the affected utility and its insurers may be requested to participate.

Federal Representatives

Federal representation on the State Recovery Task Force may include some or all of the following agencies identified in the Federal Radiological Emergency Response Plan (FRERP), as provided by the Federal Emergency Management Agency (FEMA) and the Federal Radiological Preparedness Coordination Committee (FRPCC):

Federal Emergency Management Agency
USDA (State Food and Agriculture Council (FAC)
Chairperson or designee)
Department of Commerce
Department of Energy
Centers for Disease Control, Department of Health and
Human Services (HHS)
Food and Drug Administration, HHS
Department of Housing and Urban Development
Department of Transportation
Environmental Protection Agency
Nuclear Regulatory Commission
Department of the Interior

Representatives of such other Federal agencies as deemed appropriate by the Governor to complete the responsibilities of the Task Force may be requested once the Task Force is convened.

Adjacent Affected State Representatives

The emergency management agencies of adjacent affected States may provide a liaison to the Task Force.

B. Staff Support for the Task Force

Administrative and public information support for the Task Force shall be provided by PEMA. Additional assistance will be provided, upon request, from other participating State agencies.

C. Radiological Technical Support for the Task Force

The Incident Manager, BRP, with assistance from appropriate Federal agencies, shall both serve on and be the principal radiological technical advisor to the State Recovery Task Force.

D. Task Force Meetings

The task force once convened will meet as necessary. Such meetings shall generally take place in or near the State EOC or the Disaster Field Office or other designated location.

E. Duration of Task Force Operations

The State Recovery Task Force shall continue to function until recovery operations are complete, or until the Governor, as advised by the Task Force Chairman, determines that overall recovery management functions can be completed through the individual statutory responsibilities of Pennsylvania State and local governments.

6. RESPONSIBILITIES

A. General

(1) State Recovery Task Force (SRTF)

The State Recovery Task Force is responsible for coordination and implementation of existing plans and for development of modifying instructions based on the realities and circumstances of the time. Policies, plans and procedures to be established shall include:

- a. Guidance for the restoration of affected areas (as closely as possible) to their pre-incident condition.
- b. Procedures for developing a prioritized list of restoration activities in affected Counties. Identifying State and Federal agencies or organizations responsible for providing assistance.
- c. Developing a decontamination and restoration plan, which includes the appropriate types of decontamination actions or activities to recover the area. This plan must include established priorities for decontamination and restoration actions.
- d. The identification/tasking of individuals or organizations who will carry out decontamination and restoration activities and the determination of their roles and responsibilities, which include coordination between the Federal, State and County levels.
- e. Assign decontamination and restoration projects including, but not limited to the following:

- 1) Decontaminating and restoring buildings and equipment used to provide basic services such as general government, fire, law enforcement, postal, water, electricity, and sewage.
 - 2) Decontaminating and restoring hospitals, nursing homes, prisons, businesses, and industrial and agricultural sites, buildings and equipment.
 - 3) Removing and disposing of materials, equipment, soils, farm animals and pets, food products, farm or garden produce and other items which cannot be decontaminated or which have perished or spoiled while the area has been evacuated.
 - 4) Decontaminating or otherwise restoring agricultural lands to productive use.
 - 5) Determining limitations on area hunting and fishing (e.g. length of seasons, bag limits, etc.).
- f. Return and/or relocation assistance to evacuated individuals, businesses and industries.
 - g. Guidelines for tracking and recovering costs incurred for all activities associated with the incident and proposing a system to accomplish cost tracking and recovery.
 - h. An approach to providing continuing information about recovery actions, activities and timetables to the public through the media.
 - i. Determining in consultation with the appropriate Federal authorities the disposition of contaminated materials, which must be removed from the area during restoration.
 - j. Determining which areas (if any) must remain restricted on a long-term or permanent basis due to radiological considerations.

(2) Task Force Chairman

The Chairman of the Emergency Management Council or Director of PEMA, acting on behalf of the Governor, shall chair the State Recovery Task Force. The responsibilities of the task force chairman shall include but not be limited to the following:

- a. Organizing and convening the State Recovery Task Force;
 - b. Coordinating the development of task force procedures for the direction of the recovery effort and for coordination among all of the involved entities.
 - c. Issuing directives for the Governor.
 - d. Making recommendations to the Governor.
 - e. Acting under the direction of the Governor in the execution of his emergency powers when a State of Disaster Emergency is in force.
 - f. Setting up a task force meeting schedule and the agenda for such meetings, and;
 - g. Coordinating information collection and research to support task force decision-making.
- (3) Pennsylvania Emergency Management Agency (PEMA)
- a. Coordinate with the Task Force regarding Federal and State agency support of recovery operations.
 - b. Provide public information support to the SRTF. (The PEMA Press Secretary will function as the SRTF media point of contact and will supervise SRTF media activities.)
 - c. Assist affected Counties in the conduct of a coordinated damage assessment, which considers the broadest context of damage, both tangible and intangible.
 - d. Maintain records and reports acquired during the incident.
 - e. Participate in incident response critiques and develop (with the assistance of all affected agencies) a detailed after action report focusing on lessons learned and methods to improve performance.
 - f. Provide the Task Force a plan to assist claimants in documenting their losses.
 - g. Provide the Task Force a plan to assist claimants in settling claims with and recovering damage from the utility and its insurers under the provisions of the Price-Anderson Act or in seeking assistance under the provisions of the Stafford Act (PL 100-707).

(4) Pennsylvania Department of Agriculture (PDA)

- a. Coordinate the mitigation of radiological contamination of agricultural, dairy, and food products.
- b. Coordinate with the Department of Health (DOH), USDA and DEP for the collection of product samples and the disposition of contaminated food products based on FDA criteria.
- c. Provide field teams for the purpose of taking samplings of agricultural, dairy and food products for BRP analysis.
- d. Impound or dispose of contaminated food products as appropriate.
- e. Divert fluid milk to processing of manufactured milk products, as appropriate.
- f. Inform the Governor, through the Task Force, on the status of operations in regard to food chains.

(5) Department of Environmental Protection (DEP)

- a. Provide field teams for the purpose of taking water samples of public reservoirs, water intake points, water treatment plants, sewage treatment plants, ground water, and surface water for the purpose of BRP analysis.
- b. Provide to the task force an assessment of the environmental impacts and a plan for recovery.

(6) Department of Insurance

Provide the SRTF Chairman with professional advice and assistance in matters relating to loss compensation.

(7) Department of Health (DOH)

- a. Provide to the Task Force, in coordination with BRP, an assessment of the physiological impacts regarding recovery and a plan for recovery.
- b. Provide an action plan to aid the recovery of special needs populations.

- (8) Department of Public Welfare (DPW)
 - a. Provide an assessment of the psychological impacts of recovery to the Governor through the Task Force.
 - b. Provide an assessment of welfare needs based on accident results.
 - c. Develop a plan to provide for welfare of special needs and general population groups.
- (9) Department of Transportation (PennDOT)
 - a. Provide an assessment of selected transportation networks to the Task Force.
 - b. Coordinate with BRP and DMVA on transportation aspects concerning collection, storage and disposal of contaminated waste material.
- (10) Bureau of Radiation Protection (BRP)
 - a. Coordinate Federal augmentation of State sampling operations and analysis of radioactive contamination.
 - b. Develop a recommended short/long-term monitoring and sampling plan for evacuated areas, which identifies numbers and locations of samples to be taken.
 - c. Reassess the need for monitoring and sampling personnel, identify roles and responsibilities of participating agencies and organizations. Make field assignments based on the State Recovery Task Force's recovery plan.
 - d. Provide for the radiological exposure control of monitoring and sampling personnel to include protective clothing, dosimetry, personnel and vehicle decontamination sites, stay times, etc.
 - e. Direct and conduct continuous monitoring of radiation levels and environmental sampling in accordance with the State recovery plan.
 - f. Coordinate, direct and conduct continuous sample evaluation, dose assessment and dose projection.
 - g. Periodically reevaluate the public health effects of current radiation levels.

- h. Identify areas where current radiation levels or cumulative dose values remain too high for recovery activities to take place, either temporarily or permanently.
- i. Periodically reconsider, revise, and relax (where possible) protective action recommendations (PARs).
- j. Provide revised PAR information to the Task Force public information function so the public can be informed of changing radiological conditions.
- k. Develop a decontamination and restoration plan for the approval of the Task Force, which includes the appropriate types of decontamination actions or activities to recover the area and establishes priorities for decontamination and restoration activities.
- l. Identify individuals or organizations that will carry out decontamination and restoration activities and determine their roles and responsibilities.
- m. Coordinate and arrange for the radiological exposure control of decontamination/restoration personnel including protective clothing, dosimetry, personnel and vehicle decontamination site, stay times, etc. (This can be done in conjunction with the development of similar provisions for monitoring and sampling personnel.)

(11) Fish and Boat Commission

- a. Provide representative fish specimens for laboratory analysis.
- b. Provide the Task Force with a plan to limit area fishing (e.g. length of seasons, creel limits, etc.), if necessary.
- c. Establish river access control points as required.

(12) Game Commission

- a. Provide representative game specimens for laboratory analysis.
- b. Provide the Task Force with a plan to limit area hunting (e.g. length of seasons, bag limits, etc.), if necessary.

- (13) Department of Military and Veterans Affairs
 - a. Augment Federal and State decontamination resources within mission capabilities.
 - b. Assist in the removal of soils and other items that cannot be decontaminated.

- (14) Affected Counties
 - a. Provide overall direction and coordination of recovery operations within the specific County.
 - b. Expedite re-establishment of normal County and Municipal government organization and functions.
 - c. Coordinate support of Municipal recovery operations.
 - d. Realign (if necessary) staff responsibilities in order to encompass recovery duties.
 - e. Maintain controlled entry points to evacuated areas.

- (15) Affected Municipalities
 - a. Provide overall direction and coordination of recovery operations within the respective Municipality.
 - b. Expedite re-establishment of normal Municipal government organization and functions.

B. Reentry Phase

- (1) Pennsylvania Emergency Management Agency (PEMA)
 - a. In coordination with affected Counties, revise and implement plans for maintaining access control to exclusion zones. During the decontamination and restoration period, develop provisions for controlled access to evacuated areas by monitoring and sampling teams, decontamination and restoration personnel, and other specially identified groups such as farmers, critical industry workers, hospital workers, etc. Develop procedures for permanent or long-term access control to remaining restricted areas.
 - b. Coordinate with the State agencies regarding the identification of taskings requiring access control; determine the agencies' roles and responsibilities.

- c. Provide information updates about areas still under access control to the Task Force public information staff so the public can be informed through the media.
 - d. Realign (if necessary) agency staff responsibilities in order to assist the Task Force in the discharge of reentry- related duties.
 - e. In coordination with BRP and the Department of Insurance, provide the SRTF Chairman with such property damage information as may be available.
 - f. Provide communication support to American Nuclear Insurers by procuring additional telephone lines for installation in designated claim centers.
- (2) Pennsylvania Department of Agriculture (PDA)
- a. Provide field teams for the purpose of taking samplings of agricultural, dairy and food products for BRP analysis.
 - b. Effect necessary coordination with USDA.
 - c. Inform the Task Force on the status of operations in regard to food chains.
- (3) Department of Environmental Protection/Department of Conservation and Natural Resources
- Provide field teams for the purpose of taking water samples of public reservoirs, water intake points, water treatment plants, sewage treatment plants, ground water, and surface water for the purpose of BRP analysis.
- (4) Department of Insurance
- a. Establish and maintain an insurance customer service hotline to provide information and assistance to evacuated residents.
 - b. Furnish PEMA with professional advice and assistance in the evaluation of property damage information and reports.
 - c. Assist American Nuclear Insurers in the establishment of claim centers.

- (5) Department of Transportation (PennDOT)
 - a. In coordination with PSP and DMVA, develop plans to establish controlled entry points and traffic routes around contaminated areas.
 - b. Provide Commonwealth and County maps as necessary.
- (6) Bureau of Radiation Protection (BRP)
 - a. Determine Bureau needs that can be met by the Federal Radiological Monitoring and Assessment Plan (FRMAP).
 - b. Request and coordinate Federal offsite monitoring and assessment support.
 - c. Develop environmental monitoring strategy and, in coordination with the FRMAC, dispatch teams to verify deposition areas and collect in-place PRDs and particulate samples as necessary.
 - d. Verify deposition footprint, establish radiological zones, and transmit locations of restricted and exclusion areas to the State EOC.
 - e. Recommend to the Task Force when recovery activities should commence.
 - f. Provide health physicists and technicians to support Controlled Entry Point operations.
- (7) Fish and Boat Commission

Maintain river access control points as required.
- (8) Department of Military and Veterans Affairs (DMVA)
 - a. Assist the State Police and risk Counties, upon request by the State EOC, with access control and security of evacuated areas.
 - b. Provide decontamination support within unit mission capabilities.
- (9) Pennsylvania State Police (PSP)
 - a. Develop plans for maintaining access control to all restricted and exclusion areas in coordination with affected Counties.

- b. Provide personnel to operate Access Control Points (ACPs) to prevent unauthorized reentry into evacuated areas.

(10) Affected Counties

Establish controlled entry points (CEPs) to evacuated areas in coordination with PSP to include a monitoring station at each CEP.

(11) Affected Municipalities

- a. Maintain communications with affected County EMA.
- b. Expedite re-establishment of normal Municipal government organization and functions.
- c. Assess the operability and safety of public services such as public water, electricity, waste-water treatment, etc

C. Return

(1) Task Force

- a. Provide to the Governor a comprehensive evaluation of the potential impact of return on the public.
- b. Advise the Governor when preparations are completed to the extent that return of the public is feasible.
- c. In coordination with affected Counties, revise and implement human services and economic assistance plans and procedures to aid the physical return of resident individuals, business and industries to previously evacuated areas. These plans and procedures will include what kind of support will be offered, who will provide it, and how, when, and where such support will be provided.
- d. Identify agencies and organizations that will be managing the return effort and determine their roles and responsibilities, to include coordination between Federal, State and County governmental agencies.
- e. Establish an economic assistance hotline to provide information to businesses and individuals concerning where this type of assistance can be obtained.

- f. Provide periodic information updates to media outlets on the progress of return activities so the public will remain informed.
- g. Provide information and advice to individuals, businesses and industries about further personal decontamination activities that need to take place upon return to their facilities.

(2) PEMA

- a. Notify (based on the Governor's decision) appropriate State Regional EOCs and Counties when evacuees can return to their Municipalities.
- b. Realign staff responsibilities (if necessary) in order to encompass recovery duties.

(3) Pennsylvania Department of Agriculture (PDA)

- a. Coordinate with the Departments of Health and Environmental Protection for the collection of product samples.
- b. Provide field teams for the purpose of taking samples of agricultural, dairy and food products for BRP analysis.
- c. Coordinate food product and agricultural sampling activities with USDA.

(4) Department of Banking

Provide the Task Force with an assessment of the readiness to reopen banks in the affected areas.

(5) Department of Community and Economic Development

- a. Provide the Task Force with an assessment of the economic short and long-term impacts of the incident.
- b. Assist the Task Force in developing an economic plan and procedures to support returning businesses and industries.
- c. Provide the Task Force with an estimate of time to return to economic normalcy.

- d. Provide personnel to assist in the manning of a Commonwealth economic assistance hotline, which will provide information about where economic assistance to individuals, businesses and industries can be obtained.
 - e. Assist public and private sector agencies and organizations in the development of new marketing techniques and other ways of restoring economic confidence in the affected area and its goods, products and services.
- (6) Department of Corrections
- Provide the Task Force with an assessment of the readiness to reoccupy State and County correctional facilities.
- (7) Department of Education
- Provide the Task Force an assessment of the readiness to reopen educational institutions.
- (8) Department of Environmental Protection/Department of Conservation and Natural Resources
- a. Reestablish the use of natural and recreational areas.
 - b. Provide field teams for the purpose of taking water samples of public reservoirs, water intake points, water treatment plants, sewage treatment plants, ground water and surface water for BRP analysis.
- (9) Department of Health
- a. Provide (in coordination with BRP) the Task Force an assessment of the physiological impacts of recovery.
 - b. Provide the Task Force an assessment of the readiness to reoccupy affected hospitals.
 - c. Provide assistance to individuals with long-term medical problems associated with real or perceived radiation exposure.
 - d. Assist with the return of special populations to institutions and facilities.

(10) Department of Insurance

- a. Provide the SRTF Chairman with such property damage claims information as may be available.
- b. Maintain close coordination with American Nuclear Insurers and Mutual Atomic Energy Liabilities Underwriters.

(11) Department of Public Welfare

- a. Provide the Task Force an overall assessment (short and long-term) of the psychological impact of the incident.
- b. Coordinate individual and family counseling for stress and/or other evacuation-related emotional or psychological problems or conditions.

(12) Department of Transportation

Provide the Task Force an assessment of the transportation system and readiness to reopen all or selected roadways.

(13) Bureau of Radiation Protection

- a. Advise the Task Force of the classifications and locations of the non-restricted areas and when the return of the general public to those areas may commence.
- b. Develop a long-term environmental monitoring program for each zone of classification.
- c. Develop (in coordination with PDA) a long-term ingestion pathway-monitoring program for each zone of classification.
- d. Set stand-down and/or cutoff dates with the Federal Radiological Monitoring and Assessment Center for sampling programs as the need for assessment diminishes.
- e. Provide for radiological monitoring of emergency worker monitoring and decontamination stations and reception and mass care centers.
- f. Assist in and support decontamination of emergency worker monitoring and decontamination stations and reception and mass care centers and certify them for return to public use.

(14) Fish and Boat Commission

Provide representative fish specimens for BRP analysis.

(15) Game Commission

Provide representative game specimens for BRP analysis.

(16) Department of Military and Veterans Affairs

Provide personnel to augment PSP traffic control activities.

(17) Pennsylvania State Police

Provide for the orderly return of evacuees from host areas to their Municipalities along major Commonwealth routes.

(18) American Red Cross

Close mass care centers as they are emptied.

(19) Affected Counties

a. Notify PEMA when affected Municipalities report that they are prepared for return of evacuees with consideration for the following items:

- 1) Establish public services - police, fire, EMS.
- 2) Establish public utilities - electric, gas, water, telephone, sewage plants and waste disposal.
- 3) Reopening of essential commercial services - gas stations and supermarkets.
- 4) Reopening of hospitals and nursing homes for the return of patients and residents.
- 5) Public information announcements that provide clear and concise information/instruction concerning all facets of the return effort (affected jurisdictions, return routes, effective date/time, exposure reducing measures to be taken upon return, etc.)

- b. Provide overall direction and coordination of return operations within the respective County.
- c. Inform PEMA of the status of return of evacuees from mass care centers.
- d. Coordinate the provision of law enforcement in returning jurisdictions.
- e. Provide assistance (as needed) for the transportation of evacuees back to their homes.
- f. Coordinate the return of evacuated special needs populations to institutions and facilities (e.g. nursing homes, hospitals, correctional institutions, etc.).
- g. Provide information to returning evacuees.
- h. In coordination with BRP prepare and release appropriate public information.
- i. Provide information and advice to businesses and industries about further decontamination activities that may be necessary after they return to their facilities.

(20) Affected Municipalities

- a. Notify respective County EMA when prepared for return of evacuees.
- b. Provide overall direction and coordination of return operation within the respective Municipality.
- c. Provide law enforcement, traffic control and information services to returning evacuees.
- d. Assist (as needed) with the transportation of evacuees back to their homes.
- e. In coordination with affected Counties provide information and advice to residents.

D. Relocation

(1) Task Force

- a. Refine and implement human services and economic assistance plans and procedures to aid the relocation of individuals, businesses and industries who, as a result of radioactive contamination, cannot return to previously evacuated areas. These plans and procedures will include what kind of support will be offered, who will provide it, and how, when, and where such support will be provided.
- b. Identify agencies and organizations that will be managing the relocation effort and determining their roles and responsibilities, to include coordination between Federal, State and County governmental agencies.
- c. Assist with the identification of temporary or permanent housing and jobs in other areas and with a resettlement effort, if it becomes necessary.
- d. Assist with the resettlement of evacuated special populations into other equivalent institutions or facilities (e.g. nursing homes, hospitals, correctional institutions, etc.).
- e. Assist with the identification of buildings or facilities that can support resettled businesses or industries.
- f. Provide information about where economic assistance to relocated individuals, business and industries can be obtained.
- g. Provide periodic information updates to media outlets regarding relocation activities in order that they remain informed.

(2) PEMA

Realign staff responsibilities (if necessary) in order to support relocation activities.

(3) Department of Community and Economic Development

- a. Coordinate the identification of buildings or facilities that can support relocated businesses or industries.

- b. Assist the Task Force in developing a human services assistance plan to aid the physical relocation of evacuated individuals.
- c. Coordinate the identification of temporary or permanent housing in unaffected areas.

(4) Department of Corrections

Provide the Task Force a plan to relocate evacuated State and County correctional facility inmate populations.

(5) Department of Education

Provide the Task Force a plan to relocate evacuated educational institution populations into suitable facilities.

(6) Department of Health

- a. Provide the Task Force a plan to relocate evacuated nursing homes and hospitals into other equivalent institutions or facilities.
- b. Provide the Task Force a plan to assist individuals with long-term medical problems associated with real or perceived radiation exposure.

(7) Labor and Industry

Provide the Task Force a plan to identify temporary or permanent jobs in other (unaffected) areas and to match relocated individuals with those jobs.

(8) Department of Public Welfare

Provide the Task Force a plan to provide individual and family counseling for stress and/or other relocation-related emotional or psychological problems or conditions.

(9) American Red Cross

Close (in coordination with the County EMA) remaining mass care shelters as they are emptied.

E. Loss Compensation

(1) State Recovery Task Force

- a. In coordination with Federal, State and local governments, the utility and its insurers, take appropriate action to ensure that the extent of utility, public, and private liability is determined and that compensation actions are underway.
- b. Develop (in conjunction with American Nuclear Insurers and the Mutual Atomic Energy Liabilities Underwriters) an insurance information system. Provide periodic information updates on the progress of loss compensation to media outlets so the public can remain informed.

(2) PEMA

- a. Provide the Task Force a plan to assist claimants in documenting their losses.
- b. Provide the Task Force a plan to assist claimants in settling claims with and recovering damage from the utility and its insurers under the provisions of the Price-Anderson Act or in seeking assistance under the provisions of the Stafford Act (PL 100-707).

(3) Office of the Attorney General

Provide the Task Force a plan to assist injured parties with litigation, if necessary, to recover damages sustained from the incident.

(4) Department of Insurance

- a. Assist PEMA in the development of a plan to assist claimants in documenting their losses.
- b. Provide loss compensation assistance to affected residents.
- c. Continue coordination with ANI and MAELU.

F. Long-Term Impact

(1) Task Force

- a. Develop and implement a process for monitoring and tracking the long-term effects of the incident on the population, the economy, and the environment in the affected area by the responsible agencies as a part of their continuing functions.

- b. Establish, as appropriate, study groups with Federal, State and local representation for documentation and analysis of the incident.
- (2) Pennsylvania Department of Agriculture
 - a. Provide a process for long-term agricultural and land management practices (e.g. soil removal, crop rotation, and tillage), which will further reduce future contamination of feed and food crops.
 - b. Provide a process to reduce the long-term impacts of the incident on markets for State and local agricultural products and goods.
- (3) Department of Community and Economic Development
 - a. Provide a process to assess the long-term impacts on markets for State and local products, goods, and services.
 - b. Provide a process to reduce the long-term impact on State and local tourism and travel.
- (4) Department of Environmental Protection/Department of Conservation and Natural Resources
 - a. In coordination with the Fish and Boat Commission, provide a process to mitigate the long-term impacts on the affected area's indigenous wildlife.
 - b. In coordination with the Game Commission, evaluate the potential for the spread of contamination as a result of wildlife migratory patterns.
- (5) Department of Health

Provide a process to study long-term health risks and to provide a program of periodic follow-up health monitoring of the affected populations.
- (6) Department of Revenue

Provide a process to determine the long-term impact on local property values.

(7) Bureau of Radiation Protection

Provide a process to develop a long-term environmental monitoring program and identify responsibilities for its execution.

ATTACHMENT:

A. Exclusionary and Restricted Zone Operating Procedures

ATTACHMENT A

APPENDIX 15

EXCLUSIONARY AND RESTRICTED ZONE OPERATING PROCEDURES

1. GENERAL

- A. Access to evacuated areas in which the full extent of radioactive contamination has not been verified will be limited to emergency workers.
- B. After the Governor declares that recovery operations may commence, reentry to evacuated areas shall be limited to recovery workers and, on a case-by-case basis, to evacuated residents.
- C. Businesses located within a restricted zone could resume operations on a regular schedule if, at their specific location, exposure rates to employees would not exceed the relocation PAGs over the course of a year.

2. CONTROLLED ENTRY POINTS (CEPs)

- A. Access to and egress from exclusionary and restricted zones will be controlled through the use of controlled entry points (CEPs).
- B. Once the EPZ has been evacuated, and until ground deposition footprint has been verified, each risk County (at a minimum) will establish at least one CEP for use by emergency workers. Initial CEPs are to be co-located with established ACPs. NOTE: Fire, police, and EMS personnel engaged in emergency operations are not required to use CEPs if doing so would jeopardize their mission.
- C. All CEPs are to have a monitoring capability as part of their make-up. In addition, a health physicist (provided by BRP) will staff each CEP. Initially, PSP personnel will serve as the CEP security element. Once called to State active duty, PAARNG personnel will assume this mission until otherwise relieved.

3. RADIOLOGICAL EXPOSURE CONTROL

A. General

- (1) Radiation exposure to recovery workers will be limited to 5 Rem annually. ALARA principle always applies.

**Change 4
March 2002**

- (2) Radiation exposure to evacuated residents will be limited to current relocation PAGs for the general public.
- (3) The management of radiation protection (to include record keeping) for recovery workers and evacuated residents who desire access to the restricted zone will require a full time health physicist assisted by several technicians. Affected Counties may be requested to provide assistance.

B. Equipment Requirements

- (1) Each individual desiring access to restricted zones must be provided with a PRD, a 0 - 200 mR pocket dosimeter and a 0 - 20 R pocket dosimeter for determining actual dose during each access mission.
- (2) Dosimetry requirements for emergency workers are contained in Appendix 5 (Radiological Exposure Control), Annex E, Commonwealth of Pennsylvania EOP.
- (3) Individuals desiring access to restricted zones must receive training on radiation safety and the use of dosimetry prior to entry into the zone.

C. Record Keeping

- (1) Separate records of radiation exposure resulting from accessing restricted zones must be prepared for each individual. Copies of these records shall be furnished to the individual and his physician upon request. The record must consist of the name of the individual (to include social security number), the date and time interval for each access, and the exposure resulting from each access. A cumulative sum of an individual's total exposure will be maintained.
- (2) In the case of recovery workers, separate records, similar to NRC Form 4 (and in addition to that referenced in paragraph 3.C.1 above) must be maintained for each individual.

4. INSTRUCTIONS TO EVACUATED RESIDENTS

- A. Follow instructions of the Health Physicist for access to and egress from the restricted zone.
- B. All individuals and vehicles leaving the restricted zone must undergo a radiation survey.
- C. All items removed from the restricted zone must be double bagged in plastic. The outer bag is removed and retained at the exit point. The singly bagged item must be surveyed prior to release.

**Change 4
March 2002**

- D. Do not eat, drink, or smoke while in the restricted zone.
- E. Clothing worn in the restricted zone should be laundered as soon as possible.
- F. After exiting the restricted zone, shower and change clothing as soon as possible. Wash hands prior to eating, drinking, or smoking.

5. INSTRUCTIONS FOR EMERGENCY WORKERS

- A. Follow instructions of the Health Physicist or mission commander regarding access to and egress from the exclusionary or restricted zone, stay times, and other information.
- B. All individuals leaving the exclusionary or restricted zone must report to an emergency worker monitoring and decontamination station to be surveyed.
- C. Emergency response personnel (fire, police, EMS) are required to wear double clothing (or appropriate protective gear) while in the exclusionary or restricted zone. All others are required to bring a change of clothing (to include shoes) in a plastic bag.
- D. Non-emergency response personnel are required to have in their possession a battery operated commercial radio. This radio must be on and tuned to the appropriate EAS station at all times while in the exclusionary zone.
- E. Do not eat, drink, or smoke while in the exclusionary or restricted zone.
- F. Clothing worn by non-emergency personnel should be washed as soon as possible.
- G. Upon exiting the exclusionary or restricted zone, all personnel should shower prior to eating, smoking or drinking.

APPENDIX 16

ANNEX E

PUBLIC EDUCATION AND INFORMATION

1. PURPOSE

To prescribe the policies and procedures governing the dissemination of emergency public information during a nuclear power plant incident. To establish a program of public information to acquaint the news media and the public with information concerning radiological emergency response procedures and the dissemination of emergency public information during a nuclear power plant incident.

2. SITUATION

A program is necessary for informing the public about the hazards of radioactive releases, alert and notification procedures in the event of a nuclear power plant incident, and the protective actions that could be implemented.

3. CONCEPT OF OPERATIONS

- A. Emergency public information will consist of State and County public information Statements and Emergency Alert System (EAS) announcements to the general public during a nuclear power plant incident. EAS announcements will be broadcast within the plume exposure pathway EPZ three minutes after the activation of the sirens. NOAA weather radio stations will air prepared tapes advising listeners to turn to the commercial radio in their area. These announcements may include information about the incident or directions pertaining to protective actions that may be required.
- B. The Governor is always the principal spokesperson for the Commonwealth. He may task the Lieutenant Governor and other members of his cabinet and/or the PEMA Director to support that function.
- C. During an emergency or disaster, the PEMA Director serves as the State Coordinating Officer. At that time the PEMA Press Secretary will function as the Commonwealth's media point of contact with direct authority from the Governor's Director of Communications. The PEMA Press Secretary will also act as the Commonwealth Emergency News and Information Center (CENIC) supervisor.

- D. The Commonwealth Emergency News and Information Center will be staffed in preparation for, response to, and recovery from disasters or emergencies that affect Pennsylvanians. The level of staffing and actual agencies involved will be determined by the magnitude of the disaster or emergency. This Center will be established and administered by the Pennsylvania Emergency Management Agency (PEMA) Press Secretary on behalf of the Governor's Director of Communications.
- E. Designated State agencies will furnish agency press office staff to make up the complement of CENIC. These individuals will interface with their agency representatives in the State EOC response cells.
- F. The press briefings will be coordinated by the CENIC which will serve as the single point of contact for all State government disaster/emergency-related media queries and updates.
- G. When possible, the senior State official (the Governor, Lieutenant Governor or PEMA Director) will brief the news media on a scheduled basis. Following a major disaster these briefings will likely be at least daily and will be joint briefings with the Federal Coordinating Officer if a presidential declaration of disaster has been issued.
- H. The PEMA Press Secretary will coordinate and administer a system using telecommunication and satellite technology to transmit Commonwealth media briefings "live" to the utility media centers where the working press at that location can participate via teleconference in news conferences and briefings conducted by the Governor or his representatives. Affected Counties will also receive the live briefings.
- I. The nature and location of the disaster or emergency could necessitate establishment of a public information operation near the actual disaster location. Such an operation would be established in support of a disaster field office to report State response activity, lay a foundation for possible Federal aid requests and, if required, to develop supporting documentation (video tape) in anticipation of a Presidential request for assistance. The Commonwealth's Emergency News and Information Center will relocate to the Disaster Field Office following a presidential disaster declaration, and will function in cooperation with the Federal media staff.

4. RESPONSIBILITIES

A. State Government

- (1) The Governor's Director of Communications has delegated responsibilities to PEMA to coordinate public education and information programs concerning radiological emergency preparedness and response, and to serve as the State media point of contact during incidents at nuclear power plants.
- (2) The Governor's Action Center of the Governor's Office will establish a 24-hour rumor control operation in order to coordinate with CENIC both requests for information from the public and information received from callers. They will assign a representative to be a staff member of the CENIC.
- (3) Selected State departments and agencies are responsible to support PEMA in the development of comprehensive public education and information programs regarding nuclear power plants.
- (4) The Department of General Services will establish and staff the capability to transmit Commonwealth press conferences and briefings from the Capitol Media Center to remote utility media centers via satellite. PEMA and/or the utility will provide the "down-link" capability to receive the satellite transmitted Commonwealth press briefings. Where appropriate, PEMA may use its portable satellite dish system to provide this "down-link" capability. This will be a one-way video and two-way audio system to allow working press present at the utility media center to question participants during Commonwealth press conferences and briefings conducted in the Capitol Media Center. Counties will be able to receive the briefings

B. Pennsylvania Emergency Management Agency (PEMA)

- (1) The PEMA Director will serve as the State Coordinating Officer for public information and act as the State media point of contact.
- (2) The PEMA Press Secretary will function as the Commonwealth's media point of contact and will supervise the Commonwealth Emergency News and Information Center (CENIC).
- (3) PEMA identifies with FEMA's Joint Information System approach to public information. Multiple media centers will be established to include the CENIC, County information offices and the utility media center. State and Federal media representatives are assigned to the utility media centers (sometimes called a Joint Information Center) during response to an emergency or disaster.
- (4) PEMA will establish and maintain a Commonwealth News and Information Center that will:

- a. Receive, compile and prepare timely and accurate information for evaluation and release. Coordinate the release of disaster/emergency-related information with County, State, utility and Federal government agencies.
 - b. Maintain a coordinated flow of information and instructions before, during and after a disaster or emergency.
 - c. Provide the public with knowledge of:
 - 1) The existing situation,
 - 2) Actions being taken by State government authorities and
 - 3) Instructions how to reduce risks to life and property and how to expedite recovery.
 - d. Keep the Governor, Lieutenant Governor or their press secretaries informed concerning the disaster/emergency.
- (5) When a Presidential Declaration of Disaster has been issued, PEMA will assist and share responsibility for information disseminated with the Federal Public Information Officer.
- (6) PEMA will coordinate a comprehensive public information program, which will be updated annually and will involve the following:
- a. Risk Counties will inform the public about County and Municipal Radiological Emergency Response Plans including procedures for public alert/notification and protective actions.
 - b. Essential information disseminated via such means or measures as telephone books/annual brochures and available news media.
- (7) PEMA will issue appropriate news releases and related materials to all news media in conjunction with the biennial exercise for each nuclear power plant in the Commonwealth. These news releases will acquaint the news media with radiological emergency response procedures, plans, and information concerning radiation, and points of contact for release of public information during such an emergency.
- (8) PEMA will provide a liaison officer to the utility's media center to serve as the interface between the Commonwealth and the utility's media staff. Likewise, the utilities are encouraged to provide a liaison to the CENIC.

C. County Government

- (1) County emergency management agencies are responsible for developing and implementing, in coordination with PEMA, County public education and information programs and procedures. Avenues for doing this are through the development of local news stories on emergency management programs, speaking to key organizations and groups on a regular basis to include schools, service clubs, business and industries, the creative use of public access channels, and participation in local media programs.
- (2) The County Emergency Management Coordinator (EMC) and Public Information Officer (PIO) in coordination with PEMA are responsible for the advance development of a public information program. This public information program will inform persons living, working, and traveling in risk areas of the County about plans and procedures for their notification, actions and points of contact for further information in the event of an emergency associated with a nuclear power plant.
- (3) The County EMC and PIO are responsible for the advance development of prepared EAS announcements designed for transmission over the emergency alert system at the time of an emergency. These announcements, developed with the assistance of PEMA, will provide the public with specific emergency instructions based on the seriousness of the incident. These announcements will be released in coordination with the County Commissioners and PEMA. (Attachments A-I are examples that may be followed by Commonwealth Counties.)
- (4) The utility, PEMA and the County Emergency Management Agency will coordinate the preparation and distribution of an Emergency Information Brochure or insert in telephone directories to inform the general and transient populace of actions to be taken in the event of an emergency associated with a nuclear power plant. The information should also include educational items about the radiation hazard, contacts for additional information, public notification procedures, and provide a means for disabled residents and those with special needs to inform the EMA about their individual emergency requirements.
- (5) The County will issue appropriate news announcements and information prior to each applicable biennial exercise. This material will acquaint news media representatives from the County with radiological emergency response plans and points of contact for release of public information during an emergency.
- (6) The County Board of Commissioners will designate the County's spokesperson in the event of an emergency associated with the nuclear

power plant. The spokesperson may be a County Commissioner, the County Coordinator or County PIO. The COUNTY PIO staff will support the County spokesperson. The State will conduct a regular exchange of information between principal organization spokespersons during an emergency.

- (7) The County's spokesperson will conduct periodic press briefings regarding the actions being taken by the County. PEMA will coordinate information with the nuclear power plant, the Governor's office and the County PIO.
- (8) The County under the direction of the COUNTY PIO will establish a rumor control center whenever the EOC is activated in support of this plan. The County is responsible for staffing and operation of the rumor control telephone(s). The rumor control telephone number for the County will be designated as the primary number for responding to questions from the general public. The need for additional telephone lines and personnel to staff the center will be coordinated by the emergency management coordinator. Coordination of operations between County and State rumor control will take place between the County PIO and PEMA Press Secretary.
- (9) During an emergency when the County EOC is in operation, there will be a designated news media room where the news media can contact the PIO for information concerning the emergency.
- (10) The PIO will coordinate all emergency information for the County through the County Coordinator/County Commissioners.

5. REFERENCES

(See Basic Document, paragraph 12.)

6. DEFINITIONS AND TERMS

- A. Capitol Media Center - A site near the State EOC where Commonwealth press conferences can occur and be transmitted via satellite to the utility media centers, Counties and to television stations in the area of the disaster/emergency.
- B. Commonwealth News and Information Center (CENIC) - A work area adjacent to the State EOC that is established for the purpose of coordinating press briefings and serving as the single point of contact for information regarding disasters involving State government.
- C. Joint Information Center (JIC) - See Utility Media Center.

- D. Joint Information System - A concept used to identify the information network that encompasses the media centers established by the State, County, and the utility.
- E. Utility Media Center - The site established by the utility for the coordination and preparation of their news releases and press briefings. This facility is also known as the Joint Information Center (JIC). Federal, State and County representatives may also be collocated at the JIC.

7. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3.)

ATTACHMENTS:

- A. Sample Initial Notification EAS Announcement
- B. Sample School Closure EAS Announcement
- C. Sample Take Shelter EAS Announcement
- D. Sample General Evacuation EAS Announcement
- E. Sample School Evacuation EAS Announcement
- F. Sample Support County Media Advisory
- G. Sample Return Media Advisory
- H. Sample EAS Station Media Advisory
- I. Emergency News and Information System

ATTACHMENT A

SAMPLE

INITIAL NOTIFICATION EAS ANNOUNCEMENT

This (is)(is not) an exercise. The _____ County Emergency Management Agency (or PEMA) has released the following message:

An incident has occurred at the ① _____ nuclear power plant. All residents of ② _____ County within a radius of about ten miles of the plant should stay tuned to this station for the latest information and instructions. Sirens within this area may be periodically activated to tell residents to tune to designated emergency alert system radio and TV stations for announcements.

The situation at the plant requires no special action at this time. Consult your telephone directory emergency pages to see if you are in the ten-mile radius of the plant and to obtain other information.

Stay tuned to this station for official bulletins and special instructions issued by your County Emergency Management Agency (or PEMA). This (is) (is not) an exercise.

(The message should subsequently be repeated as requested by the
_____ County Emergency Management Agency (or PEMA))

①	<u>TMI</u>	<u>SSES</u>	<u>LGS</u>	<u>PBAPS</u>	<u>BVPS</u>
②	Cumberland	Columbia	Berks	Chester	Beaver County
	Dauphin	Luzerne	Chester	Lancaster	
	Lancaster		Montgomery	York	
	Lebanon				
	York				

ATTACHMENT B

SAMPLE

SCHOOL CLOSURE EAS ANNOUNCEMENT

This (is)(is not) an exercise. The following message has been released by the
_____ County Emergency Management Agency (or PEMA):

An incident has occurred at the ① _____ nuclear power plant. Families with students attending school within a ten-mile radius of the plant are advised that school will be closed for the duration of the incident.

If you live within ten miles of the ① _____ nuclear power plant and your student attends a school outside of the ten-mile area, the school district will not bus students into the ten-mile area.

Families with students affected by this announcement were provided information by the school or school district at the beginning of the school year.

Stay tuned to this station for official bulletins and special instructions issued by your County Emergency Management Agency (or PEMA). This (is) (is not) an exercise.

(The message should subsequently be repeated as requested by the
_____ County Emergency Management Agency (or PEMA).

① TMI SSES LGS PBAPS BVPS

ATTACHMENT C

SAMPLE

TAKE SHELTER EAS ANNOUNCEMENT

This (is)(is not) an exercise. The following message has been released by the
_____ County Emergency Management Agency (or PEMA):

The governor has announced that an incident with potential emergency consequences presently exists at the ① _____ nuclear power plant. The governor recommends that persons living or working in a ten-mile area around the plant remain indoors or take shelter in any available building.

Consult your telephone directory emergency pages to determine if you are in the ten-mile area and for instructions for sheltering.

Stay tuned to this station for official bulletins and special instructions issued by your County Emergency Management Agency (or PEMA). This (is) (is not) an exercise.

(The message should be subsequently repeated as requested by the
_____ County Emergency Management Agency (or PEMA))

①

TMI

SSS

LGS

PBAPS

BVPS

ATTACHMENT D

SAMPLE

GENERAL EVACUATION EAS ANNOUNCEMENT

This (is)(is not) an exercise. The _____ County Emergency Management Agency (or PEMA) has released the following message:

The governor has announced that an emergency exists at the ① _____ nuclear power plant and (recommends) (orders) the evacuation of all persons within ten miles of the plant.

If you live within the ten-mile area, consult the County emergency information in the telephone directory for detailed evacuation instructions.

If you need a place to stay, you will be assigned to a mass care center after reporting to the reception center for your Municipality.

If you require transportation assistance, refer to the telephone number designated in your telephone directory emergency pages. If you are unable to make contact, call your local police or fire department.

Stay tuned to this station for official bulletins and special instructions issued by your County Emergency Management Agency (or PEMA). This (is) (is not) an exercise.

(The message should subsequently be repeated as requested by the
_____ County Emergency Management Agency (or PEMA))

① TMI SSES LGS PBAPS BVPS

ATTACHMENT E

SAMPLE

SCHOOL EVACUATION EAS ANNOUNCEMENT

This (is) (is not) an exercise. The following message has been released by the
_____ County Emergency Management Agency (or PEMA):

The governor has announced that an emergency exists at the ① _____
nuclear power plant and (recommends)(orders) the evacuation of all schools within ten miles
of the plant.

Parents with students attending schools within ten miles of the plant are advised that their
students will be evacuated by bus directly to designated host schools outside the risk area.
Parents are asked to pick up their students at these host schools.

Students living within ten miles of the plant who attend schools outside the ten mile area will
remain at their school under supervision of school officials until picked up by parents or
guardians. Families with students affected by this announcement should review information
provided by the school or school district at the beginning of the school year.

Stay tuned to this station for official bulletins and special instructions issued by your County
Emergency Management Agency (or PEMA). This (is) (is not) an exercise.

(The message should be subsequently repeated as requested by the
_____ County Emergency Management Agency or PEMA)

① TMI SSES LGS PBAPS BVPS

ATTACHMENT F

SAMPLE

SUPPORT COUNTY MEDIA ADVISORY

(This advisory is intended for use by support County news media)

This (is) (is not) an exercise. This advisory has been released by the
_____ County Emergency Management Agency:

There has been an emergency at the _____ nuclear power plant
requiring evacuation of residents within ten miles of the plant. This evacuation does not
directly affect the residents of _____ County and is provided for public
information purposes only.

Residents should be aware of this additional traffic in the County and cooperate with
authorities as requested. This (is)(is not) an exercise.

ATTACHMENT G

SAMPLE

RETURN MEDIA ADVISORY

(This advisory is intended for use by support and risk County news media)

This (is)(is not) an exercise. _____ County Emergency Management Agency has released the following advisory. This advisory affects the residents who evacuated the area around the _____ nuclear power plant.

The governor has announced that the residents of the following Municipalities may begin the orderly return to their homes:

1. _____ Township 2. _____ Borough

Procedures for reentry to the evacuated area have been planned to ensure the safety of all returning evacuees. Persons in mass care centers will be notified of their scheduled return. They should wait for notification before proceeding.

It is requested that each family cooperate with the Municipalities which have been your hosts during this emergency by helping to restore evacuation facilities to their original condition and by assisting with general area cleanup before leaving.

Until further notice, residents of the following Municipalities should not return home at this time:

1. _____ Township 2. _____ Borough

The preceding has been an advisory by the _____ County Emergency Management Agency. This (is)(is not) an exercise.

ATTACHMENT H

SAMPLE

EAS STATION MEDIA ADVISORY

(This advisory is intended for use by support and risk County news media)

This (is)(is not) an exercise. The following advisory has been released by the
_____ County Emergency Management Agency:

This station provides EAS announcements for residents of _____ County.
If you are not a _____ County resident, information pertaining to your County
can be obtained by tuning to one of the following EAS stations or others designated for your
County:

_____ County- station _____ AM

_____ County- station _____ FM

No other Pennsylvania Counties are affected by this advisory. If you are a resident of
_____ County, West Virginia, _____ County, Ohio, or
_____ County, Maryland, information can be obtained by tuning to one of the
following EAS stations: (read the list of stations for each County).

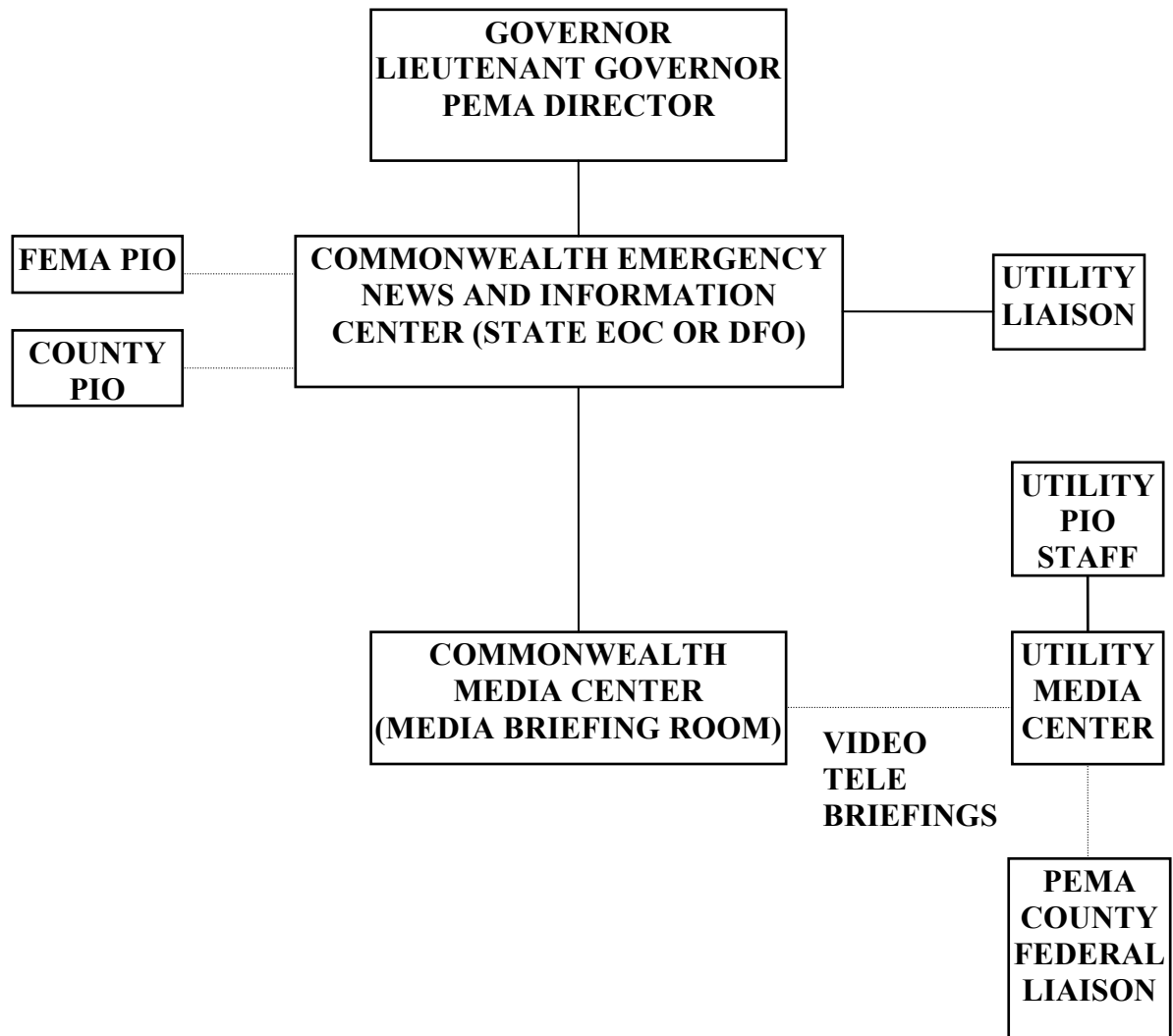
If you are a _____ County resident in the process of evacuating to a support
County, you are instructed to tune to the EAS station for that County.

1. For _____ County, tune to _____.
2. For _____ County, tune to _____. This (is)(is
not) an exercise.

ATTACHMENT I

APPENDIX 16

EMERGENCY NEWS AND INFORMATION SYSTEM



DFO - DISASTER FIELD OFFICE

APPENDIX 17

ANNEX E

TRAINING

1. PURPOSE

To describe a comprehensive radiological emergency response training program for State, County and Municipal agencies, as well as organizations having response roles for response to nuclear power plant incidents.

2. SITUATION

A variety of training programs to a diverse audience must be provided in order to ensure that the appropriate agencies and organizations are prepared to function effectively in the event of a nuclear power plant incident.

3. CONCEPT OF OPERATIONS

- A. PEMA's Bureau of Operations and Training will manage, implement, and conduct emergency management agency training and education programs (see Attachment A) for State departments/agencies, County emergency management coordinators and staff members, elected and appointed officials at all levels of government, and the general public.
- B. State departments/agencies will conduct formal training programs in support of their areas of expertise in emergency management.
- C. County emergency management agencies will manage and conduct appropriate emergency response training for Municipalities and supporting agencies annually. Nuclear power plants may assist in the provision of this annual training per Federal requirements and State and County agreements.
- D. Responsibility for professional, in-service training of each emergency management coordinator rests with the political subdivision of government higher than the one in which the coordinator is functioning.
- E. County coordinators will attend and successfully complete PHASES I and II of the career development program as prescribed by PEMA.

- F. Basic and advanced seminars, workshops and training conferences will be conducted by PEMA on a scheduled basis.
- G. The Bureau of Plans will prepare PEMA's response to the FEMA evaluation report of the offsite biennial exercise with the respective nuclear power plants. The PEMA Bureau of Training will review the comments of the evaluation report to determine training required for correcting deficiencies and areas requiring corrective action. The Bureau of Operations and Training will implement the identified supplementary training, regular on-going training, assist the Counties in presenting the required training and will monitor its effectiveness.
- H. All courses approved and registered to meet these requirements will have a Plan of Instruction (POI) on file in the PEMA Bureau of Operations and Training. The courses on the attached list (Attachment A) are agreed to by PEMA, Department of Health, BRP-DEP, the nuclear power plants and the Counties.

4. RESPONSIBILITIES

- A. The Pennsylvania Emergency Management Agency (PEMA) has the overall responsibility for oversight and for providing radiological response training programs in the Commonwealth. PEMA will:
 - (1) Assess agencies' and emergency management coordinator's training needs to assure effective response to nuclear power plant incidents.
 - (2) Develop programs designed to enable County governments to initiate and maintain internal training.
 - (3) Design, develop, review and/or produce the necessary training materials for conducting emergency management training courses.
 - (4) Provide emergency management training, disaster preparedness training and education for County emergency management coordinators and their staffs throughout the Commonwealth.
 - (5) Promote emergency management programs through conferences, seminars, and other relationships with civic organizations and a wide variety of professional persons.
 - (6) Plan and direct a Statewide in-service training program for volunteers and agency staff personnel, as appropriate, carried out through State and County conferences and seminars, and by preparation and distribution of educational and informational materials.

- (7) Direct and supervise the maintenance of a library of training courses, audio-visual aids and films, and program loans of these materials to emergency management and disaster preparedness organizations and interested civic groups.
 - (8) Monitor training presented by power plant trainers or their consultants.
- B. County emergency management coordinators (assisted by the nuclear power plants as required or when agreed) are responsible for:
 - (1) Preparing an annual training program for emergency radiological response.
 - (2) Providing refresher training as required for the County and Municipal emergency operations staff.
 - (3) Training the requisite number of monitoring/decontamination teams for mass care centers and monitoring/decontamination stations for off-site emergency workers.
 - (4) Conducting training programs for Municipal emergency management coordinators, emergency operations staffs and supporting organizations.
 - (5) Participation in emergency management training, seminars and conferences scheduled by PEMA and Federal agencies.
 - (6) Participation and encourage Municipal and volunteer agencies participation in off-site and on-site training provided by the nuclear power plants.
 - (7) Conducting training programs in basic radiological safety for responders.
 - (8) Submitting to PEMA annually, a listing of courses presented relative to radiological response, the location of the training and the number of participants.
- C. The nuclear power plants will:
 - (1) Participate in incident training exercises and drills.
 - (2) Coordinate with concerned risk Counties regarding the plans, deployment and training of emergency forces needed to respond to an onsite emergency.

- (3) Assist in emergency response training annually for County and Municipal EMA's, plus other offsite organizations associated with response to nuclear power plant incidents.
- (4) Provide a semiannual report to PEMA indicating the type training conducted, location, and number of participants.

5. TRAINING PROGRAMS

(See Attachment A for listings.)

6. REFERENCES

(See Paragraph 12, Basic Document.)

7. DEFINITIONS AND TERMS

(See Basic Document, paragraph 13.)

8. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3.)

ATTACHMENT:

A. Listing of Approved Training Programs

ATTACHMENT A

APPENDIX 17

LISTING OF APPROVED TRAINING PROGRAMS

1. FEDERAL TRAINING PROGRAMS

FEMA's Emergency Management Institute (EMI) is a national training center for Federal, State and local government employees and officials as well as the private sector. Some of their courses that address nuclear power plant concerns are listed below.

A. Radiological Accident Assessment

Selected State personnel may attend this EMI course. The course includes: types of nuclear reactors; normal and abnormal operating modes; incident scenarios; types of releases; detection of releases; meteorology of dose projection; dose projection techniques; protective actions and protective action guides; and problem solving workshops.

B. Radiological Emergency Preparedness Planning

This 4 1/2-day course focuses on nuclear power plant off-site emergency preparedness. It addresses Federal regulatory policies, development and testing of plans, and public perceptions. This course provides a sound understanding of basic planning assumptions and policy issues. This course is designed for local, State, Federal governments and utilities personnel involved in off-site nuclear power plant emergency planning.

C. Radiological Emergency Response Operations

Team leaders of County emergency response organizations may attend a 5-day course funded by FEMA through the Department of Energy and offered at the Nevada test site in Mercury, Nevada. Health physicists, radiological officers and other emergency services personnel with similar responsibilities are eligible for this course. The course includes 123 basic concepts of nuclear radiation; types of radiation; protective actions and measures; radiation exposure and contamination control; types of instruments and their characteristic limitations and use; self-contained breathing apparatus; air mask use, limitations and practice; organization procedures; scenarios of types of incidents and case studies; and practice in simulation representing selected radiological incidents.

D. Federal Radiological Emergency Response Plan (FRERP) Workshop

This 3 1/2-day workshop provides Federal agency staff and State and local government officials with information on Federal response to major peacetime radiological emergencies in support of State and local needs. This training describes: (1) the relationship among Federal agencies that respond to a radiological emergency, (2) the relationship between Federal response and State/local/utility response teams, and (3) the Federal resources that can be brought to the scene of an emergency to assist State and local governments. Radiological emergency response personnel from FEMA and emergency planners and/or emergency response teams from State and local governments that have in their jurisdiction the potential for radiological emergencies may apply.

E. Radiological Emergency Preparedness Exercise Evaluation

This 4 1/2-day course is for evaluators of nuclear power plant off-site exercises. Course topics consist of regulations and guidelines for evaluating exercises and the techniques for exercise evaluation. State, local and utility personnel who are involved in the development of off-site REP plans and exercises may apply.

F. The Radiation Emergency Assistance Center/Training Site staff at Oak Ridge, Tennessee, conducts training courses for hospital personnel in the handling of radiation accident cases. These three courses are partially funded by FEMA and meet the requirements of the Nuclear Regulatory Commission for training emergency personnel.

(1) Medical Planning and Care in Radiation Accidents for Hospital Personnel

A five-day course designed for physicians who provide medical service to the nuclear industry, as well as city, County, and State health officers who may be called upon to provide first aid or medical care in the event of a radiation accident. The curriculum includes fundamentals of radiation and radiobiology, radiation detection and measurement, care of radioactivity contaminated injuries, evaluation and treatment of internal radioactive contamination, and the acute radiation syndromes.

(2) Health Physics in Radiation Accidents for Hospital Personnel

A five-day course for health physicists who may be called upon to respond to accidents involving radioactive materials and personnel injury. The major topics covered are radiation physics review, principles of radiation detection and internal dosimetry, protective clothing and equipment, radiological emergency procedures, and the role of the health physicist in a medical environment.

(3) Handling of Radiation Accidents by Hospital Emergency Personnel

A 3-1/2 day course for emergency room physicians and nurses who may be called upon to administer initial hospital aid to a radiation accident victim. This course emphasizes the practical aspects of handling a contaminated victim by discussing the fundamentals of radiation, how to detect and measure it, how to prevent the spread of contamination, how to reduce the radiation dose to the victim and attending personnel, and the role of the medical physicist in caring for contaminated accident victims.

2. TRAINING PROGRAMS COORDINATED BY PEMA

The target audience for these training programs encompasses County Emergency Management Coordinators and their staff, response organizations, elected officials and selected medical facilities.

A. Certified Emergency Management Instructors

Each County is urged to nominate one person as a certified emergency management instructor. These persons, when qualified as instructors, may conduct at least four training sessions per year. Such sessions will be designed primarily for local emergency management coordinators, but some may be directed to the general public when appropriate. All training materials employed in these sessions will be designed, developed, and made available by PEMA's Bureau of Operations and Training.

B. Directors or Coordinators of the Response Organizations

PEMA and the County with the assistance of the utility will conduct periodic training sessions, especially prior to each biennial exercise, for coordinators to include such subjects as response considerations, relationships and responsibilities of response organizations, protective actions and plan organization, implementation and resource requirements.

C. Orientation for Elected Officials in the Plume Exposure Pathway EPZ of Nuclear Power Plants

This is an orientation/briefing sponsored by PEMA and aimed at those officials who have responsibility for the protection of the public in the event of a nuclear power plant incident. It includes: potential incident scenarios and off-site consequences; protective actions; authority to exceed protective action guides; radiological emergency response planning; and response procedures relative to ingestion exposure. Target audience will be elected officials within the plume exposure pathway EPZ of each nuclear power plant.

D. Emergency Communications

Personnel responsible for the transmission of emergency information and instructions will receive training as part of regularly scheduled communications drills and exercises. Training in this fashion will be accomplished for State, nuclear power plants, County and Municipal communications personnel.

E. Radiological Protection Courses

PEMA will conduct or coordinate these courses:

(1) Radiological Training - Response to Nuclear Power Plant Incidents

Persons comprising the teams at the monitoring/decontamination centers at mass care centers, the monitoring/decontamination stations for emergency workers and ambulance crews used to transport contaminated injured persons to medical facilities have available to them a four-hour course which includes instruction in: (a) basic operations and self-protection; (b) use of the CD V-700 Survey Meter in monitoring persons, vehicles and equipment; (c) decontamination procedures; (d) the dosimeter chargers (CD V-750), direct-reading and permanent record dosimeters; (e) use of thyroid blocking agents (potassium iodide); (f) completion of required forms. A two-hour refresher course is available. PEMA will provide the necessary course material.

(2) All persons designated as EOC staff or offsite emergency workers associated with the nuclear power plants should complete a two-hour course which includes instruction in: (a) use of the dosimeter charger (CD V-750), direct-reading and permanent record dosimeters; (b) use of thyroid blocking agents (potassium iodide); (c) completion of required forms. A one-hour refresher course is available. PEMA will provide the necessary course material.

(3) Radiological Officer - Each County is required to have a total of three radiological officers. These persons must complete the 32-hour Radiological Officer Course. As a prerequisite, they must complete the Radiological Monitor and Radiological Response Team Courses.

F. Training Programs for MS-1 Hospitals

The MS-1 medical facilities designated to provide medical care for the offsite population, including "contaminated injured" members of the general public, are required to receive appropriate training as indicated by FEMA Guidance Memorandum MS-1, "Medical Services". PEMA in conjunction with the Department of Health is responsible for ensuring that the necessary

training is developed and presented to the MS-1 hospitals. The utilities may assist with this training if they so desire.

The training will provide technical information through in-service training and treatment protocols in order to assist hospital personnel in the proper evaluation and treatment of injured and radiation contaminated patients.

3. COUNTY TRAINING PROGRAMS

The County emergency management agency fulfills its responsibility for training County and Municipal EMA staffs, response agencies and supporting organizations by primarily utilizing the training programs offered by PEMA, the utilities and Federal agencies as well as those provided and developed by the EMA itself.

- A. As discussed in paragraph 2.E. of this Attachment, the Counties are required to participate in PEMA's radiological protection training courses.
- B. County EMCs and their staffs are encouraged to participate in appropriate training courses at the Emergency Management Institute and other Federal agencies.
- C. The County coordinates with PEMA and the utility for assistance in providing training to County and Municipal EMA staffs and response organizations.

4. TRAINING COURSES CONDUCTED BY THE NUCLEAR POWER PLANT LICENSEE

- A. A variety of training programs may be provided by the nuclear power plant licensee to offsite agencies including emergency management agency staff at the State, County (with specific emphasis on public information officers) and Municipal levels, school districts, fire companies and emergency medical services. These training programs are coordinated with and reported to PEMA.
- B. The following types of courses may be offered for:
 - (1) County and Municipal EOC staffs - training on EOC operations, staff responsibilities, interfacing with other agencies and radiation exposure control procedures.
 - (2) Emergency workers (i.e., firefighters, law enforcement officers, emergency medical personnel) - training to participate in on-site and off-site operations during an incident at the nuclear power plant. Firefighters receive training on radiation protection practices and the

plant's fire protection program, and ambulance personnel are trained on the steps necessary to handle and transport a contaminated individual.

- (3) Emergency personnel - training for those individuals assigned responsibilities as monitors at monitoring/decontamination centers at mass care centers or at monitoring/decontamination stations for emergency workers.
- (4) Other off-site emergency workers - instruction in the use of the dosimeter charger, dosimeters and thyroid blocking agents.
- (5) School administrators, principals, teachers, staff and bus drivers - training to enable school personnel to protect students by properly implementing the school's radiological emergency response plan.
- (6) Health care personnel - training for protecting patients and residents during an incident at a nuclear power plant.

5. TRAINING PROFILES

- A. PEMA maintains a training profile of those courses attended by the County Emergency Management Coordinator.
- B. The County is required to maintain a general profile of the RERP training received by all of their EOC staff (both shifts). The profiles should indicate the number and types of staff who received training (e.g., fire, police, medical).
- C. These training profiles as well as training reports from the nuclear power plants are essential for PEMA to prepare the Certification Letter that must be submitted to FEMA per Federal guidance for each calendar year.

APPENDIX 18

ANNEX E

EXERCISES AND DRILLS

1. PURPOSE

To describe the exercise and drill program for State, County and Municipal governments, school districts and supporting organizations that have responsibilities for radiological emergency response during incidents at nuclear power plants.

2. SITUATION

Periodic exercises and drills are undertaken in order to ensure that all levels of government and supporting organizations are prepared for optimal functioning during an actual incident. The purpose of the exercises and drills is to assess the current state of readiness and to learn how improvements can be made.

3. CONCEPT OF OPERATIONS

A. General

- (1) PEMA's Bureau of Operations and Training will conduct, manage and monitor the exercise program for State, County and Municipal agencies and other organizations having response roles for nuclear power plant incidents.
- (2) PEMA's Bureau of Plans, in coordination with the Bureau of Operations and Training, will monitor the conduct of drills by Counties, Municipalities and other emergency response organizations.

B. Exercises

- (1) Exercises will be conducted to test whether State, County, Municipal and school district emergency operations plans and response procedures are comprehensive and effective. Exercises will include mobilization of selected State, County and Municipal personnel and resources to respond adequately to an incident scenario as required.

- (2) PEMA, the risk and support Counties, the FEMA and NRC Regional Offices and the affected licensee will coordinate the scheduling of exercises.
- (3) State departments and agencies will participate fully in biennial (every two years) exercises for each of Pennsylvania's five nuclear power plants.
- (4) The following will be accomplished:
 - a. Provisions will be made to start an after hours-biennial exercise at each site once every six years between 6:00 p.m. and 4:00 a.m. on a weekday or any time on a weekend. This task can be done in a drill.
 - b. One biennial exercise for each site, once every six years, will be unannounced. Although the knowledge of the exact date is restricted, a time frame of seven days within which the exercise is to be conducted will be established and known to all parties involved. This portion can be done in a drill.
 - c. All major plan elements will be tested on a site-specific basis.
 - d. Provisions will be made to conduct exercises under various seasonal weather conditions.
- (5) When not participating with a full staff including EPLOs in the offsite biennial exercise at a nuclear power plant, the State will partially participate in the respective plant exercises.
- (6) For the nuclear power plants within Pennsylvania, the State will participate fully, on a rotational basis, in an ingestion exposure exercise at one site once every three years. This requirement will be satisfied by either:
 - a. Fully demonstrating both plume and ingestion response measures during the same exercise, usually over a two or three-day period.
 - b. Partially demonstrating plumes measures, and then after an appropriate simulated time advance (i.e., three to five days) fully demonstrates ingestion response measures.
- (7) The State will participate partially in the ingestion exposure exercises conducted by contiguous States with power plants having ingestion zones that extend into Pennsylvania.

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- (8) Procedures outlined above for meeting the ingestion exposure requirements are in accordance with FEMA Guidance Memoranda PR-1 "Policy on NUREG-0654/FEMA-REP-1 and 44 CFR 350 Periodic Requirements" dated October 1, 1985 and IN-1, "The Ingestion Exposure Pathway," dated February 26, 1988.
- (9) The Bureau of Operations and Training will head a scenario development team from the risk and support Counties to work with the Bureau of Plans, BRP, the nuclear power plant and Federal officials for the purpose of developing a scenario which will be exercised during each biennial exercise objectives. (See Attachment A.)
- (10) Federal evaluators will assess the biennial exercises of each nuclear power plant. PEMA liaison officers and observers will participate as appropriate at risk Counties.

C. Drills

- (1) Counties, Municipalities, agencies and organizations will conduct drills in addition to or in conjunction with those conducted as part of the full participation biennial or partial participation annual exercises. The type and frequency of drills are listed in Attachment C.
- (2) The responsible offices and organizations will inform PEMA's Bureau of Plans of the participants and the dates the drills were conducted the preceding calendar year.

4. RESPONSIBILITIES

A. State Departments and Agencies

- (1) For biennial exercises, participate fully in a joint exercise for each of Pennsylvania's five nuclear power plants.
- (2) For the nuclear power plants within Pennsylvania, participate fully in an ingestion exposure exercise at a site once every three years.
- (3) Participate partially in the ingestion exposure exercises as scheduled by the respective contiguous out-of-State nuclear power plants and during the three-year ingestion cycle.
- (4) PEMA's Bureau of Operations and Training will develop scenario events in coordination with risk and support Counties, the Bureau of Plans, BRP, the nuclear power plant and Federal officials.

(5) PEMA's Bureau of Plans will:

- a. Assess the necessity of an observer report. (See Attachment B.)
- b. Prepare a response to the draft report submitted by FEMA, Region III.
- c. In coordination with the Bureau of Operations and Training, monitor drills by Counties, Municipalities, and other emergency response organizations.
- d. Prepare and submit to FEMA, by January 30th of each year, an Annual Letter of Certification for each nuclear power plant to include data on exercises and drill participation. (See Attachment C.)

B. Risk Counties and Municipalities

Each risk County and Municipalities will participate fully in a joint exercise with the respective power plant and the State every two years. Those Counties that have planning and response responsibilities for more than one facility may seek an exemption through PEMA to FEMA Region III.

C. Nuclear Power Plants

Each nuclear power plant is required by the NRC to exercise its onsite emergency preparedness plans biennially. Drills are also required in other years with State participation invited.

5. REFERENCES

(See Basic Document, paragraph 12.)

6. DEFINITIONS AND TERMS

- A. Full Participation Exercise: In which State, County and Municipal government emergency personnel are engaged in sufficient numbers to verify the capability to respond to the actions required by the accident scenario. Their integrated capability to adequately assess and respond to an accident at a nuclear power plant and the implementation of the observable portions of State and/or County and Municipal plans is tested.

- B. Partial Participation Exercise - One which engages State, County and Municipal government emergency personnel in an exercise sufficient to adequately test direction and control functions for protective action decision making related to emergency action levels and communications capabilities among State, County and Municipal governments and the licensee.
- C. Remedial Exercise - One that tests deficiencies of a previous joint exercise that are considered significant enough to impact on the public health and safety.
- D. Drill - A supervised instruction period, often a component of an exercise, aimed at testing, developing and maintaining skills in a particular operation.
- E. Site - The location of a nuclear power plant.
- F. Liaison Officers - PEMA staff members assigned as liaison to risk and support County EOCs, the nuclear power plant EOF and the Media Operations Center for the purpose of participating as an integral part ("players") of the response effort.
- G. Observers - PEMA staff members and qualified County emergency management personnel from non-participating Counties assigned to risk Counties and Municipalities, support County EOCs and other key locations for the purpose of reviewing an operation and formulating favorable comments as well as recommendations for improvement. Observers will not be players in the exercise.

7. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3.)

ATTACHMENTS:

- A. Scenario Development
- B. Biennial Exercise Assessment
- C. Drills

ATTACHMENT A

APPENDIX 18

SCENARIO DEVELOPMENT

1. The Bureau of Operations and Training will form a team of PEMA and County representatives prior to each biennial exercise to work with the plant and Federal officials for the purpose of designating the exercise objectives and scenario events. An assigned member from the PEMA staff will head the team. Each risk and Support County should name a person not participating in the exercise to serve on the team. PEMA Bureau of Plans may assign one nuclear power plant planner to serve on the team. The Bureau of Radiation Protection of the Department of Environmental Protection may assign a member. The licensee will also be invited to participate.
2. This team will be the core of offsite controllers for the exercise. Prior to the exercise PEMA staff and County EMA staff, as necessary, will be designated as observers and assigned field sites.
3. The scenario team will review reports of previous exercises for the site being tested and other recent nuclear power plant exercise reports.
4. PEMA responds to FEMA guidance in the development of the offsite exercise scenarios. The offsite exercise scenarios prepared by PEMA and the onsite scenario developed by the licensee are submitted for review and acceptance by FEMA and NRC respectively.
5. The scenarios are designed to trigger free flow exercise actions based on the responses, decisions and implementing actions of the exercise players. The manpower and resources necessary to demonstrate the capability to respond to the incident scenario determine the level of participation of emergency management personnel.
6. Scenarios will include but are not limited to:
 - A. The objectives of each exercise, together with appropriate observation criteria. The objectives for the offsite portion of the exercise are based upon FEMA REP 14 and 15.
 - B. The date(s), time-period(s), place(s) and participating organizations.
 - C. The demonstrated and simulated events.
 - D. A time schedule of real and simulated initiating events.

- E. A narrative summary describing the conduct of the exercise 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.
 - F. Adequate time will be provided in the scenario to realistically portray emergency activities.
7. In order to minimize disruption, selected activities may be demonstrated in each biennial exercise during other than actual scenario time. Risk school districts, milk-sampling teams, air monitoring teams and water-sampling teams for example, may, if necessary, participate out-of-sequence at times, which do not adversely impact on their normal operations. Simulation will, however, be kept to a minimum.

ATTACHMENT B

APPENDIX 18

BIENNIAL EXERCISE ASSESSMENT

1. Federal evaluators will be assigned to locations at the State, Counties, Municipalities, school districts, reception and mass care centers and other exercise sites. The Federal evaluators will be given free access to information and be notified in time to observe and evaluate key actions taken by emergency personnel in response to the simulated incident.
2. PEMA liaison officers may be assigned as necessary to risk and support Counties, the nuclear power plant EOF and the Media Operations Center. Liaison officers are PEMA personnel who participate fully in the exercise.
3. PEMA observers may be assigned as appropriate to key locations to review exercise activities. They are to be provided with copies of the exercise objectives, the local plan, exercise report forms and other relevant materials.
4. Briefing and Corrective Actions:
 - A. When an exercise is terminated, the FEMA exercise evaluator should hold an exit interview with the participants in order to provide them with a brief assessment of their performance.
 - B. A more formal and all-inclusive briefing will be presented by the FEMA Regional Assistance Committee (RAC) Chairman, the NRC representative, other RAC members and Federal evaluators, as appropriate, after the biennial exercise. The briefing will be attended by State, County and Municipal participants in the exercise as well as by the licensee. The purpose of the briefing is to provide a general overview of the exercise. No attempt, however, will be made to evaluate the exercise as to deficiencies or inadequacies.
 - C. The required initial qualifying exercise has been successfully conducted for each of the five nuclear power plants. Pennsylvania has also completed the FEMA 44 CFR 350 plan approval process for the State Annex and Susquehanna Steam and Electric Station EPZ plans. FEMA's evaluation of "interim" exercises conducted during the ongoing approval process is an integral part of the system. A meeting similar to that after the 44 CFR 350 process has been completed may be held at the discretion of the Regional Director and in combination with the exercise participants briefing referenced in the above paragraph.

- D. Following a biennial exercise for continued approval after the 44 CFR 350 process has been completed, FEMA will conduct a meeting to include exercise participants, NRC representatives, other appropriate Federal agencies, the licensee, the public and the media. The meeting will be held in the vicinity of the nuclear power plant and be announced within five to seven days of the exercise date in media selected by the FEMA Regional Director. At the discretion of the Director, this meeting may be combined with the exercise participants briefing referenced above.
- E. A written draft evaluation report will be developed by RAC, Region III and submitted to the State for review and comment. PEMA Bureau of Plans is responsible for preparing the comments, which will be forwarded to Region III, then to FEMA National, which determines the final report. This report is then submitted to the NRC with a copy to Region III that forwards the report to PEMA.
- F. A report, which consolidates the observations and comments of the State observers, will be prepared by the Bureau of Plans following biennial RERP exercises if required.
- G. PEMA will establish means for correcting deficiencies and areas requiring corrective actions that FEMA identifies in its final report. PEMA and participating Counties and Municipalities will establish management controls to ensure that corrective actions are implemented promptly and that emergency plans are revised and updated accordingly.
- H. A remedial exercise may be required to correct deficiencies observed by FEMA in exercises. Should this occur, the FEMA Regional Director will determine the participation required from the State, County and Municipal governments.

ATTACHMENT C

APPENDIX 18

DRILLS

1. Counties, Municipalities, agencies and organizations will conduct drills to be listed with and monitored by PEMA in addition to, or in conjunction with, the full participation biennial or partial participation annual exercises at the frequencies indicated below:

- A. Communications Drills - Communications drills will be conducted which test both the adequacy of communications links and response agency understanding of emergency action levels and message content.

- (1) Communications from PEMA's Bureau of Operations and Training to the risk Counties will be tested monthly.
- (2) Communications from the County to Municipal governments within the plume exposure pathway EPZ are to be tested periodically.
- (3) Communications among the Federal emergency response organizations, PEMA and States within the ingestion exposure pathway EPZ will be tested at least quarterly.
- (4) Communications from each nuclear power plant to PEMA and the respective risk Counties emergency operations centers and between BRP and its field assessment teams will be tested at least once a year.

- B. County Responsibility - Medical Emergency Drill

A drill, conducted by the County, involving simulated contaminated individuals and containing provisions for participation by County and Municipal support service agencies, i.e. ambulance and offsite medical treatment facilities, will be conducted annually (may be in conjunction with the biennial exercise) by each risk County. In accordance with FEMA Guidance Memorandum MS-1, "Medical Services," November 13, 1986, the simulated contaminated injured person should be transported directly to a designated medical facility for the public.

- C. State Government Responsibilities

- (1) Radiological Monitoring Drills - Monitoring drills will be conducted annually (may be in conjunction with the biennial exercises) for both

the plume exposure pathway EPZ and the ingestion exposure pathway EPZ.

These drills, which involve DEP's Bureau of Water Supply and Community Health, the Bureau of Radiation Protection and the Department of Agriculture, shall include collection and analysis of all sample media (e.g., water, vegetation, soil and air), and provisions for communications and record keeping.

- (2) Health Physics Drills - Drills will be conducted semi-annually (during biennial exercises) by BRP with licensees at any site, on a rotating basis, to test response to and analysis of simulated, elevated airborne and liquid samples and direct radiation measurements in the environment.
2. By January 10th of each year the responsible offices and organizations will inform PEMA's Bureau of Plans of the participants and the dates the drills were conducted the preceding calendar year so that the Annual Letter of Certification can be prepared and submitted to FEMA by January 30th of each calendar year as required.

APPENDIX 19

ANNEX E

BANKING

1. PURPOSE

To ensure the continued availability of banking services in the event of an incident at any one of the nuclear power plants in Pennsylvania.

2. SITUATION

Should an incident occur at any of the nuclear power plants in Pennsylvania, as a result of which there is widespread concern causing people to consider evacuation, there could be an early and heavy demand for cash by persons who live within the plume exposure pathway EPZ, and to a lesser extent by persons outside the EPZ. Also, there will be some concern for the safety of monies left in deposit with risk financial institutions in the plume exposure pathway EPZ.

3. CONCEPT OF OPERATIONS

A. Departmental Response and Interface with PEMA and Federal Regulators

- (1) Should an incident of Alert or more serious classification level occur, PEMA will notify the Department of Banking and may request an Emergency Preparedness Liaison Officer (EPLO) and necessary support personnel to report to the State EOC. The Department will activate as per its Disaster Reaction Plan and maintain close communication with the EPLO in the State EOC.
- (2) The Department's EPLO in the State EOC will establish official communication and coordination channels with Federal regulatory agencies via the Federal government's offsite emergency response team co-located in the State EOC or DFO.
- (3) The Department's EPLO in the State EOC will coordinate all emergency related information and actions between the Department and PEMA.
- (4) Based upon the experience of the March 28, 1979 accident at the Three Mile Island Nuclear Station, the expectation is that normal banking

channels will enable affected institutions to keep adequate supplies of cash on hand. Nonetheless, as a public service, the Department, in coordination with PEMA, will issue news releases discouraging the public from withdrawal of large amounts of cash. The Department will also assist in securing adequate cash supplies by communicating with correspondent banks and the Federal Reserve Bank.

B. Financial Institutions and Coordination with Regulators

- (1) Most financial institutions have branch offices located in several Counties and it is not likely that all branches of these institutions would be required to close in the event of an evacuation of the EPZ. Such institutions would continue to operate and provide service from their branch offices that remain open. If all offices of an institution were required to close, the Department or appropriate Federal regulator would authorize the institution to operate from temporary emergency facilities.
- (2) Most financial institutions now use electronic data processing facilities to perform deposit accounting functions, either on their own equipment or by contract with an independent facility. As part of its operating program, the Department emphasizes the need for off-premise backup of deposit records and the need for prearranged procedures for the use of alternate equipment should the primary computer system malfunction. These elements would provide for continued service in the event of a local evacuation. In the case of those few financial institutions that still utilize a manual deposit records system, the records would simply be moved to a temporary emergency branch office, as authorized by the Department or appropriate Federal regulator.
- (3) The Department will contact directly the State chartered financial institutions in affected areas and advise them about the emergency status and actions desired of them. They will be given an emergency telephone number upon which they can contact the Department for information and direction. For Federally chartered financial institutions the Department will deliver the same emergency information and advice to the appropriate Federal regulators who in turn will ensure that the Federally chartered institutions are so notified. (See Attachments A through E for a listing of financial institutions.)

4. RESPONSIBILITIES

A. Pennsylvania Emergency Management Agency

- (1) Provide guidance to the Department in the preparation of plans.
- (2) Coordinate with the Department at the time of an emergency to include notification of emergency status and other important operational matters.

B. Department of Banking

- (1) Monitor withdrawal trends and cash requirements at risk financial institutions in the event of an Alert or more serious incident.
- (2) Collect and report to PEMA any information on damage to, problems faced at, or disruption of services provided by institutions under their jurisdiction.
- (3) Disseminate emergency related information and recommendations as coordinated with PEMA directly to State chartered risk institutions and to Federally chartered institutions via the Federal government response team located in the State Emergency Operations Center (EOC) in the event of a Site Area Emergency or more serious incident.
- (4) Coordinate emergency cash requirements with the Federal Reserve Bank for risk financial institutions and institutions located within 10 miles of the affected plant.
- (5) In coordination with PEMA provide information to the public on the best courses of action to take in the event of a major incident.
- (6) Provide professional advice relating to financial aspects of economic recovery projects within a disaster area to State departments, County and Municipal governments.
- (7) Provide assistance to affected State chartered risk financial institutions as required, and to Federally chartered risk financial institutions if requested by both the individual institution and the appropriate Federal regulatory agency. Such assistance could include assistance in locating and receiving additional cash to meet the increased demand; authorization of emergency closing; authorization to open and operate from emergency temporary facilities.

5. REFERENCES

Department of Banking Disaster Reaction Plan, January 1991.

6. DEFINITIONS AND TERMS

- A. Financial Institution - A State or Federally chartered bank, savings association, or credit union.
- B. Risk Institutions - Those financial institutions partially or wholly located within the plume exposure pathway Emergency Planning Zone (EPZ) of any nuclear power plant.
- C. Federal Reserve Bank - The Federal Reserve Bank of Philadelphia or the Federal Reserve Bank of Cleveland.
- D. Department - The Pennsylvania Department of Banking.
- E. Federal Regulators - Any of the following: The Federal Reserve Bank, the Federal Deposit Insurance Corporation, the Federal Home Loan Bank, the Comptroller of Currency and National Credit Union Association.

7. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3.)

ATTACHMENTS:

- A. List of Risk Financial Institutions for Beaver Valley Power Station
- B. List of Risk Financial Institutions for Limerick Generating Station
- C. List of Risk Financial Institutions for Peach Bottom Atomic Power Station
- D. List of Risk Financial Institutions for Susquehanna Steam Electric Station
- E. List of Risk Financial Institutions for Three Mile Island Nuclear Station

ATTACHMENT A

APPENDIX 19

LIST OF RISK FINANCIAL INSTITUTIONS FOR
BEAVER VALLEY POWER STATION

The list of risk financial institutions for Beaver Valley Power Station is on file at the Department of Banking.

ATTACHMENT B

APPENDIX 19

LIST OF RISK FINANCIAL INSTITUTIONS FOR
LIMERICK GENERATING STATION

The list of risk financial institutions for Limerick Generating Station is on file at the Department of Banking.

ATTACHMENT C

APPENDIX 19

LIST OF RISK FINANCIAL INSTITUTIONS FOR
PEACH BOTTOM ATOMIC POWER STATION

The list of risk financial institutions for Peach Bottom Power Station is on file at the Department of Banking.

ATTACHMENT D

APPENDIX 19

LIST OF RISK FINANCIAL INSTITUTIONS FOR
SUSQUEHANNA STEAM ELECTRIC STATION

The list of risk financial institutions for Susquehanna Steam Electric Station is on file at the Department of Banking.

ATTACHMENT E

APPENDIX 19

LIST OF RISK FINANCIAL INSTITUTIONS FOR
THREE MILE ISLAND NUCLEAR STATION

The list of risk financial institutions for Three Mile Island Nuclear Station is on file at the Department of Banking.

APPENDIX 20

ANNEX E

HIGHWAY, RAILROAD AND WATERWAY RESTRICTIONS

1. PURPOSE

- A. To specify the provision of and procedures for closing or restricting traffic on the Pennsylvania Turnpike in case of a nuclear incident at either the Limerick Generating Station (LGS) or the Three Mile Island Nuclear Station (TMI).
- B. To specify provisions for restricting railroad traffic and waterway travel in case of a nuclear incident at any of the five nuclear power plants located within the Commonwealth.

2. SITUATION

- A. The Pennsylvania Turnpike traverses the Plume Exposure Pathway EPZ related to TMI, and constitutes part of the southern boundary of the LGS EPZ. The EPZs of the other nuclear power plants in Pennsylvania are not similarly affected.
- B. Closing sections of the Turnpike in the LGS and TMI areas may be necessary in order to preclude public exposure to radioactive contaminants. Restrictions may have to be instituted on other sections of the turnpike in order to reduce regular traffic volume so that it does not impede evacuation traffic exiting the EPZ.
- C. In order to be prepared and to accomplish closing and restricting actions of roads and Turnpike in a timely manner, the Pennsylvania Turnpike Commission and Pennsylvania State Police must assemble their work forces, vehicles and barrier material. This necessitates early notification of these agencies. Early notification becomes even more critical when the initial emergency declaration is Site Area Emergency or General Emergency. In these cases, the Turnpike and State Police response teams may not yet be operational in the State EOC. Initial notification and escalation notifications to the turnpike and State police will be accomplished by the State EOC until the aforementioned agency response teams are operational.
- D. A number of companies utilize railroad tracks that traverse the plume exposure pathway EPZ surrounding each of the five nuclear power plants within the Commonwealth. Closing sections of those railways may be necessary in the event of a nuclear power plant incident.

- E. Each of the five nuclear power plants is sited on a major waterway: Beaver Valley Power Station on the Ohio River; Peach Bottom Atomic Power Station, Susquehanna Steam Electric Station and Three Mile Island Nuclear Station on the Susquehanna River; and Limerick Generating Station on the Schuylkill River. Closing sections of those rivers may be necessary in the event of a nuclear power plant incident.

3. CONCEPT OF OPERATIONS

A. Pennsylvania Turnpike

- (1) Upon declaration of an Alert emergency classification, notification of the incident is transmitted to the Pennsylvania Turnpike Commission, PSP and PennDOT. The Turnpike Commission and PSP place on standby status the personnel needed in order to close or restrict sections of the Turnpike.
- (2) Upon notification of an Alert, the Turnpike Commission prepositions vehicles, equipment and material, as needed, in order to close or restrict sections of the Turnpike.
- (3) Upon instruction to do so from the State EOC, the Turnpike Commission and PSP must initiate closing actions and restrictions as appropriate.
- (4) At declaration of General Emergency (when it is the initial notification), the Turnpike Commission and PSP initiate closing actions and restrictions. Actions in regard to TMI are at Attachments A and C, and actions in regard to Limerick are at Attachments B and C. Alternate eastbound and westbound routes for TMI and LGS are at Attachments D, E, F and G.
- (5) The Governor as deemed appropriate may order closing and restricted travel on the Turnpike.

B. Railroad Traffic

The State EOC, through the Public Utility Commission (PUC) Emergency Preparedness Liaison Officer (EPLO), notifies appropriate railroad agencies of the restrictions placed on rail traffic. A list of railroads affected by each nuclear power plant is at Attachment J.

C. River Traffic

The Governor or his representative determines the need to restrict river traffic and the State EOC notifies the Pennsylvania Fish and Boat Commission and Pennsylvania State Police. In case of an incident at the Beaver Valley Power

Station, the State EOC also verifies that the U.S. Coast Guard has been notified by the nuclear power plant.

4. RESPONSIBILITIES

A. Pennsylvania Emergency Management Agency (PEMA)

- (1) Coordinates with the State of New Jersey, Pennsylvania Turnpike Commission, PSP, and affected Counties on all matters pertaining to closing sections of the Turnpike and restricting regular traffic on appropriate sections of the Turnpike.
 - a. Recommends to the Governor on when to implement closing and restriction operations.
 - b. Notifies the Pennsylvania Turnpike Commission, PennDOT and PSP of incidents at LGS and TMI.
 - c. Notifies the State of New Jersey in case of incidents at LGS.
- (2) Determines the need to restrict railroad and waterway traffic.
 - a. Notifies appropriate railroad companies and agencies through the PUC EPLO regarding railroad restrictions, and notifies the Pennsylvania Fish and Boat Commission EPLO and PSP.
 - b. Verifies, when applicable, that the U.S. Coast Guard has been notified of river travel restrictions.
 - c. Requests the PSP to provide periodic aerial surveillance of restricted sections of rivers.
 - d. Verifies that risk Counties have notified the public of river restrictions by means of EAS announcements.
- (3) Notification of the railroads will be accomplished by the State EOC in cases where the PUC emergency response team has not been mobilized, or the emergency response team is not yet operational.

B. Pennsylvania Turnpike Commission

The Pennsylvania Turnpike Commission establishes barriers, lane controls and signals in order to close and restrict turnpike traffic. See Attachments A, B and C. Coordinates directly with the New Jersey Turnpike Commission upon initiation of Pennsylvania Turnpike closing actions. Opens and closes maintenance gates at Newville, Highspire Plaza and PA Route 743 (Milepost 256.7) when appropriate. Coordinates traffic control operations directly with PSP upon initiation of closing actions. Suspends toll collections during the period of evacuation so as not to impede evacuee traffic flow.

C. Pennsylvania State Police (PSP)

- (1) The PSP develops internal procedures for turnpike travel control. Conducts traffic control operations in direct coordination with PA Turnpike authorities and PennDOT. See Attachments A and B. Establishes Traffic Control Points (TCPs). See Attachment C.
- (2) Upon request by PEMA and within capabilities, provides periodic aerial surveillance of sections of rivers on which travel restrictions have been placed.

D. Pennsylvania Department of Transportation (PennDOT)

Conducts traffic surveillance, in coordination with the PSP, to assure traffic flow of diverted turnpike traffic. Coordinates planning of diverted turnpike traffic flow with PEMA. Provides directional traffic handouts for patrons diverted from the turnpike.

E. Pennsylvania Fish and Boat Commission

- (1) Plans and sites access control points (ACPs) to restrict river traffic on the Susquehanna River in the vicinity of the Peach Bottom, Susquehanna and Three Mile Island Nuclear Power Plants. Pennsylvania Fish and Boat Commission is also responsible for planning and siting ACPs on the Schuylkill River in the vicinity of the Limerick Power Plant and at the conflux of the Beaver and Ohio Rivers in the vicinity of the Beaver Valley Power Plant.
- (2) Restricts water travel into the ten-mile plume exposure pathway EPZ through which the aforementioned rivers flow by means of landed or waterborne ACPs, as appropriate.
- (3) Upon notification of an Alert ECL places necessary persons on standby and prepares equipment for deployment.

(4) Upon notification from the State EOC, deploys personnel and equipment and places water travel restrictions into effect.

(5) General locations of the ACPs are:

<u>POWER PLANT</u>	<u>RIVER ACCESS</u>	<u>ACPs</u>
<u>TMI</u>	<u>Susquehanna River North Access (up river)</u>	<u>Cumberland County - West Shore New Cumberland Boat Access - located at the end of Fifth Street in New Cumberland Borough</u>
	<u>Susquehanna River South Access (down river)</u>	York County - West Shore, Hellam Township access - located at South River Drive off Accomac Road and Lancaster County - East Shore, PFBC Marietta Access Area - located south end of Marietta Borough
<u>PBAPS</u>	<u>Susquehanna River North Access (up river)</u>	York County - West Shore, PP&L Co., York Furnace Access - located off Route 425 at mouth of Otter Creek and Lancaster County - East Shore, Vicinity of Urey Island – located near Pequea Borough
	<u>Susquehanna River South Access (down river)</u>	<u>State of Maryland</u>
<u>SSES North Branch</u>	<u>Susquehanna River North Access (up river)</u>	<u>Luzerne County - West Shore, private ramp just downstream of bridge connecting Nanticoke Borough</u>
	<u>Susquehanna River South Access (down river)</u>	<u>Columbia County - West Shore, PFBC Access just downstream of Route 487 bridge</u>
<u>LGS</u>	<u>Schuylkill River North Access (up river)</u>	<u>Berks County - West Shore, in vicinity of bridge that crosses river near Monocacy Station</u>
	<u>Schuylkill River South Access (down river)</u>	<u>Chester County - West Shore, in vicinity of Valley Forge</u>
<u>BVPS</u>	<u>Ohio River East Access (up river)</u>	<u>Allegheny County – North Shore, PFBC Access in Borough of Leetsdale</u>
	<u>Ohio River South Access (down river)</u>	<u>State of West Virginia</u>
	<u>Beaver River North Access (up river)</u>	<u>Beaver County - East Shore PFBC Access, in Borough of New Brighton</u>

F. County Emergency Management Agencies

- (1) Coordinates with PEMA on diverted highway traffic flow that affects their Counties. Releases appropriate EAS announcements. See Attachments H and I.
- (2) Releases EAS announcement notifying the public of river travel restrictions.
- (3) Upon request, assists Pennsylvania Fish and Boat Commission in the planning and siting of River Access Control Points, and supports operation of the control points, within County capabilities.

5. REFERENCES

(See Basic Document, paragraph 12.)

6. DEFINITIONS AND TERMS

(See Basic Document, paragraph 13.)

7. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3.)

ATTACHMENTS:

- A. Pennsylvania Turnpike Routing, TMI Evacuation
- B. Pennsylvania Turnpike Routing, Limerick Evacuation
- C. Traffic Control Points, Barriers
- D. Three Mile Island, Eastbound, Alternate Routes
- E. Three Mile Island, Westbound, Alternate Routes
- F. Limerick, Eastbound, Alternate Routes
- G. Limerick, Westbound, Alternate Routes
- H. Pennsylvania Turnpike Restrictions, Limerick Generating Station, EAS Announcement
- I. Pennsylvania Turnpike restrictions, Three Mile Island Nuclear Station, EAS Announcement
- J. Railroads Affected By Nuclear Power Plant Incidents

ATTACHMENT A

APPENDIX 20

PENNSYLVANIA TURNPIKE ROUTING
TMI EVACUATION

DURING EVACUATION:

1. OPEN the Newville, Highspire Plaza, and Route 743 (Milepost 256.7) maintenance gates.
2. Traffic will ENTER Interchange 16 (Carlisle) WESTBOUND to Newville Maintenance, EXIT at access gate to Newville.
3. Traffic will ENTER Interchange 18 (Harrisburg West) WESTBOUND to EXIT Interchange 17 (Gettysburg), proceeds SOUTHBOUND on Route 15.
4. Traffic will ENTER Interchange 19 (Harrisburg East) WESTBOUND to EXIT Interchange 16 (Carlisle), proceeds SOUTHBOUND on Interstate 81.
5. Traffic will ENTER at Highspire Plaza access gate EASTBOUND to EXIT Interchange 20 (Lebanon-Lancaster), proceeds NORTHBOUND on Route 72.
6. Traffic will ENTER access gate Route 743 (Milepost 256.7) EASTBOUND to EXIT Interchange 20 (Lebanon-Lancaster), proceeds NORTHBOUND on Route 72.
7. Traffic will be prohibited EASTBOUND from Interchange 16 (Carlisle), Interchange 17 (Gettysburg) and Interchange 18 (Harrisburg West).
8. EXIT all EASTBOUND traffic at Interchange 16 (Carlisle), proceeds NORTHBOUND on Interstate 81.
9. EXIT all WESTBOUND traffic at Interchange 22 (Morgantown), proceeds NORTHBOUND on Interstate 176.
10. Close Interchange 20 (Lancaster) and Interchange 21 (Reading) to WESTBOUND traffic
11. Notify all interchanges, PSP barracks, service plazas and maintenance buildings of sealed off area and exit points.
12. Notify news media, radio and television stations of closure.

AFTER EVACUATION:

1. Close Turnpike to all traffic between Interchange 22 (Morgantown) and Interchange 16 (Carlisle).
2. EXIT all EASTBOUND traffic at Interchange 16 (Carlisle), proceeds NORTHBOUND on Interstate 81.
3. EXIT all WESTBOUND traffic at Interchange 22 (Morgantown), proceeds NORTHBOUND on Interstate 176.
4. Close the Newville, Highspire Plaza and Route 743 maintenance gates.

Pennsylvania Department of Transportation will provide directional traffic handouts for patrons exiting the above-listed locations.

ATTACHMENT B

APPENDIX 20

PENNSYLVANIA TURNPIKE ROUTING
LIMERICK EVACUATION

DURING EVACUATION:

1. Traffic will ENTER Interchange 24 (Valley Forge) EASTBOUND to EXIT at Interchange 28 (Philadelphia), proceeds NORTHBOUND on US 1.
2. Traffic will ENTER Interchange 25 (Norristown) EASTBOUND to EXIT at Interchange 27 (Willow Grove), proceeds SOUTHBOUND on PA 611.
3. All traffic EASTBOUND will EXIT at Interchange 19 (Harrisburg East), divert traffic to SOUTHBOUND on PA 283.
4. All traffic SOUTHBOUND on the Pennsylvania Turnpike Northeast Extension will EXIT at Interchange 33 (Lehigh Valley), proceeds to Interstate 78/22 EASTBOUND or WESTBOUND.
5. Close Interchange 31 (Landsdale) and Interchange 32 (Quakertown) on the Northeast Extension to all SOUTHBOUND traffic.
6. Notify New Jersey Turnpike Authority to prohibit all traffic from entering the Pennsylvania Turnpike via Interchange 30 (Delaware River Bridge).
7. Close Interchange 29 (Delaware Valley), Interchange 28 (Philadelphia), Interchange 27 (Willow Grove), Interchange 26 (Ft. Washington), and Interchange 25 (Norristown) to all WESTBOUND traffic.
8. Close Interchange 20 (Lancaster) Interchange 21 (Reading), Interchange 22, (Morgantown) to all EASTBOUND traffic.
9. All residual traffic between Interchanges 19 (Harrisburg East) and Interchange 21 (Reading) may EXIT at Interchange 20 (Lebanon-Lancaster) and Interchange 21 (Reading), or must EXIT at Interchange 22 (Morgantown).
10. All Pennsylvania bound traffic will be U-turned at New Jersey Turnpike Interchange 6 (Pennsylvania Turnpike). All bridge traffic from New Jersey will EXIT at Interchange 29 (Delaware Valley), proceeds NORTHBOUND or SOUTHBOUND on US 13.
11. Close Interchange 23 (Downingtown) to ALL ENTRY traffic and ALL EXITING traffic.

12. Close Interchange 24 (Valley Forge) to ALL EXITING and WESTBOUND ENTRY traffic.
13. Notify all interchanges, PSP barracks, service plazas and maintenance buildings of sealed off area and exit points.
14. Notify news media, radio and television stations of closure.

AFTER EVACUATION:

Steps 3, 4, 5, 6, 7, 8, 9, 10, and 11 will remain in effect during Limerick emergencies.

Close Interchange 24 (Valley Forge) to ALL ENTRY and EXITING traffic.

Pennsylvania Department of Transportation will provide directional traffic handouts for patrons exiting the above-listed locations.

ATTACHMENT C

APPENDIX 20

TRAFFIC CONTROL POINTS
BARRIERS

<u>Evacuation Plan</u> <u>For</u>	<u>TCP Locations</u>	<u>Instructions</u>
<u>TMI*</u>	<u>Newville Maintenance Gate</u>	EXIT evacuation traffic from turnpike
	Interchange 16 (Carlisle)	<u>EXIT eastbound traffic. Expedite movement north on US 11 to Interstate 81</u>
	Highspire Plaza Maintenance Gate	Expedite northbound traffic from North Union Street onto the turnpike eastbound
	PA Route 743 Maintenance Gate	Expedite northbound traffic from PA 743 onto the turnpike eastbound
	Interchange 22 (Morgantown)	EXIT all westbound traffic, expedite movement north on Interstate 176
<u>Limerick**</u>	Interchange 19 (Harrisburg East)	EXIT all eastbound traffic. Expedite movement south on PA Route 283
	Interchange 22 (Morgantown)	EXIT all eastbound traffic
	Interchange 25 (Norristown)	Close to all westbound traffic. Divert southbound traffic on the Turnpike Northeast Extension to appropriate alternate routes
	Interchange 29 (Delaware Valley)	Close to all westbound traffic. Divert residual traffic from New Jersey Turnpike to PA Route 13 northbound or southbound
	Interchange 30 (Delaware River Bridge)	Close to all westbound traffic. U-turn all westbound traffic from the New Jersey Turnpike and return it to the New Jersey Turnpike
	Interchange 33 (Lehigh Valley)	Close the PA Northeast Turnpike Extension to all southbound traffic. Divert the traffic to Interstate 78/22 eastbound or westbound as appropriate

*All other interchanges, see Attachment A, are to be controlled by means of barriers. TCPs above may be withdrawn when barriers are substituted.

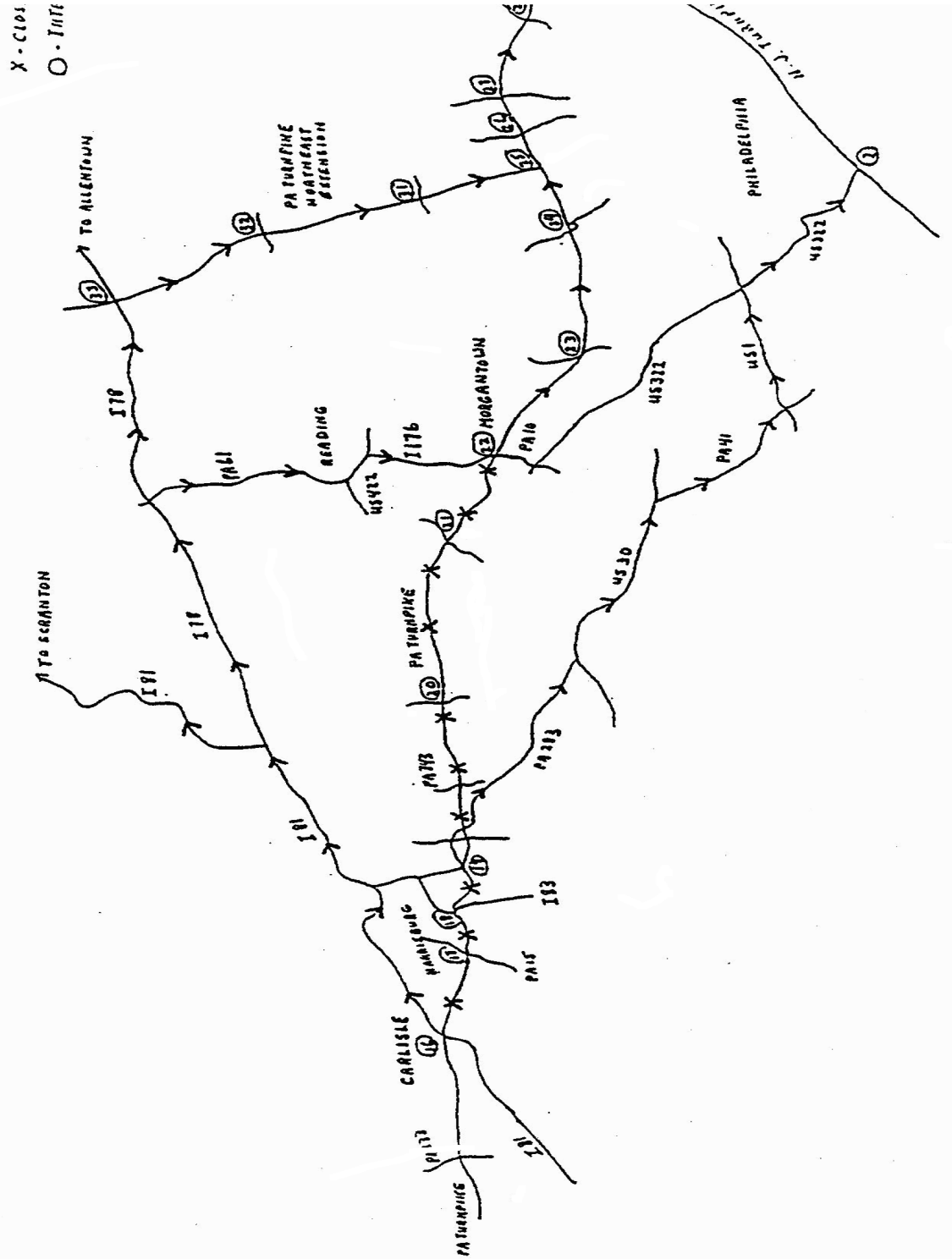
**All other interchanges, see Attachment B, are to be controlled by means of barriers. TCPs above may be withdrawn when barriers are substituted.

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ATTACHMENT D

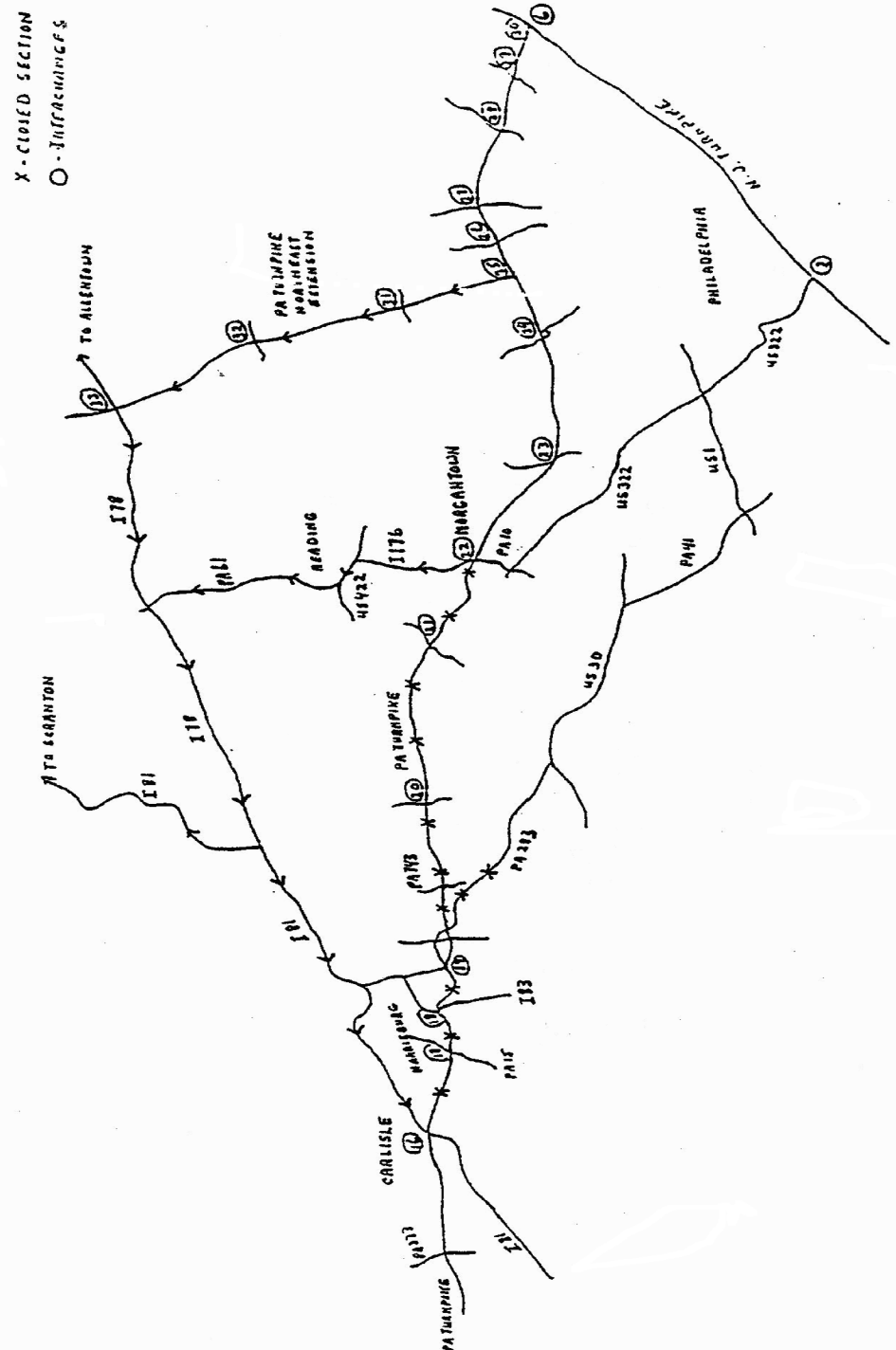
APPENDIX 20

THREE MILE ISLAND CLOSING OF TURNPIKE EASTBOUND. ALTERNATE ROUTES



APPENDIX 20

**THREE MILE ISLAND
CLOSING OF TURNPIKE
WESTBOUND
ALTERNATE ROUTES**

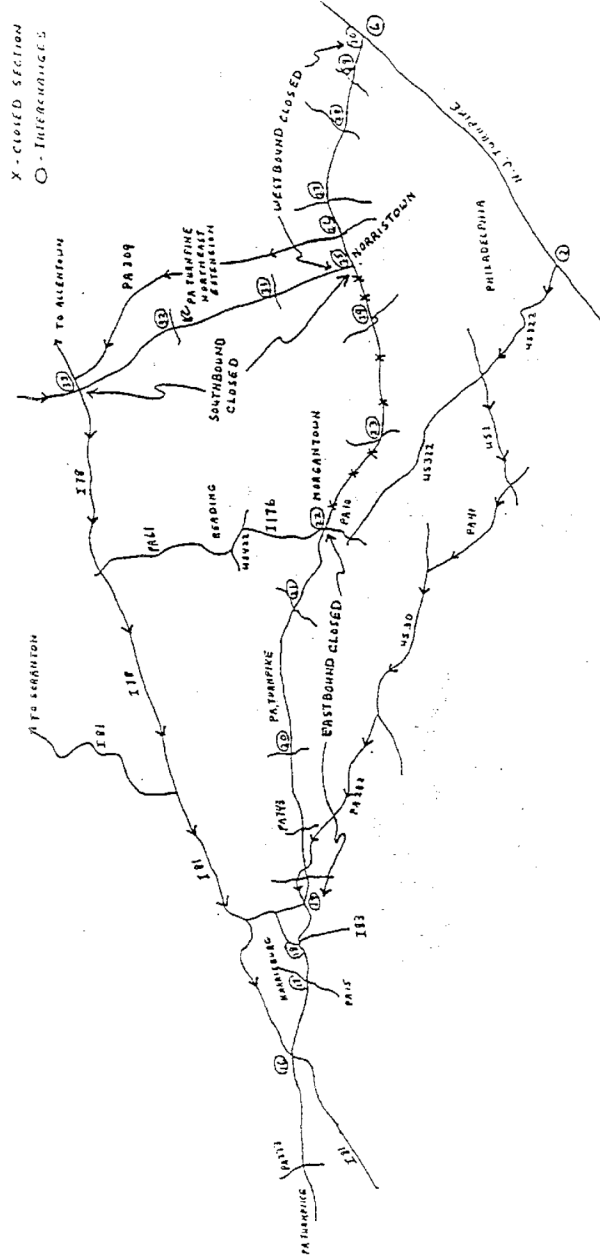


APPENDIX 20

ATTACHMENT G

APPENDIX 20

LIVERICK CLOSING OF TURNPIKE WESTBOUND ALTERNATE ROUTES



ATTACHMENT H

APPENDIX 20

PENNSYLVANIA TURNPIKE RESTRICTIONS
LIMERICK GENERATING STATION
EAS ANNOUNCEMENT

The following message has been released by the _____ County Emergency Management Agency in regards to the Governor's general evacuation (order) (recommendation) around the Limerick Generating Station.

Travelers on the Pennsylvania Turnpike should be aware of the following restrictions being placed on turnpike travel.

1. Restrictions on turnpike travel are being placed into effect.
2. The restrictions will not affect planned evacuation routes or evacuee traffic.
3. The Northeast Extension will be closed to southbound traffic from Interchange 33 (Lehigh Valley) south to the turnpike.
4. The turnpike will be closed to eastbound traffic from Interchange 22 (Morgantown) east to Interchange 25 (Norristown).
5. The turnpike will be closed to westbound traffic from Interchange 30 (Delaware River Bridge) west to Interchange 22 (Morgantown).
6. Directional traffic handouts will be provided to persons that are required to exit the turnpike.

(Repeat this message one time.)

(Thereafter, this message should be repeated every fifteen minutes until the station is informed by _____ County to end transmission.)

ATTACHMENT I

APPENDIX 20

PENNSYLVANIA TURNPIKE RESTRICTIONS
THREE MILE ISLAND NUCLEAR STATION
EAS ANNOUNCEMENT

The following message has been released by the _____ County Emergency Management Agency in regards to the Governor's general evacuation (order) (recommendation) around the Three Mile Island Nuclear Station.

Travelers on the Pennsylvania Turnpike should be aware of the following restrictions being placed on turnpike travel.

1. Restrictions on turnpike travel are being placed into effect.
2. The restrictions will not affect planned evacuation routes or evacuee traffic.
3. After evacuation is completed, the turnpike will be closed to all westbound and all eastbound traffic from Interchange 16 (Carlisle) to Interchange 22 (Morgantown) until further notice.
4. Directional traffic handouts will be provided to persons that are required to exit the turnpike.

(Repeat this message one time.)

(Thereafter, this message should be repeated every fifteen minutes until the station is informed by _____ County to end transmission.)

ATTACHMENT J

APPENDIX 20

RAILROADS AFFECTED BY
NUCLEAR POWER PLANT INCIDENTS

<u>NUCLEAR POWER PLANT</u>	<u>RAILROADS/AGENCIES</u>
<u>Beaver Valley Power Station</u>	<u>Aliquippa Southern</u> <u>B&LE</u> Chessie System Conrail, Pittsburgh McKeesport, Conn. Midland Term. Monongahela Conn. Pittsburgh, Allegheny & McKees Rocks Pittsburgh Charters & Youghiogheny Pittsburgh & Lake Erie Pittsburgh & Lake Erie Pittsburgh & Ohio Valley Turtle Creek Ind. Turtle Creek & Allegheny River Union Youngstown & Southern Unity Norfolk & Southern Chessie B&O
<u>Peach Bottom Atomic Power Station</u>	AMTRAK Blue Mt. & Rdg. Brandywine Valley Chessie System Conrail, Harrisburg Landisville ITT Grinell MD & PA Middletown & Hummelstown <u>Octoraro</u> SEPTA Strasburg Steelton & Highspire Stewartstown

<u>NUCLEAR POWER PLANT</u>	<u>RAILROADS/AGENCIES</u>
<u>Limerick Generating Station</u>	<u>AMTRAK</u> Chessie System Conrail, Harrisburg & Philadelphia Octoraro RW N. Hope & Ivyland Phila., Belt Line SEPTA U. Merion & Plymouth
<u>Susquehanna Steam Electric Station</u>	<u>Conrail, Jersey</u> Carbon and Schuylkill Railroad D&H Railway Co. Lackawanna Valley Railroad Corporation N. Shore RR Phila., Beth. & N. England Ready Blue Mountain and Northern Shamokin Valley Railroad Company Lackawanna Railway Inc. Sugarloaf & Hazelton West Shore Railroad Corporation
<u>Three Mile Island Nuclear Station</u>	<u>AMTRAK</u> Blue Mtn. & Rdg. Chessie System Conrail, Harrisburg Conrail, Altoona <u>Gettysburg</u> Middletown & Hummelstown MD & PA Steelton & Highspire Stewartstown

Note: Telephone numbers are on file in the State EOC.

APPENDIX 21

ANNEX E

AGREEMENTS

1. PURPOSE

To identify the agreements promulgated by the Commonwealth of Pennsylvania with contiguous States, nuclear power plants, the American National Red Cross, and hospitals in regard to nuclear power plant incidents.

2. SITUATION

NUREG-0654 requires that plans include written agreements between organizations having an emergency response role in order to identify the mutually acceptable criteria for implementation of emergency response procedures.

3. CONCEPT OF OPERATIONS

The Pennsylvania Emergency Management Agency (PEMA) acting as the lead State agency develops and maintains the agreements identified herein. The agreements are to be reviewed annually, certified to be current, or revised and renewed, if necessary, and maintained on file in the Bureau of Plans.

4. RESPONSIBILITIES

State Departments/Agencies, County and Municipal governments who prepare and maintain Radiological Emergency Operations Procedures (RERP) and EOPs for nuclear power plant contingencies are required to secure agreements with support organizations.

5. AGREEMENTS

A. Agreements between Pennsylvania and Other States

1. Delaware with Pennsylvania.
2. Maryland with Pennsylvania.

3. New Jersey with Pennsylvania.
4. New York with Pennsylvania.
5. Ohio with Pennsylvania.
6. West Virginia with Pennsylvania.

B. Agreements between Pennsylvania and Nuclear Power Plant Operators

1. First Energy Nuclear Operating Company with Pennsylvania regarding the Beaver Valley Power Station.
2. Exelon Nuclear with Pennsylvania regarding the Limerick Generating Station.
3. Exelon Nuclear with Pennsylvania regarding Peach Bottom Atomic Power Station.
4. PPL Susquehanna LLC with Pennsylvania regarding the Susquehanna Steam Electric Station.
5. AmerGen Energy Company with Pennsylvania regarding the Three Mile Island Nuclear Station.

C. Agreements with the American Red Cross

American National Red Cross with Pennsylvania.

D. Agreements between Pennsylvania and Hospitals for Each Site

NUCLEAR POWER PLANT	CONTRACTED HOSPITALS
Beaver Valley Power Station	Ellwood City Hospital Ellwood City, PA
	Washington Hospital Washington, PA
Limerick Generating Station	Brandywine Hospital and Trauma Center Coatesville, PA
	Reading Hospital and Medical Center Reading, PA
	<u>Allentown Hospital-Lehigh Valley Hospital Center</u> Allentown, PA

NUCLEAR POWER PLANT	CONTRACTED HOSPITALS
Limerick Generating Station (Cont.)	Abington Memorial Hospital Abington, PA
	Holy Redeemer Hospital Meadow Brook, PA
Peach Bottom Atomic Power Station	Brandywine Hospital and Trauma Center Coatesville, PA
	Ephrata Community Hospital Ephrata, PA
	York Hospital York, PA
Susquehanna Steam Electric Station	Bloomsburg Hospital Bloomsburg, PA
	Williamsport Hospital and Medical Center Williamsport, PA
	Geisinger Wyoming Valley Hospital Wilkes-Barre, PA
	Mercy Hospital Wilkes-Barre, PA
Three Mile Island Nuclear Station	Carlisle Hospital Carlisle, PA
	Gettysburg Hospital Gettysburg, PA
	Good Samaritan Hospital Lebanon, PA
	Hanover General Hospital Hanover, PA
	Ephrata Community Hospital Ephrata, PA

- E. Operational plan for the Commonwealth of Pennsylvania defining the Pennsylvania Emergency Alert System (EAS). Operationally defines the system intended for the dissemination of emergency information and warning to the general public utilizing the resources of the broadcast industry, IAW FCC regulations.

6. REFERENCES

(See Basic Document, paragraph 12.)

7. DEFINITIONS AND TERMS

(See Basic Document, paragraph 13.)

8. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3.)

ATTACHMENT:

- A. Agreement Summaries

ATTACHMENT A

APPENDIX 21

AGREEMENT SUMMARIES

1. PENNSYLVANIA AND OTHER STATES

These agreements identify the power plant that affects the contiguous States and the title of the States' incident response plan. Pennsylvania is identified as the cognizant State responsible for response to incidents to include notification of and continuing coordination with other State(s) emergency management agencies. Also provided for are exchange of liaison officers to the other's State EOC, notification of and relay of technical information in regard to ingestion response activities, participation in training tests and exercises, and exchange and annual review of State response plans.

2. PENNSYLVANIA AND NUCLEAR POWER PLANT UTILITIES

Identifies the State, risk County and utility plans providing response to a power plant incident. Provides for commitment to timely response and notification of an initial notification, escalation, de-escalation and closeout of incidents. It outlines requirements for establishment of physical means of communications. Exchange of the State and utility response plans, annual review, comment and coordination are provided. The general responsibilities of each utility, as agreed upon and Stated in the State procedures form the basis of acceptance and adherence.

3. PENNSYLVANIA AND AMERICAN RED CROSS

The American Red Cross, in response to radiological emergencies and nuclear power plant incidents, provides mass care and feeding operations in designated centers and facilities, liaison to the State EOC, continuing coordination on support service activities, and cooperative arrangements for planning and exchange of information.

4. PENNSYLVANIA AND MS-1 HOSPITALS

Provides for cooperation and coordination between the State, each specific MS-1 hospital and the County in which the hospital is located in providing medical services for contaminated-injured individuals. They include the scope of medical services provided by each hospital to include response time, staffing, radiological monitoring, provision of technical information and in-service training which also encompasses treatment protocols. Each hospital warrants that it is accredited by the Joint Commission on Accreditation of Hospitals (JCAH).

APPENDIX 22

ANNEX E

SUPPORTING PLANS AND IMPLEMENTING PROCEDURES

1. PURPOSE

- A. To provide a listing, by each nuclear power plant, of the County Radiological Emergency Response Plans developed in support of Annex E to the Commonwealth of Pennsylvania Emergency Operations Plan.
- B. To provide a listing, by each State Department/Agency, of implementing procedures in support of Annex E.

2. SITUATION

NUREG-0654, FEMA-REP-1, Rev. 1, requires each plan to contain a detailed listing of supporting plans and implementing procedures.

3. CONCEPT OF OPERATIONS

- A. Adherence to a standard format on the development of offsite plans for response to a nuclear power plant incident will enhance use of the plans and ensure that their implementation will provide uniform procedures for the protection of public health and safety.
- B. State Departments/Agencies will establish response actions for complying with their assigned responsibilities.
- C. Responsibility for maintaining this listing of supporting plans and implementing procedures rests with PEMA.
- D. County EMCs will report changes in response procedures or EOPs to PEMA.

4. LISTING OF SUPPORTING PLANS

A. Beaver Valley Power Station

(1) Risk County

*Beaver County Radiological Emergency Response Plan for Incidents at the Beaver Valley Power Station.

(2) Support Counties

- a. Annex GG, Allegheny County Emergency Operations Plan.
- b. Butler County Radiological Emergency Response Support Plan for the Beaver Valley Power Station.
- c. Annex E, Lawrence County Emergency Operations Plan.
- d. Washington County Radiological Emergency Response Support Plan for the Beaver Valley Power Station.

B. Limerick Generating Station

(1) Risk Counties

- a. *Montgomery County Radiological Emergency Response Plan for Incidents at Limerick Generating Station.
- b. Chester County Radiological Emergency Response Plan for Incidents at Limerick Generating Station.
- c. Berks County Radiological Emergency Response Plan for Incidents at Limerick Generating Station.

(2) Support Counties

- a. Bucks County Support Plan for Incidents at the Limerick Generating Station.
- b. Lehigh County Support Plan for Incidents at the Limerick Generating Station.

*County in which the nuclear power plant is located.

C. Peach Bottom Atomic Power Station

(1) Risk Counties

- a. Chester County Radiological Emergency Response Procedures to Nuclear Power Plant Incidents at the Peach Bottom Atomic Power Station.
- b. Lancaster County Radiological Emergency Response Procedures to Nuclear Power Plant Incidents at the Peach Bottom Atomic Power Station.
- c. *York County Radiological Emergency Response Procedures to Nuclear Power Plant Incidents at the Peach Bottom Atomic Power Station.

(2) Support Counties - "None" (Each of the above risk Counties provides its own support.)

D. Susquehanna Steam Electric Station

(1) Risk Counties

- a. Columbia County Radiological Emergency Response Procedures to Nuclear Power Plant Incidents at the Susquehanna Steam Electric Station.
- b. *Luzerne County Radiological Emergency Response Procedures to Nuclear Power Plant Incidents at the Susquehanna Steam Electric Station.

(2) Support Counties

- a. Lycoming County Radiological Emergency Response Procedures for Nuclear Power Plant Incidents
- b. Northumberland County Support Radiological Emergency Response Procedures.
- c. Lackawanna County Support Radiological Emergency Response Procedures.
- d. Montour County Support Radiological Emergency Response Procedures.

- e. Schuylkill County Support Radiological Emergency Response Procedures.
- f. Union County Support Radiological Emergency Response Procedures.
- g. Wyoming County Support Radiological Emergency Response Procedures.

E. Three Mile Island Nuclear Station

(1) Risk Counties

- a. Cumberland County Radiological Emergency Response Procedures to Nuclear Power Plant Incidents at the Three Mile Island Nuclear Station
- b. *Dauphin County Radiological Emergency Response Procedures to Nuclear Power Plant Incidents at the Three Mile Island Nuclear Station
- c. Lancaster County Radiological Emergency Response Procedures to Nuclear Power Plant Incidents at the Three Mile Island Nuclear Station
- d. Lebanon County Radiological Emergency Response Procedures to Nuclear Power Plant Incidents at the Three Mile Island Nuclear Station
- e. York County Radiological Emergency Response Procedures to Nuclear Power Plant Incidents at the Three Mile Island Nuclear Station

(2) Support Counties

- a. Adams County Support Procedures for Nuclear Power Plant Incidents
- b. Franklin County Support Procedures for Nuclear Power Plant Incidents
- c. Schuylkill County Support Procedures for Nuclear Power Plant Incidents

5. LISTING OF IMPLEMENTING PROCEDURES

A. Pennsylvania Emergency Management Agency (PEMA)

- (1) Commonwealth of Pennsylvania, Annex E, Radiological Emergency Response to Nuclear Power Plant Incidents
- (2) PEMA, "Duty Officer's Manual"
- (3) PEMA, Emergency Management Directive Number 69, "Development of a Mass Care Operational Program"
- (4) PEMA, "Standard Operating Procedures, State Emergency Operations Center"

B. Pennsylvania Department of Agriculture

Commonwealth of Pennsylvania, Department of Agriculture, "Department of Agriculture Plan for Nuclear Power Generating Station Incidents"

C. Bureau of Radiation Protection

BRP Nuclear Power Plant Emergency Response Plan

See Attachment F, Appendix 6

D. Department of Education

"School Emergency Planning Guide"

E. Department of Environmental Protection

"Department of Environmental Resources Emergency Management Plan"

F. Department of Health

Commonwealth of Pennsylvania, Department of Health, "Radiation Emergency Response Plan for Nuclear Power Generating Station Incidents"

G. Department of Military Affairs

- (1) PA Military Regulation No. 135-300-2, "PA National Guard State Active Duty"
- (2) PA National Guard OPLAN 95-1, Joint Emergency Operation Plan (JEOP) August 1995

H. Pennsylvania State Police (PSP)

PSP "Emergency Evacuation Plan"

- I. Pennsylvania Department of Transportation
 - (1) "Pennsylvania Department of Transportation, Disaster Recovery Operations Procedures"
 - (2) "Pennsylvania Department of Transportation, Maintenance Manual"
- J. Department of Aging
 - "Department of Aging Disaster Operations Plan"
- K. Department of Banking
 - "Disaster Reaction Plan"
- L. Department of Community and Economic Development
 - "Emergency Operations Plan"
- M. Department of Corrections
 - "Administrative Notification Procedures"
- N. Department of General Services
 - "Administrative Notification Procedures"
- O. Department of Labor and Industry
 - "Disaster Emergency Operations and Recovery Plan"
- P. Department of Public Welfare
 - "Disaster Operations and Assistance Plan"
- Q. Fish and Boat Commission
 - "Fish and Boat Commission Emergency Operations Plan"
- R. Game Commission
 - "Pennsylvania Game Commission Disaster Operations Plan"

S. Public Utilities Commission

"Disaster Operations Plan"

T. Pennsylvania Turnpike Commission

"Emergency Responsibilities"

U. American Red Cross

"Disaster Plan"

6. REFERENCES

(See Basic Document, paragraph 12, "References")

7. DEFINITIONS AND TERMS

(See Basic Document, paragraph 13, "Definitions")

8. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3, "Abbreviations")

APPENDIX 23

ANNEX E

SUPPORT TO THE FEDERAL GOVERNMENT RESPONSE PERSONNEL

1. PURPOSE

To specify support requirements for Federal government response personnel and equipment, identify support facilities and services on a site-specific basis, and assign responsibilities for making the arrangements.

2. SITUATION

- A. NUREG-0654, FEMA-REP-1, Rev. 1 specifies that State and County governments shall make provisions for incorporating the Federal response capability into its emergency plans.
- B. It is estimated that within a few hours of notification, 25 or more Federal personnel will be present at or near the facility, the State EOC in Harrisburg, or the Disaster Field Office (DFO). Within 24 hours the number of Federal response personnel could be 100 or more, and at 48 hours, 200 or more.

3. CONCEPT OF OPERATIONS

- A. The Federal Radiological Emergency Response Plan (FRERP) is used by Federal agencies in responding to peacetime radiological emergencies, such as accidents at nuclear power plants or radioactive material transportation accidents. The FRERP specifies the authorities and responsibilities of each Federal agency that has a significant role in such emergencies, and outlines the Federal assistance, both technical and non-technical, provided to support State and local governments. Under the FRERP, the Lead Federal Agency (LFA) with ownership or regulatory authority for the affected facility or released material will manage the Federal response actions on-site. For a radiological accident at a commercial nuclear power plant, the NRC is the designated LFA.
- B. BRP depends upon the Federal technical resources available under the FRERP primarily to support and supplement monitoring and assessment activities for 24-hour operations. Initial BRP requests for Federal technical assistance are coordinated through DOE - Brookhaven, prior to establishment of the FRMAC.

- C. Although PEMA has the overall responsibility for making the necessary arrangements and coordination to support the Federal government response personnel, the BRP Incident Manager and the Radiological Assessment Manager are authorized to request Federal technical assistance, and to delegate that authority. Federal assistance is requested at General Emergency, or earlier at the discretion of the Incident Manager or the Radiological Assessment Manager.
- D. County emergency management agencies (EMA's) in whose area Federal government response personnel are to be housed and EMA's otherwise affected by support requirements of Federal government response personnel cooperate with the Federal government and PEMA in planning for and making the necessary support arrangements.
- E. Preparation is for a worst-case nuclear power plant incident for which the Commonwealth has requested full Federal government assistance. These agencies include the Nuclear Regulatory Commission (NRC), the Federal Emergency Management Agency (FEMA), the Department of Energy (DOE), the U.S. Department of Agriculture, the National Weather Service, the U.S. Department of Health and Human Services, the U.S. Department of Transportation, the Environmental Protection Agency, and possibly other Federal agencies.

4. FEDERAL GOVERNMENT SUPPORT REQUIREMENTS

- A. Disaster Field Office (DFO)
 - (1) Initially, the Federal Coordinating Officer (FCO) and the Emergency Response Team (ERT) will collocate with the State EOC or State Emergency Field Office nearest to the affected site. PEMA's Bureau of Operations and Training will assist FEMA by coordinating office space, communications and administrative requirements.
 - (2) Should the nuclear power plant incident require a larger Federal response, the Bureau of Operations and Training will assist (as necessary) FEMA and the General Services Agency (GSA) by contacting local real estate agencies and ascertaining the availability of commercial office buildings near the affected site. All contracting for use of these structures shall, however, be the responsibility of the Federal government.
- B. Federal Radiological Monitoring and Assessment Center (FRMAC)
 - (1) The FRMAC is a centralized reporting point and operating base for Federal government technicians responding to an incident at a nuclear power plant. The FRMAC is under the direction of the Department of

Energy Off-site Technical Director. (Note: The FRMAC is not to be confused with the on-site technical support center, the EOF, or the FCO's activities.)

- (2) Ideally the FRMAC facility should have a large central room, approximately 40 ft. by 40 ft. in size, with about six office size rooms or cubicles adjacent or very close by. It should be located at or near an airport as close to the 10-mile emergency planning zone (EPZ) circle as possible.
- (3) There should be a space(s) to receive, unpack and ready equipment used by the Federal response personnel. It should be accessible by forklift, be at or close to an airport, and be adjacent or close to the FRMAC. It should have 10,000 or more square feet of floor space; it need not be climate controlled. This facility will also be used to store spare parts and repair gear.
- (4) Suitable quarters for lodging Federal government personnel in proximity to the FRMAC can include commercially available motel/hotel accommodations, dormitory, military billets, or similar accommodations. Such quarters should be in sufficient number to accommodate the personnel as described in paragraph 2.B above.
- (5) Food service can be provided with the lodging or as a separate service, but of necessity must be a part of or in proximity to the FRMAC and the lodging facility. Around-the-clock operation is anticipated so 24-hour food service is necessary. Nearby commercially available foodservice is sufficient.
- (6) For communications, the DOE has a portable "private branch exchange" (PBX) type system. This system is equipped with telephone, VHF radio, and microwave capability, which will be brought to the FRMAC. Telephone company installers will install up to 20 lines into this PBX, which will be sufficient for the first two days of operations. This allows sufficient time to arrange for additional communications capability if operational requirements necessitate such action. The DOE hardware has a radio-to-telephone patch capability and microwave capability for about 60 miles. The AT&T Company has a national contract with DOE for support and installation of the DOE equipment on an emergency basis.
- (7) Federal government personnel and equipment will most likely arrive by military aircraft. The airport used should be able to accommodate C-141 aircraft; if there is not a convenient airport with this capability, then the Federal personnel can use C-130 aircraft.

5. SITE SPECIFIC ACCOMMODATIONS FOR FEDERAL GOVERNMENT
RESPONSE PERSONNEL AND EQUIPMENT

A. Arrangements Common to All-Nuclear Power Plants

- (1) Federal Coordinating Officer (FCO) and the Emergency Response Team (ERT) - PEMA will provide the FRC with a minimum of 2,500 square feet of office space equipped with furniture and 12 telephones in the State EOC area for the FCO and ERT.
- (2) Lodging and Food Service - Lodging and food service for the FCO, ERT and technical personnel operating from the FRMAC are available from locally available commercial resources in Harrisburg and at each FRMAC location designated in B below.
- (3) Communications - The Federal government's arrangements for communications as described in paragraph 4.B.6 above are adequate for the FRMAC. PEMA's primary and backup communications capabilities (see Appendix 8) are available to the FCO and ERT.
- (4) Security - DOE's Off-site Technical Director will provide for security for the FRMAC and the equipment receiving and workspace area by making arrangements with local resources.
- (5) Transportation - Federal response personnel will provide their own transportation by renting commercially available vehicles.

B. Designation of Airports and FRMACs per each Nuclear Power Plant
(Formal agreements are pending)

(1) Beaver Valley Power Station

- a. Airport - Beaver Valley Airport, Beaver County
- b. FRMAC - Pennsylvania Air National Guard, Greater Pittsburgh Airport, Moon Township, Allegheny County
- c. DFO - Pittsburgh International Airport Terminal, Moon Township, Pennsylvania

(2) Limerick Generating Station

- a. Airport - Willow Grove Naval Air Station, Montgomery County or Reading Regional Airport, Berks County

- b. FRMAC - Willow Grove Naval Air Station, Montgomery County
- c. DFO - Valley Forge Convention Center, Upper Marion Township, Pennsylvania or Fort Washington Industrial Park, Fort Washington, Pennsylvania.

(3) Peach Bottom Atomic Power Station

- a. Airport - Lancaster Airport, Lancaster, Pennsylvania or Capitol City Airport, New Cumberland, Pennsylvania
- b. FRMAC - Conestoga Volunteer Fire Station, Conestoga, Pennsylvania or York County Vo-Tech School, York, Pennsylvania, at Exit 16A/16B, I-83.
- c. DFO - Marietta Ceiling Plant, Armstrong World Industries, Marietta, Pennsylvania, just off Route 441 or York County Fair Grounds, York, Pennsylvania.

(4) Susquehanna Steam Electric Station

- a. Airport - Wilkes-Barre Scranton International Airport, Avoca, Pennsylvania
- b. FRMAC - Ashley U.S. Army Reserve Center, 140 Stewart Road, Hanover Industrial Park, Ashley, Pennsylvania, just off I-81 at Exit 164.
- c. DFO - Kingston Armory, 280 Market Street, Kingston, Pennsylvania

(5) Three Mile Island Nuclear Station

- a. Airport - Lancaster Airport, Lancaster, Pennsylvania
- b. FRMAC and Equipment Receiving Area and Workspace - Lancaster U.S. Army Reserve Center, 1135 Ranck Mill Road, Lancaster, Pennsylvania
- c. DFO - State Farm Show Complex, Cameron and Maclay Streets, Harrisburg, Pennsylvania.

6. REFERENCES

(See Basic Document, paragraph 12.)

7. DEFINITIONS AND TERMS

(See Basic Document, paragraph 13.)

8. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3.)

APPENDIX 24

ANNEX E

NUCLEAR POWER PLANTS

SITE CHARACTERISTICS AND ASSOCIATED MAPS

1. PURPOSE

To describe the physical and land use characteristics of the five sites containing the operating nuclear power plants in the Commonwealth of Pennsylvania.

To depict visually the risk areas, major evacuation routes, the plume and ingestion exposure pathway emergency planning zones (EPZ) of the five nuclear power plants in the State as well as four EPZs which affect the Commonwealth from nuclear power plants located in contiguous States.

2. SITUATION

See Basic Document.

3. CONCEPT OF OPERATION

A. General

Five nuclear power plants located within the State and four nuclear power plants located in contiguous States affect the Commonwealth of Pennsylvania.

B. Each of the plants located in the Commonwealth is described below and in appropriate attachments to show the physical and land use characteristics of each site.

C. A series of maps have been prepared for use, as applicable, in the State EOC, State Regional EOCs, and the EOCs of risk and support County (ies). Each type is described below and examples provided in appropriate attachments. (See Tabs 2-5 to the site-specific nuclear power plant attachment's A-E.)

4. SITE CHARACTERISTICS AND MAPS

A. Site Characteristics

Each of the five nuclear power plants is described by geographic location, ownership, number and type of systems in use and the exclusion area designated for each reactor. In addition, the physical and land use characteristics of each of the five sites is described in the following Attachments:

- A. Beaver Valley Power Station (BVPS)
- B. Limerick Generating Station (LGS)
- C. Peach Bottom Atomic Power Station (PBAPS)
- D. Susquehanna Steam Electric Station (SSES)
- E. Three Mile Island Nuclear Station (TMI)

B. Maps

Various types of maps have been prepared to assist emergency management personnel in planning and countering emergencies caused by incidents at nuclear power plants affecting Pennsylvania.

(1) Risk Area Maps

Maps to show those Counties, which lie wholly or partially within the plume exposure pathway, and ingestion exposure pathway EPZs of each nuclear generating facility located within Pennsylvania. These maps will be found at Tab 2 to the site specific nuclear power plant attachment (A-E).

(2) Sector Maps

Maps depicting the plume exposure pathway EPZ and the ingestion exposure pathway EPZ by sector designations have been developed for each nuclear plant within the Commonwealth.

- a. PEMA maintains appropriate data concerning the plume exposure pathway EPZ. The base map in this regard is the Base Map of Pennsylvania, U.S.G.S., 1975, Scale 1:24,000. The 10-mile EPZ is divided into sixteen 22-1/2 degree sectors emanating from each nuclear power plant site. These maps will be found at Tab 3 to the site specific nuclear power plant attachment (A-E).
- b. PEMA maintains appropriate data concerning the ingestion exposure pathway EPZ. The base map in this regard is the Base Map of Pennsylvania, U.S.G.S., 1975, Scale 1:250,000. The 50-

mile EPZ is divided into sixteen 22-1/2 degree sectors emanating from each nuclear power plant site. See Tab 4 to the site specific nuclear power plant attachment (A-E).

- c. In addition to the five nuclear power plants located within Pennsylvania, there are areas of the State, which lie within the ingestion exposure pathway EPZ of four nuclear power plants located beyond Commonwealth boundaries. A map depicting the 50-mile radius around these nine plants will be found at Attachment F of this Appendix.

(3) Evacuation Maps

These are site-specific maps that depict the main evacuation routes and traffic flow in the event it becomes necessary to evacuate population from the plume exposure pathway EPZ.

- a. The Pennsylvania Department of Transportation prepares general highway maps, polyconic projections that are used in the development of major and Municipal evacuation routes. The current series is Type 10 dated 1985.
- b. The evacuation maps are Figure 5 to the site specific nuclear power plant attachments (A-E). They are referenced further in Appendix 4, Protective Response.

(4) Emergency Operations Maps

These maps depict more specialized aspects of emergencies associated with incidents at fixed nuclear power plants.

- a. The Pennsylvania Department of Agriculture maintains data and maps of key land use including locations of dairies, food-processing plants, and detailed crop information. The base map in this regard is the Generalized Existing Land Use Map of Pennsylvania published by the Office of State Policy and Planning.
- b. The Pennsylvania Bureau of Radiation Protection (BRP) maintains maps depicting predicted radiological sampling and monitoring points. These are 4-1/2' x 6-1/2' United States Geologic Survey (U.S.G.S.) maps, 1/24,000.
- c. The Department of Environmental Protection maintains data on watersheds, public water supply resources, and wastewater

treatment sites. The base map in this regard is the Stream Map of Pennsylvania, Scale 1:380,160.

5. REFERENCES

(See Basic Document, paragraph 12.)

6. DEFINITIONS AND TERMS

(See Basic Document, paragraph 13.)

7. ABBREVIATIONS/ACRONYMS

(See Basic Document, Enclosure 3.)

ATTACHMENTS:

- A. Site Characteristics Beaver Valley Power Station
- B. Site Characteristics Limerick Generating Station
- C. Site Characteristics Peach Bottom Atomic Power Station
- D. Site Characteristics Susquehanna Steam Electric Station
- E. Site Characteristics Three Mile Island Nuclear Station
- F. 50-Mile Radii of Nuclear Power Plants within or Affecting Pennsylvania

ATTACHMENT A

APPENDIX 24

SITE CHARACTERISTICS

1. BEAVER VALLEY POWER STATION

A. General

The Beaver Valley Power Station (BVPS) (40° 37' 18" N/80° 26' 2" W) is a nuclear power plant operated by the First Energy Nuclear Operating Company (see Tab 1 to this Attachment). Unit 1 is a conventional pressurized water reactor of 833 Mw capacity that has been in operation since 1976. Unit 2 is of the same type and capacity and became operational in August 1987.

The exclusion area specified for Beaver Valley Power Station is 2,000 feet. There are no private residences located within the utility owned exclusion area.

B. Physical Characteristics

The Beaver Valley Power Station is located in western Pennsylvania on the south bank of the Ohio River. The 449-acre site is in Shippingport Borough, Beaver County. With the exception of its northwest corner, the site area is very hilly. The terrain rises from the river to a maximum elevation of 1,160 feet above Mean Sea Level (MSL). Drainage is primarily toward the river with the exception of the northwest corner, which drains into Peggs Run. Of the 449 acres, which comprise the site, approximately 17 acres are used for the facility.

Soils are made up of alluvial sands and gravel. The bedrock geology in the area consists of sedimentary formations composed of shales and sandstones. There are no known faults under or near the site.

The normal pool elevation of the Ohio River in this area is 664 feet above MSL. The plant grade is 735 feet above MSL.

The climate of this area of Pennsylvania is a humid continental type that is modified only slightly by the Great Lakes, and to lesser degree, the Atlantic Ocean. Average annual temperature for the area is about 50 degrees F. Average annual precipitation is 36.1 inches.

C. Land Use Characteristics

The area in the immediate vicinity of the site is mostly agricultural or undeveloped. The nearest community is Shippingport, Pa., which is the parent borough for the site. It has a population of approximately 225. The nearest population center in Pennsylvania of more than 25,000 people is Pittsburgh, Pa., approximately 22 miles to the southeast.

There are four major industries employing a total of 8,000 people within 10 miles of the plant. Two airports also are located within a ten-mile radius of the plant. The Beaver County Airport is 9.8 miles to the NNE and the Herron Airport is 8.5 miles SSW. The runway extensions do not pass over the plant, however.

Across the river from the site the Conrail Railroad follows the north bank of the Ohio River. There is a Conrail right-of-way on the plant site controlled by the First Energy Nuclear Operating Company and it is limited to servicing the power station.

TABS:

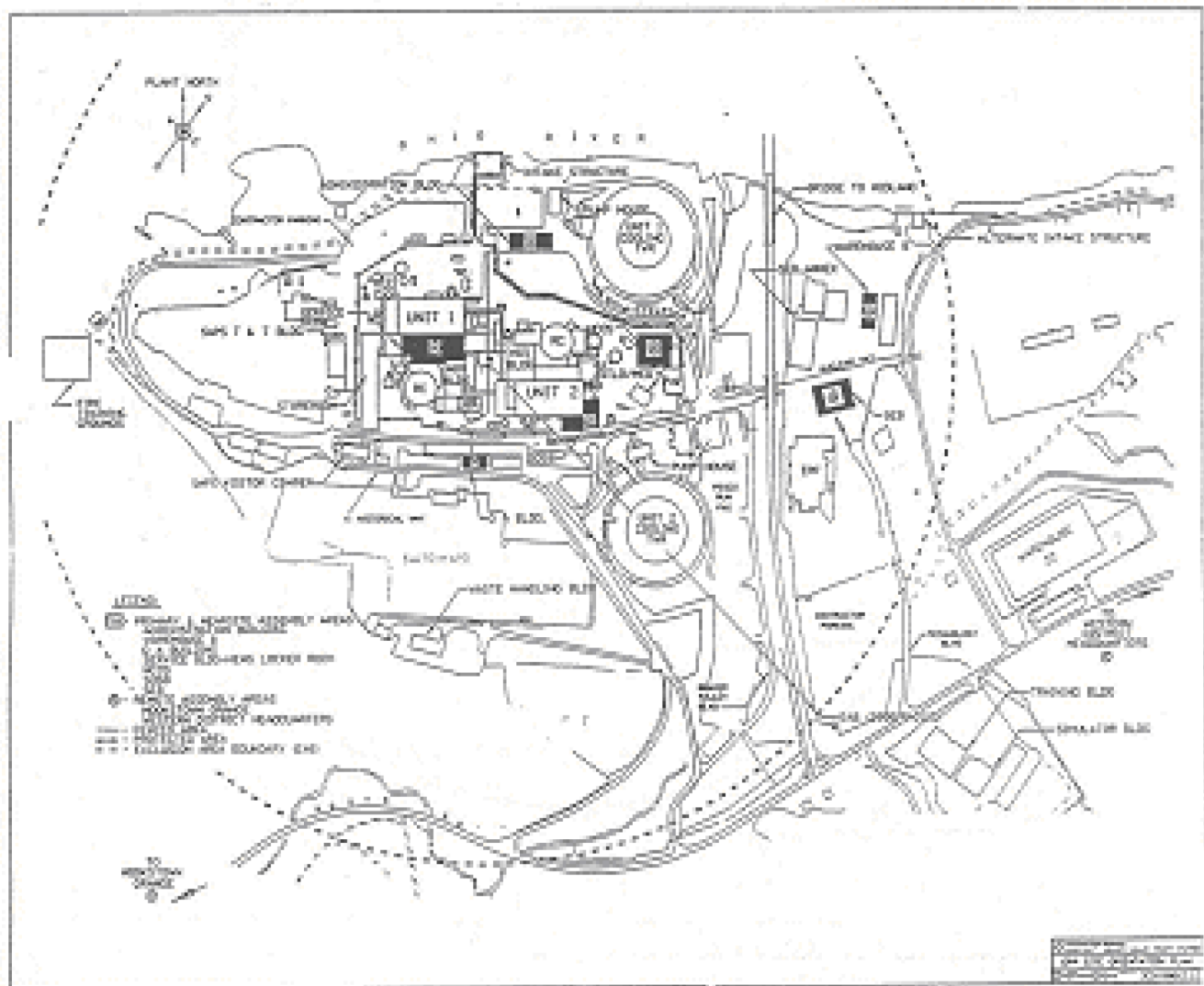
1. Site Specific Map
2. Site Specific Risk Area Map
3. Site Specific Plume Exposure Pathway EPZ Map
4. Site Specific Ingestion Exposure Pathway EPZ
5. Site Specific Evacuation Plan Map

TAB 1

ATTACHMENT A

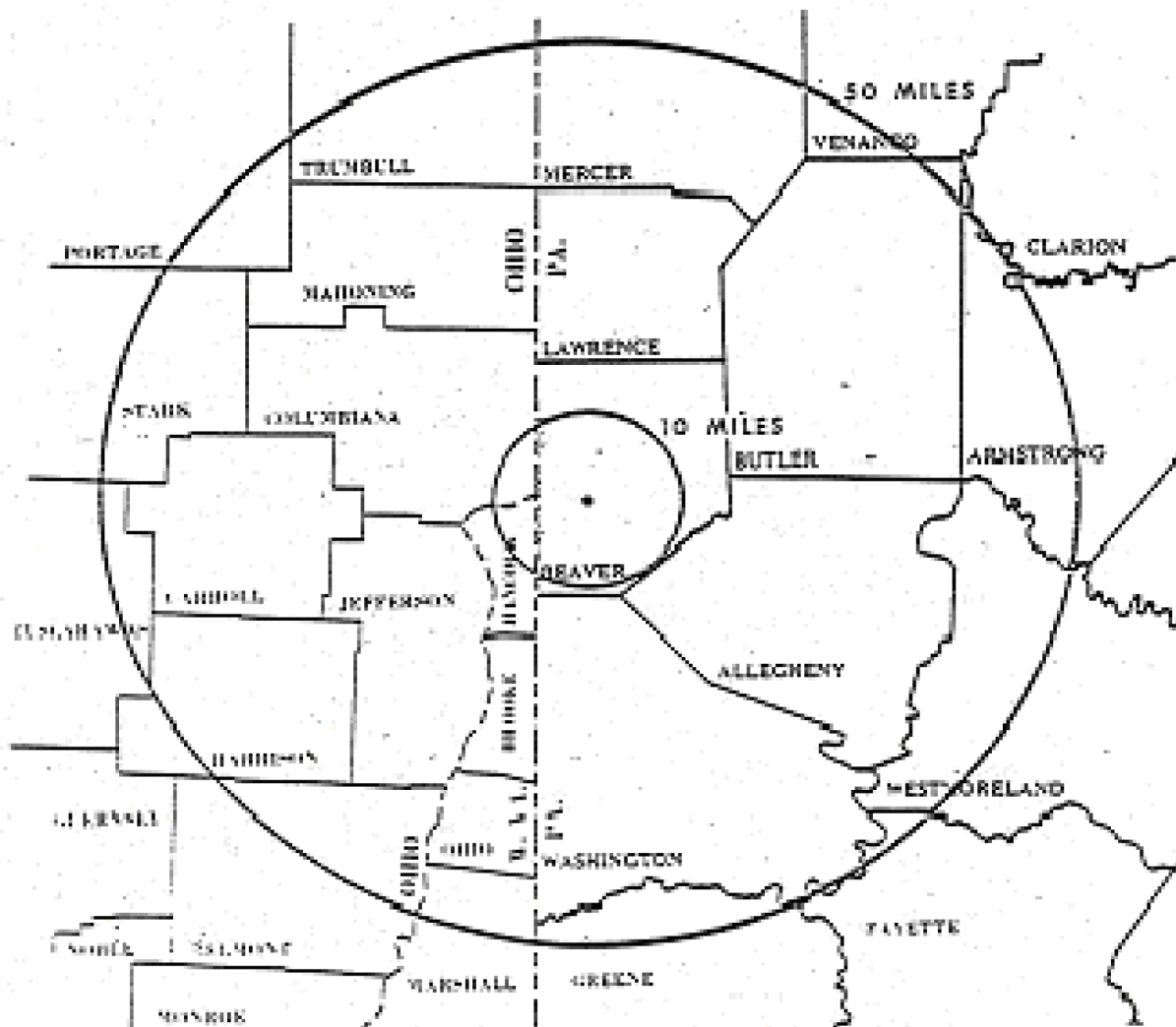
APPENDIX 2A

BEAVER VALLEY POWER STATION



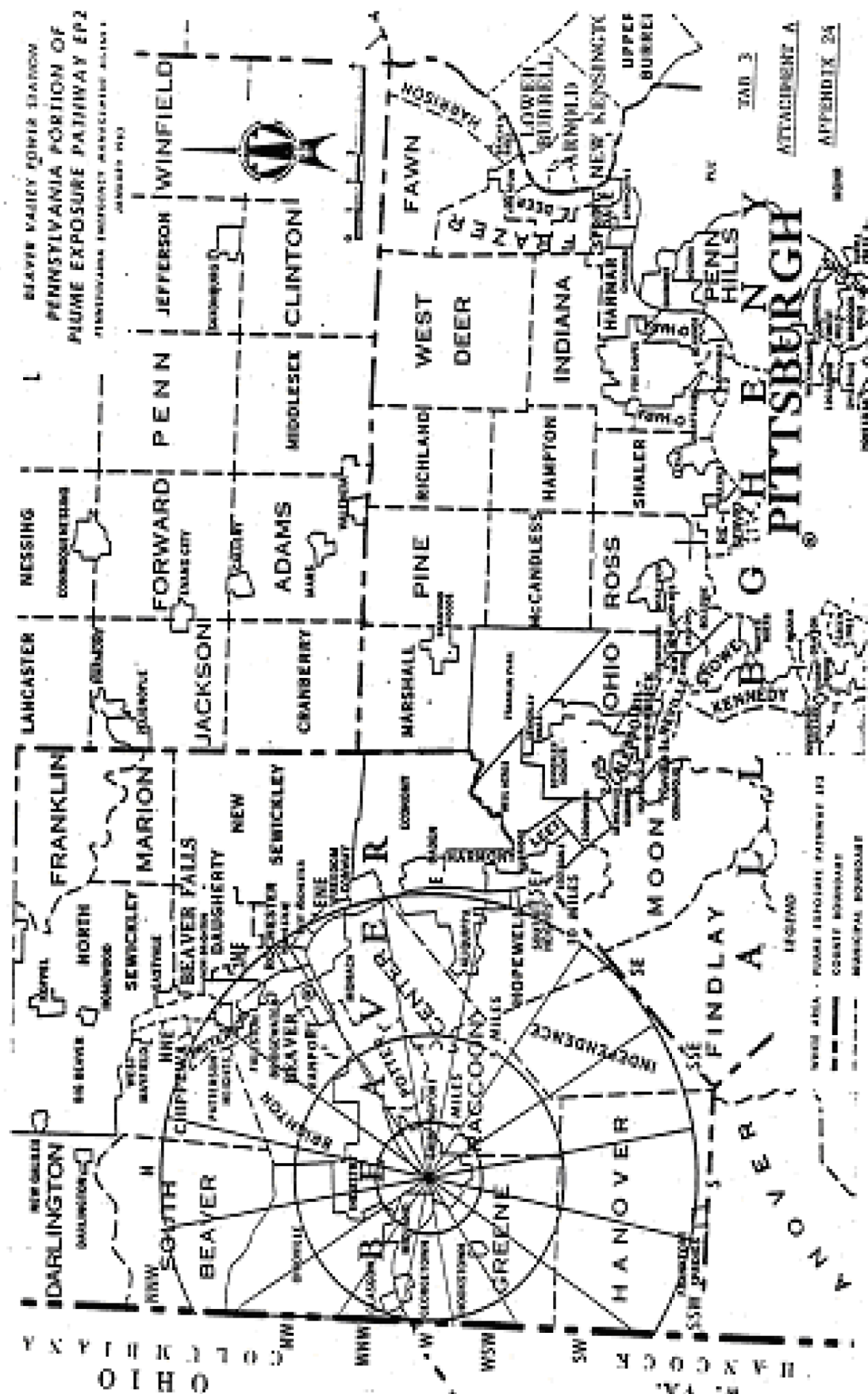
MAP OF RISK AREAS
 BEAVER VALLEY POWER STATION
 PLUME EXPOSURE PATHWAY EPZ AND
 INGESTION EXPOSURE PATHWAY EPZ

TAB 2
ATTACHMENT A
APPENDIX 24
EVPS

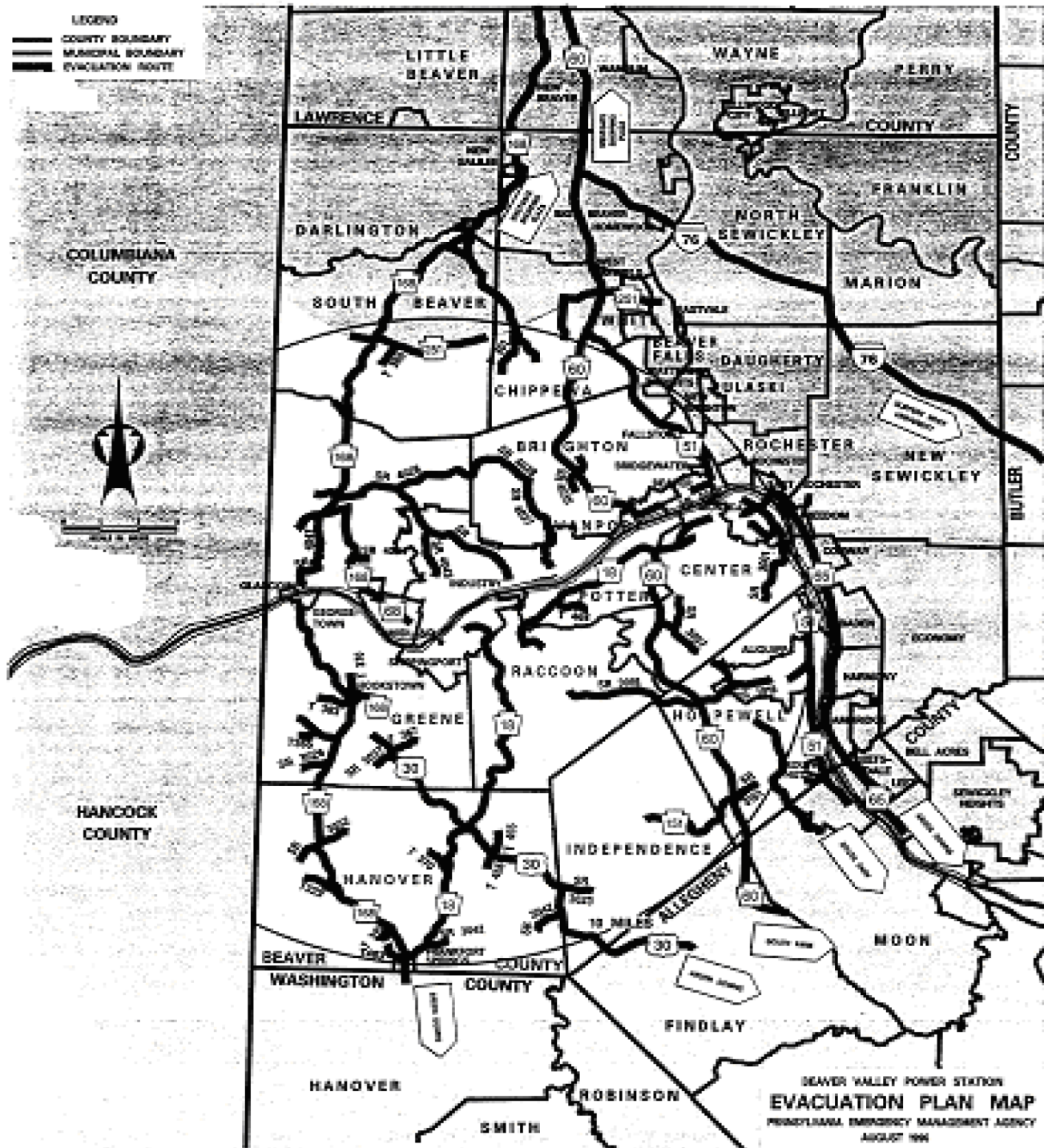


Risk Counties: PENNSYLVANIA- Beaver
 OHIO- Columbiana
 WEST VIRGINIA- Hancock

1. Plume Exposure Pathway EPZ



TAB 5
ATTACHMENT A
APPENDIX 24



ATTACHMENT B

APPENDIX 24

SITE CHARACTERISTICS

1. LIMERICK GENERATING STATION

A. General

The Limerick Generating Station (LGS) (40° 13' 27" N/75° 35' 15" W) is a nuclear power plant operated by Exelon Nuclear (see Tab 1 to this Attachment). Units 1 and 2 are 1055 Mw boiling water reactor electrical generating units.

The site is divided into three segments. The principal portion, where the major operating equipment and structures are located, is on the east bank of the Schuylkill River. This portion is separated from the second segment, where the cooling water intake is located, by the main line of the Reading Railroad. The third portion lies on the west bank of the river adjacent to the Conrail tracks.

The minimum exclusion distance specified for the LGS plant is 2,500 feet from the center of each reactor. There are no private residences within the exclusion area; however, some farming may be permitted under the control of the Exelon Nuclear, which owns all the land within the exclusion area.

B. Physical Characteristics

The Limerick Generating Station is located in southeastern Pennsylvania on the Schuylkill River about 1.7 miles southeast of Pottstown Borough. The river passes through the site separating the western portion, which is in East Coventry Township, Chester County, from the eastern portion, which is in Limerick and Lower Pottsgrove Townships, Montgomery County. The site of 595 acres is used for the plant.

Soils in this area are of the Reaville-Penn-Klinesville Association and are characteristic of rolling uplands. They are underlain by sedimentary rocks of the Brunswick Formation consisting mostly of red shale with some fine-grained sandstone interbedding.

Normal pool elevation of the Schuylkill River in this area is 200 feet above MSL. The topography of the area is hilly with elevations within five miles of the site

ranging from 110 feet above MSL at the Schuylkill River to 300 feet above MSL. The plant grade is approximately 217 feet above MSL.

The climate in this area is dominated by prevailing westerly winds. These winds produce a humid continental type weather characterized by warm summers and moderately cold winters. Montgomery County is the warmest part of Pennsylvania with an average annual temperature of 57 degrees F. Average annual precipitation is approximately 42 inches.

C. Land Use Characteristics

The area in the immediate vicinity of the plant is mostly agricultural and other open spaces. The Borough of Pottstown in Montgomery County is the nearest community from the plant and has a population of 21,831. The nearest major population center of more than 25,000 people is the City of Philadelphia, population 1,585,577, which lies 25 miles to the southeast.

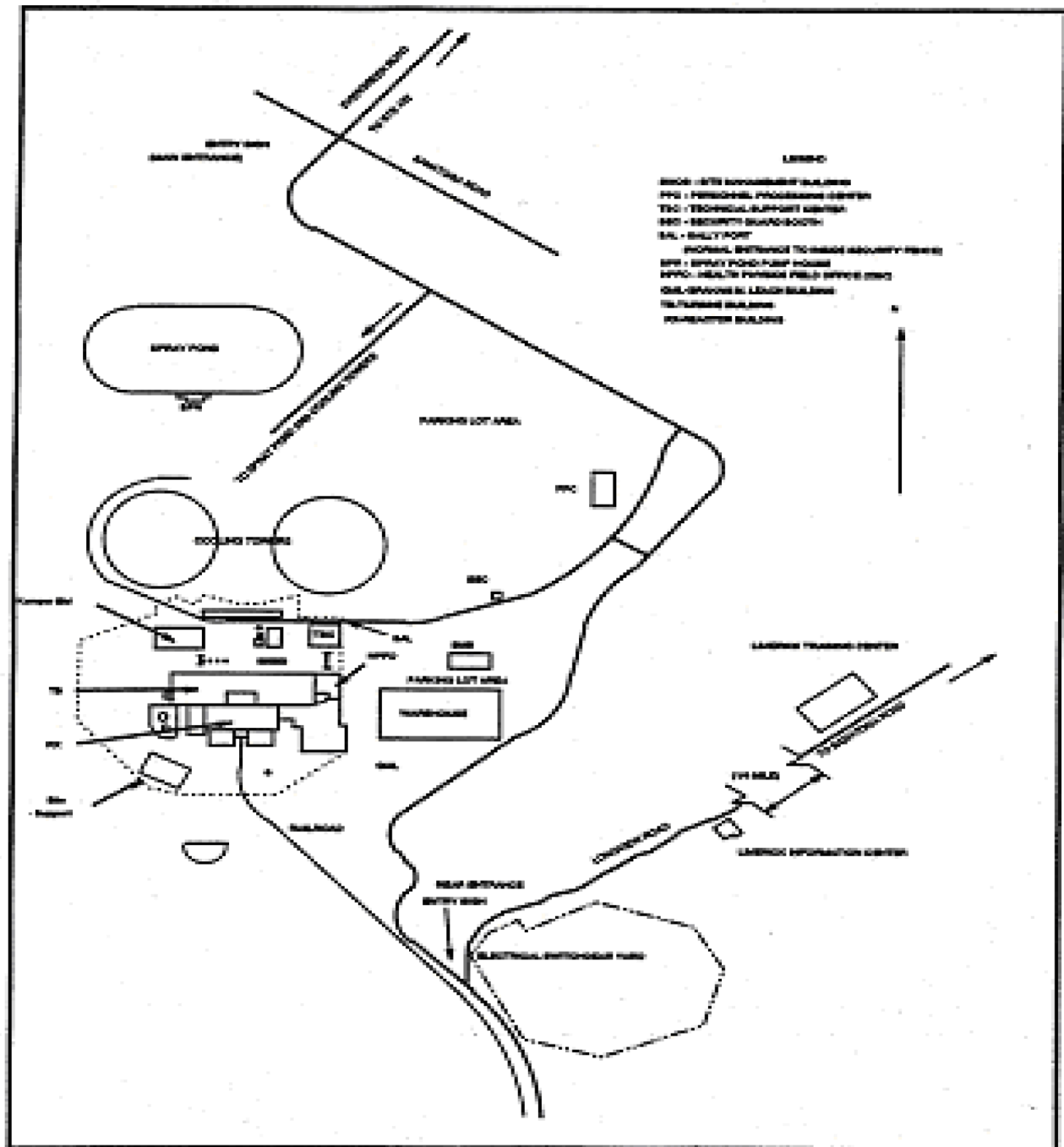
There are two major industries employing a total of 850 people within two miles of the plant. Two small airfields are also located nearby. A small private airfield is about one mile to the northeast, but its runway is oriented so that its extension does not pass over the plant. The Pottstown Municipal Airport lies 4.3 miles northwest of the plant. The Limerick Generating Station does not lie in the approach pattern for this airport either.

There are no major thoroughfares in the immediate vicinity of the plant. The Reading Railroad main line tracks run along the north bank of the Schuylkill River and traverse the site about 500 feet from the plant.

TABS:

1. Site Specific Map
2. Site Specific Risk Area Map
3. Site Specific Plume Exposure Pathway EPZ Map
4. Site Specific Ingestion Exposure Pathway EPZ
5. Site Specific Evacuation Plan Map

TAB 1
ATTACHMENT B
APPENDIX 24
LIMERICK GENERATING STATION



MAP OF RISK AREAS
LIMERICK GENERATING STATION

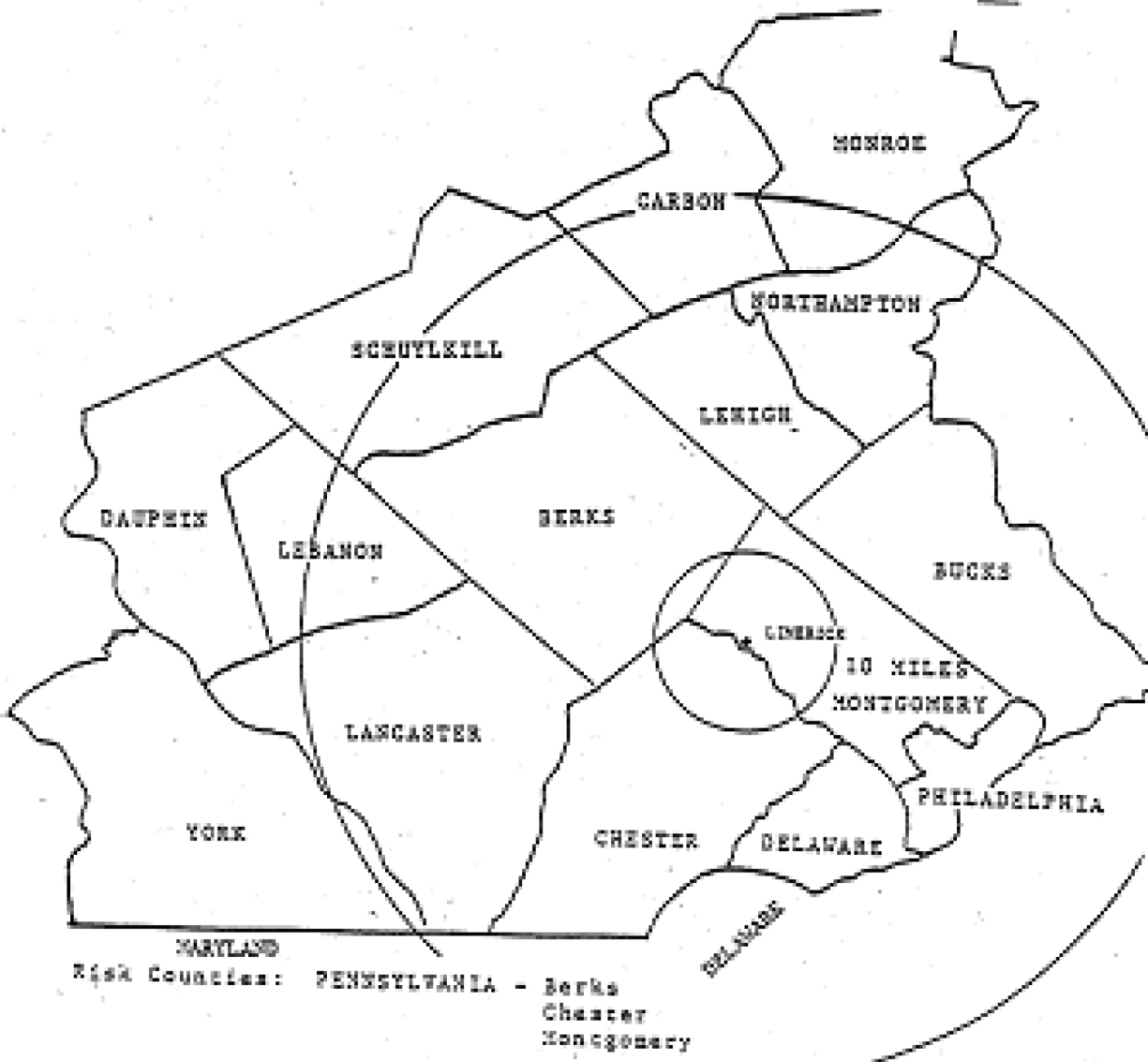
Plume Exposure Pathway EPZ and
Ingestion Exposure Pathway EPZ

TAB 2

ATTACHMENT 8

APPENDIX 24

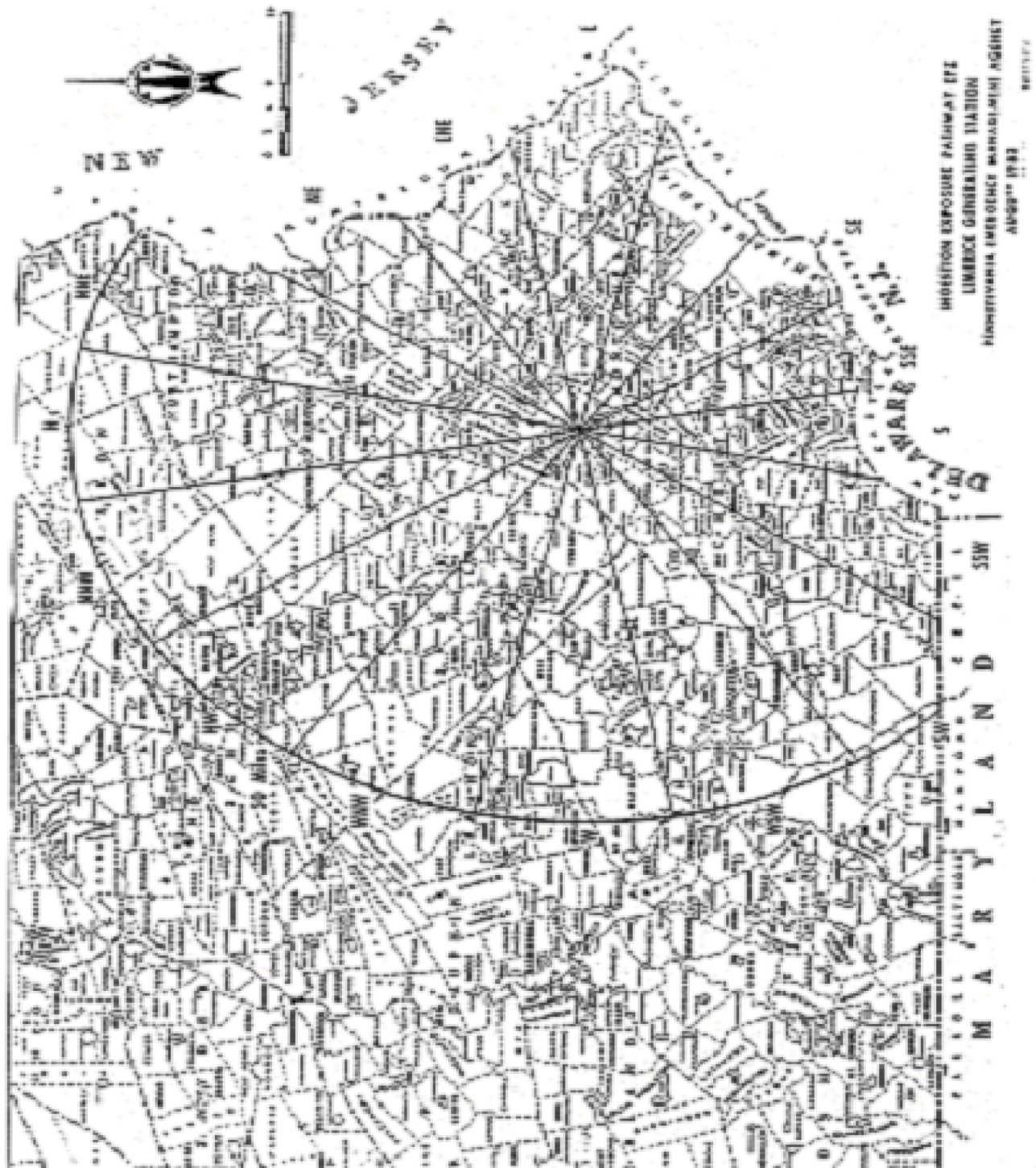
LGS



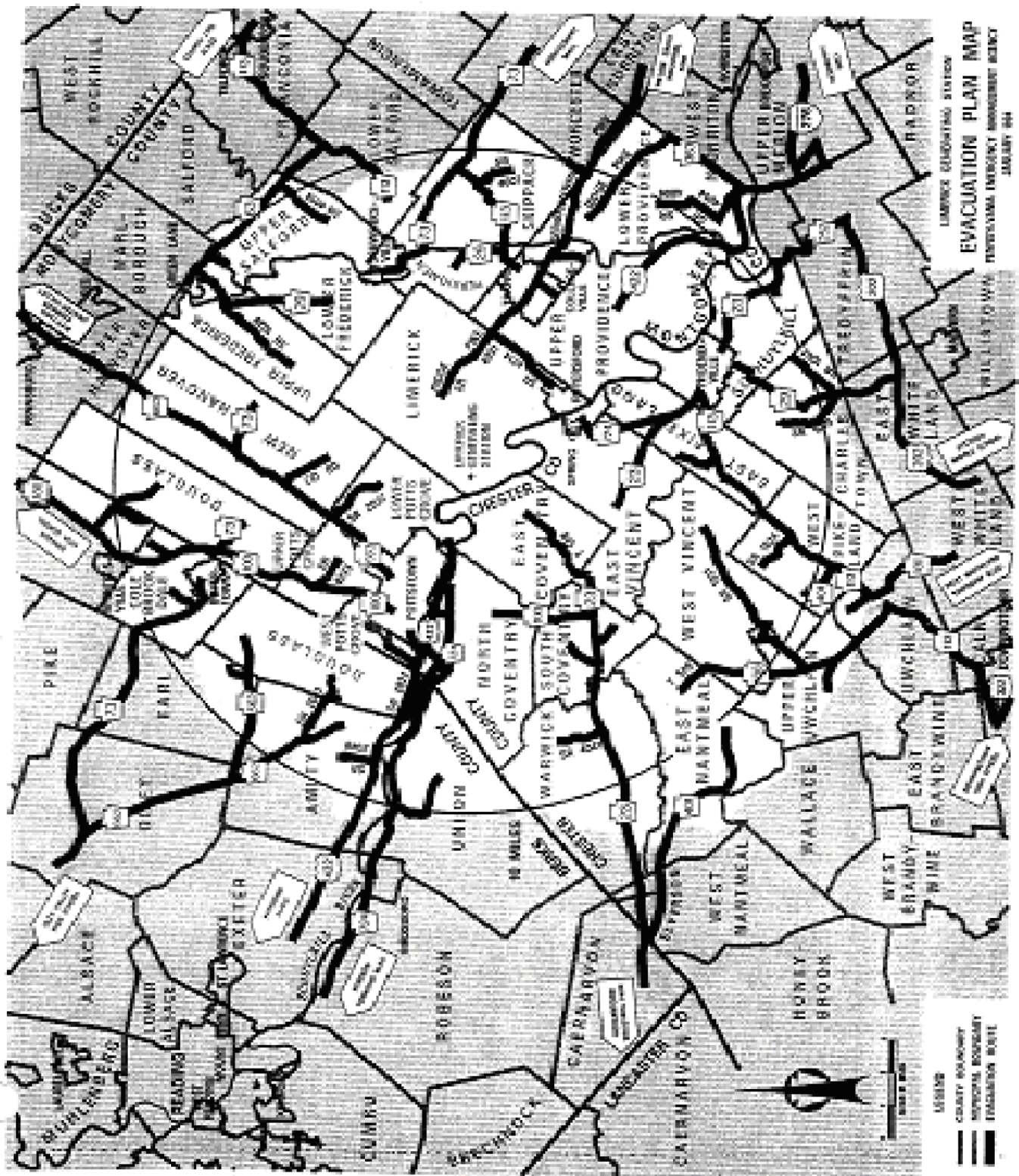
Plume Exposure Pathway EPZ

The 30 Mile Radius Designates The Ingestion Exposure Pathway EPZ

TAB 4
ATTACHMENT B
APPENDIX 24



TAB 5
ATTACHMENT B
APPENDIX 24



ATTACHMENT C

APPENDIX 24

SITE CHARACTERISTICS

1. PEACH BOTTOM ATOMIC POWER STATION

A. General

The Peach Bottom Atomic Power Station (PBAPS) (39° 45' 33" N/76° 16' 9" W) is a nuclear power plant operated by the Exelon Nuclear (see Tab 1 to this Attachment). The Station consists of one decommissioned 40 Mw high temperature gas-cooled reactor designated as Unit One, and two operating boiling water reactors designated as Units Two and Three. The design rating of the boiling water reactors is 1055 Mws per unit.

The minimum exclusion distance specified for the Peach Bottom plant is 2,700 feet. There are no private residences inside the exclusion area. Exelon Nuclear owns all the land within the exclusion area.

B. Physical Characteristics

The Peach Bottom Atomic Power Station is located in southeastern Pennsylvania on the west shore of the Susquehanna River (Conowingo Pond, a reservoir formed by the backwater of Conowingo Dam on the river). The majority of the plant is located in Peach Bottom Township, York County, with a small portion lying in Lancaster County. The site consists of 620 acres used for the plant.

Soils of the Manor-Glenelg Association predominate in the area. These soils are shallow to moderately deep and are found on moderately sloping to very steep slopes. Geologically, schist or phyllite generally underlies these soils.

The normal pool elevation of Conowingo Pond is 109 feet above MSL. The general topography of the site is hilly with elevations ranging from 110 feet above MSL to over 460 feet above MSL. Broad ridgetops and steep hillsides along the river characterize it. The plant grade is 116 feet above MSL.

The climate in this area of York County is mild but humid. Prevailing winds are from the west. Average annual rainfall is approximately 40.5 inches and average annual temperature is 52.8 degrees.

C. Land Use Characteristics

The area in the immediate vicinity of the plant is mostly agricultural and other open spaces. The nearest community is Delta Borough, Pennsylvania, which is approximately four miles away and has a population of 761. The plant is about 30 miles NNE of Baltimore, Maryland, and 65 miles WSW of Philadelphia, Pennsylvania. The nearest population center of more than 25,000 people is Lancaster, Pennsylvania, population 55,551, located about 20 miles north of the plant.

There are no commercial airports within a ten-mile radius of the plant. No public highways pass through the plant and no major arterial highways pass near it. There are two access roads to the plant area; one from the nearby town of Delta accesses the Unit One area and Information Center; the other passes north of Delta and enters the plant area on the Units 2 and 3 side.

TABS:

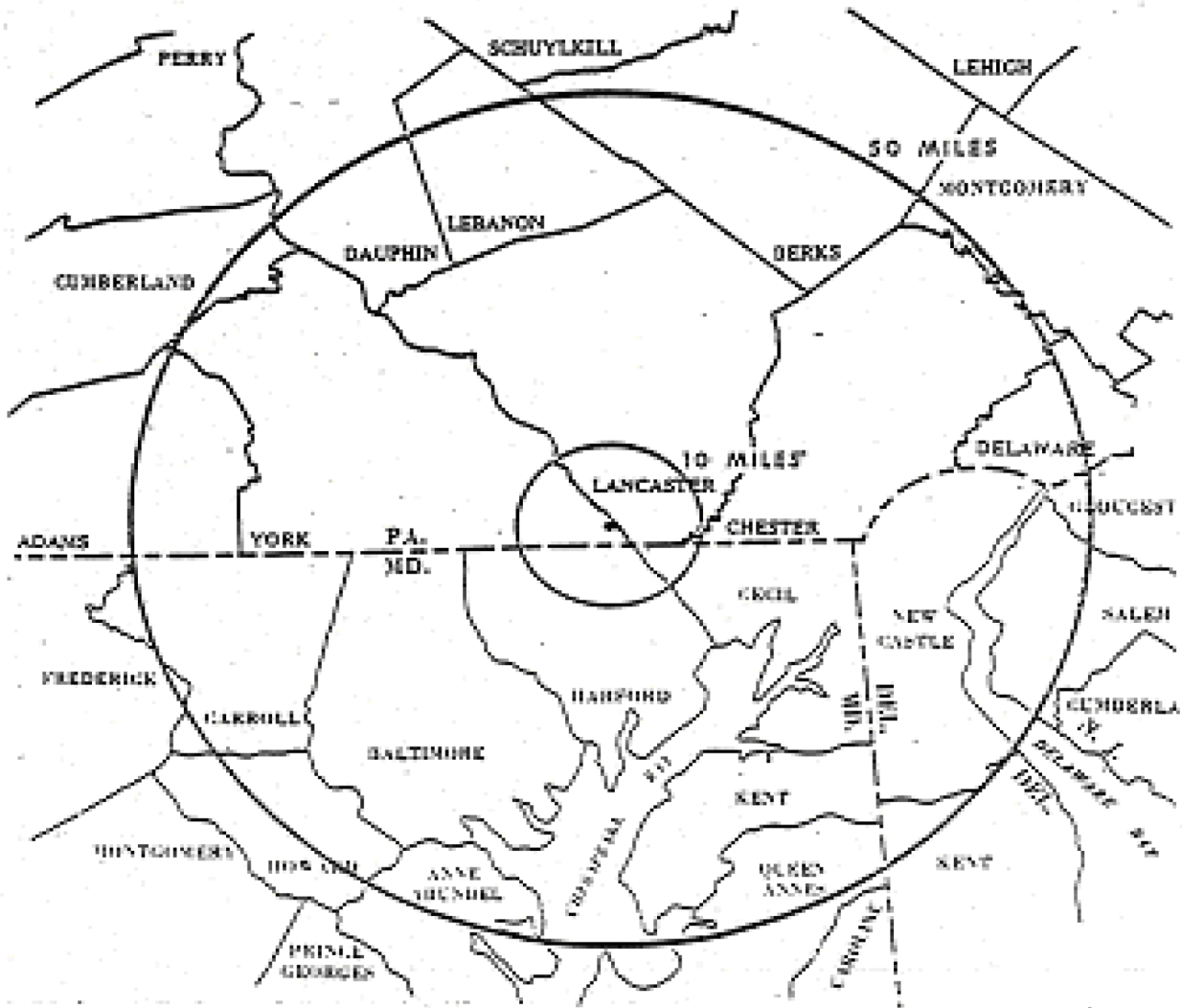
1. Site Specific Map
2. Site Specific Risk Area Map
3. Site Specific Plume Exposure Pathway EPZ Map
4. Site Specific Ingestion Exposure Pathway EPZ
5. Site Specific Evacuation Plan Map

TAB 2
ATTACHMENT C
APPENDIX 24
PBAPS

MAP OF RISK AREAS

PEACH BOTTOM ATOMIC POWER STATION

PLUME EXPOSURE PATHWAY EPZ AND
INGESTION EXPOSURE PATHWAY EPZ

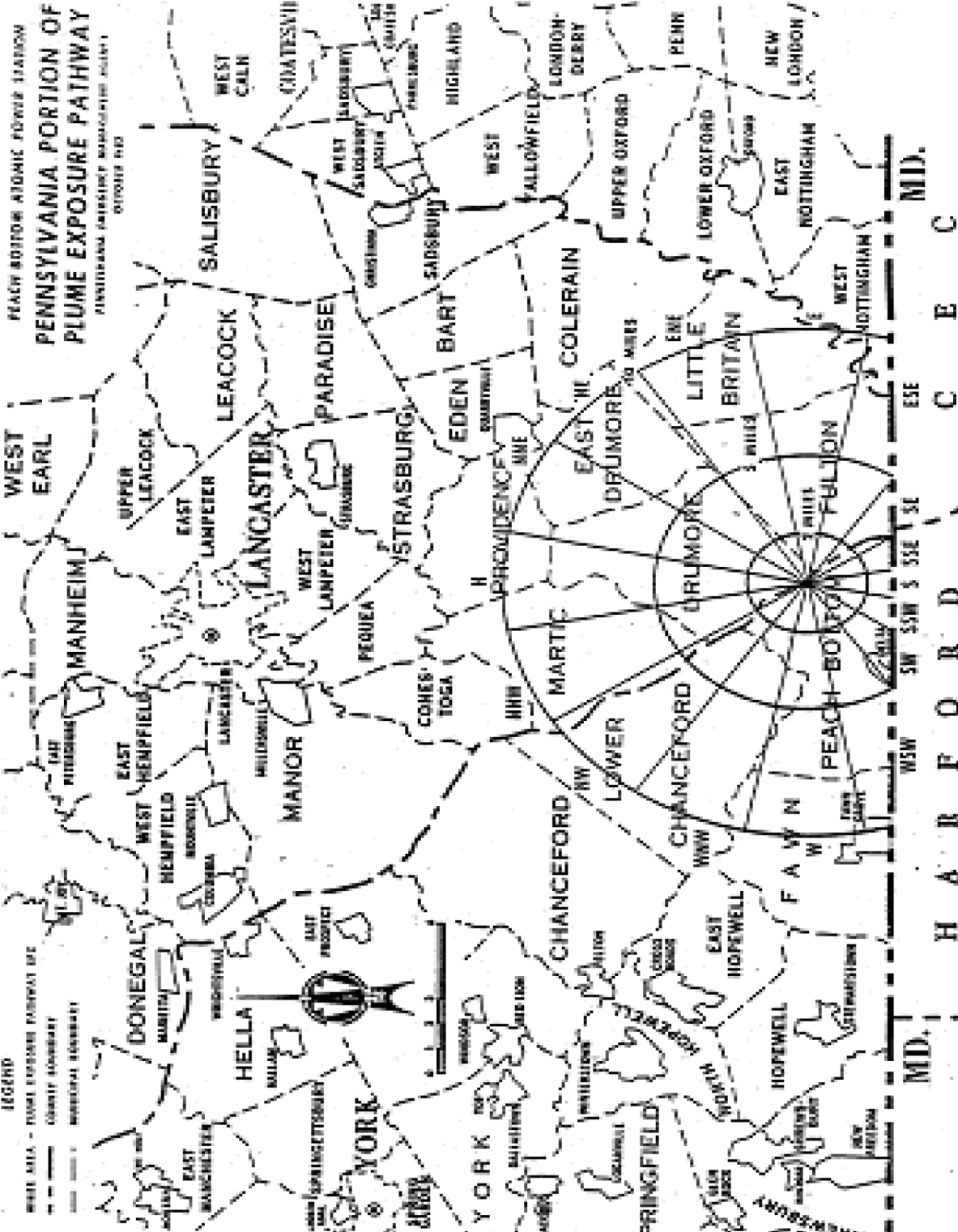


Risk Counties: PENNSYLVANIA- Chester, Lancaster, York
MARYLAND- Cecil, Harford

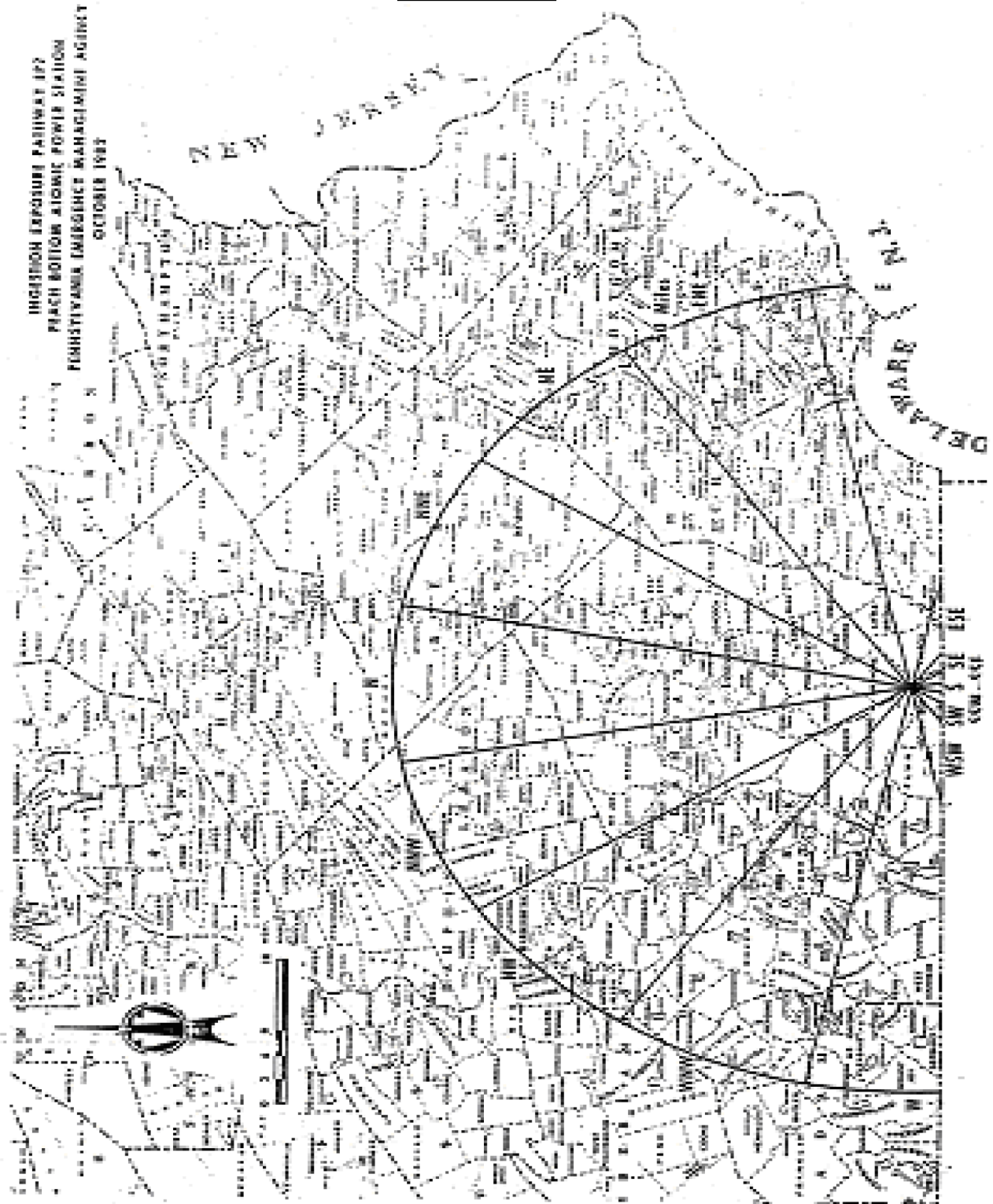
Plume Exposure Pathway EPZ

The 50 Mile Radius Designates The Ingestion Exposure Pathway EPZ

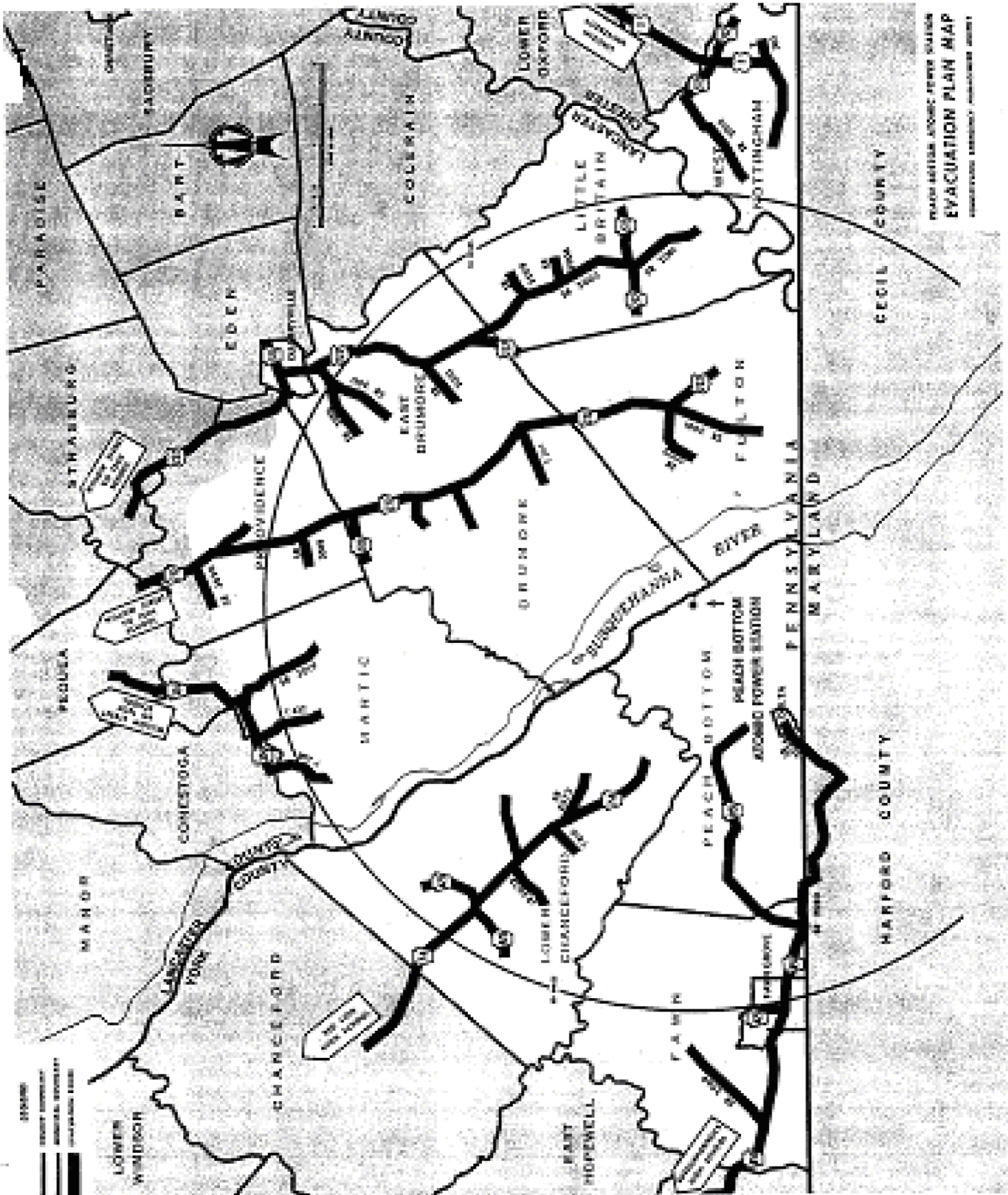
APPENDIX 24



TAB 4
ATTACHMENT C
APPENDIX 24



TAB 5
ATTACHMENT C
APPENDIX 24



ATTACHMENT D

APPENDIX 24

SITE CHARACTERISTICS

1. SUSQUEHANNA STEAM ELECTRIC STATION

A. General

The Susquehanna Steam Electric Station (SSES) (41° 5' 30" N/76° 8' 55" W) is a nuclear power plant operated by the PPL Susquehanna LLC. (see Tab 1 to this Attachment). It consists of two 1050 Mw boiling water reactors.

The minimum exclusion distance is 1,800 feet. There are no private residences located inside the exclusion area. Public information center and recreation areas have been established on the tract outside of the exclusion boundary adjacent to the Susquehanna River. PPL Susquehanna LLC. owns all the land within the exclusion area.

B. Physical Characteristics

The SSES is located in northeastern Pennsylvania, Salem Township, and Luzerne County, on the Susquehanna River. The 1,522-acre site is divided into two parts. The principal portion, having the major operating equipment and buildings, is approximately 3,000 feet west of the river. It is separated from the other portion housing the water intake apparatus by U.S. Route 11. Of the 1,522 acres, approximately 100 acres are used for the plant.

Soils in the area include Chenango, Oquaga, and Lordstown. These are considered glacial outwash and glacial till soils typical of uplands and terraces. The bedrock geology consists primarily of red shales of the Catskill Formation.

The normal pool elevation of the Susquehanna River in this area is 480 feet above MSL. The topography of the plant is hilly with elevations ranging from 500 feet at the Susquehanna River to about 1,100 feet above MSL at the northwest corner of the site. The plant grade is 670 feet above MSL.

The climate is temperate and rainy with warm humid summers and cold winters. Prevailing winds are out of the southwest and average 8 mph. Average annual temperature is 40 degrees F and average annual rainfall is 35 inches.

C. Land Use Characteristics

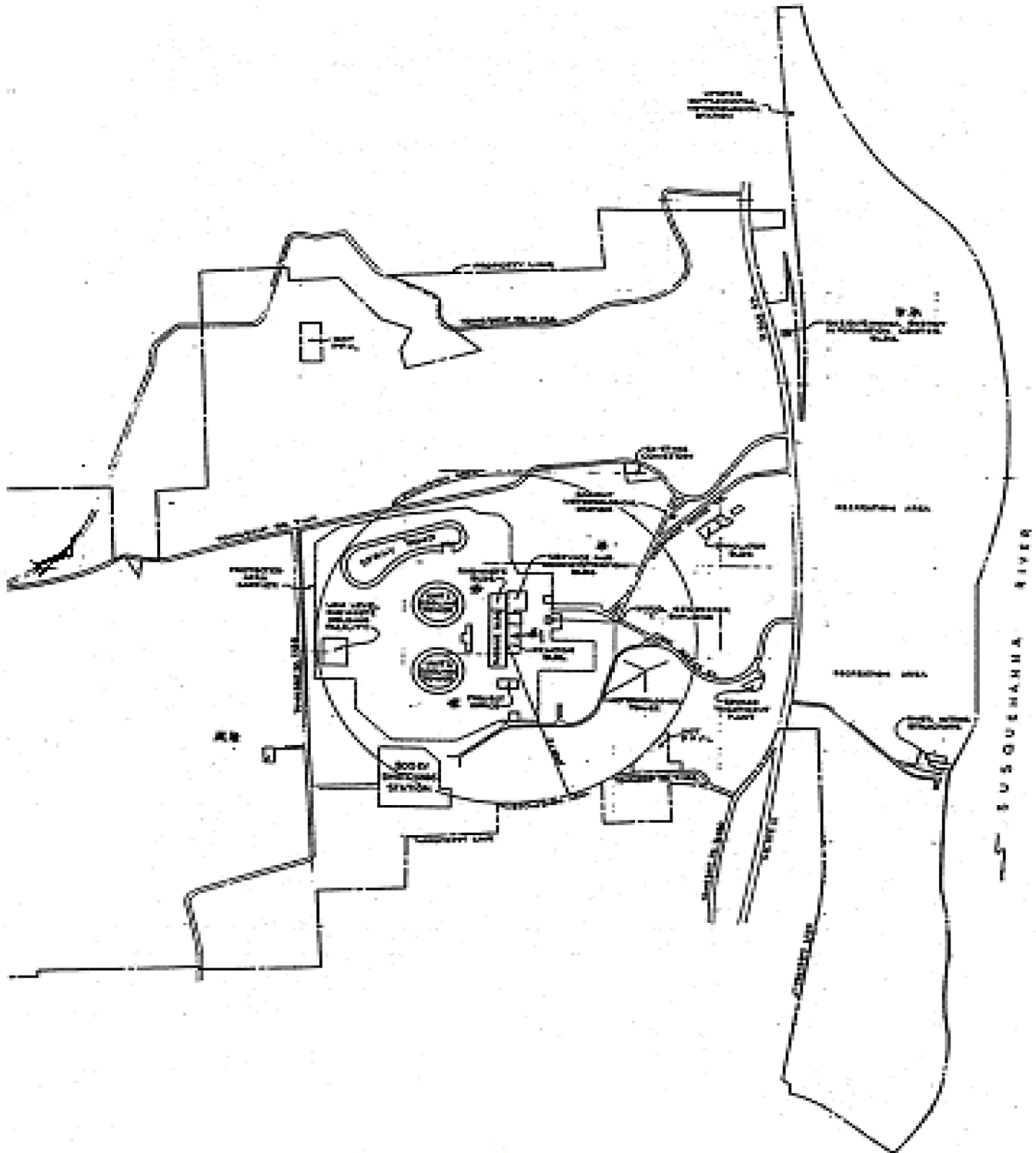
The immediate vicinity of the plant is rural in character, surrounded by farms and other undeveloped land. The nearest population center is Shickshinny Borough, Luzerne County, with a population of 1,108, about four miles north of the plant. The nearest major population center over 25,000 people is the City of Hazleton, population 24,730, which lies 12 miles to the southeast. The Berwick Airfield in Salem Township, Luzerne County, lies approximately five miles west of the plant. It presents no aircraft risk to the plant

Route 11 passes through the site in a north/south direction providing both primary and secondary access to the plant.

TABS:

1. Site Specific Map
2. Site Specific Risk Area Map
3. Site Specific Plume Exposure Pathway EPZ Map
4. Site Specific Ingestion Exposure Pathway EPZ
5. Site Specific Evacuation Plan Map

TAB 1
ATTACHMENT D
APPENDIX 24
SUSQUEHANNA STEAM ELECTRIC STATION

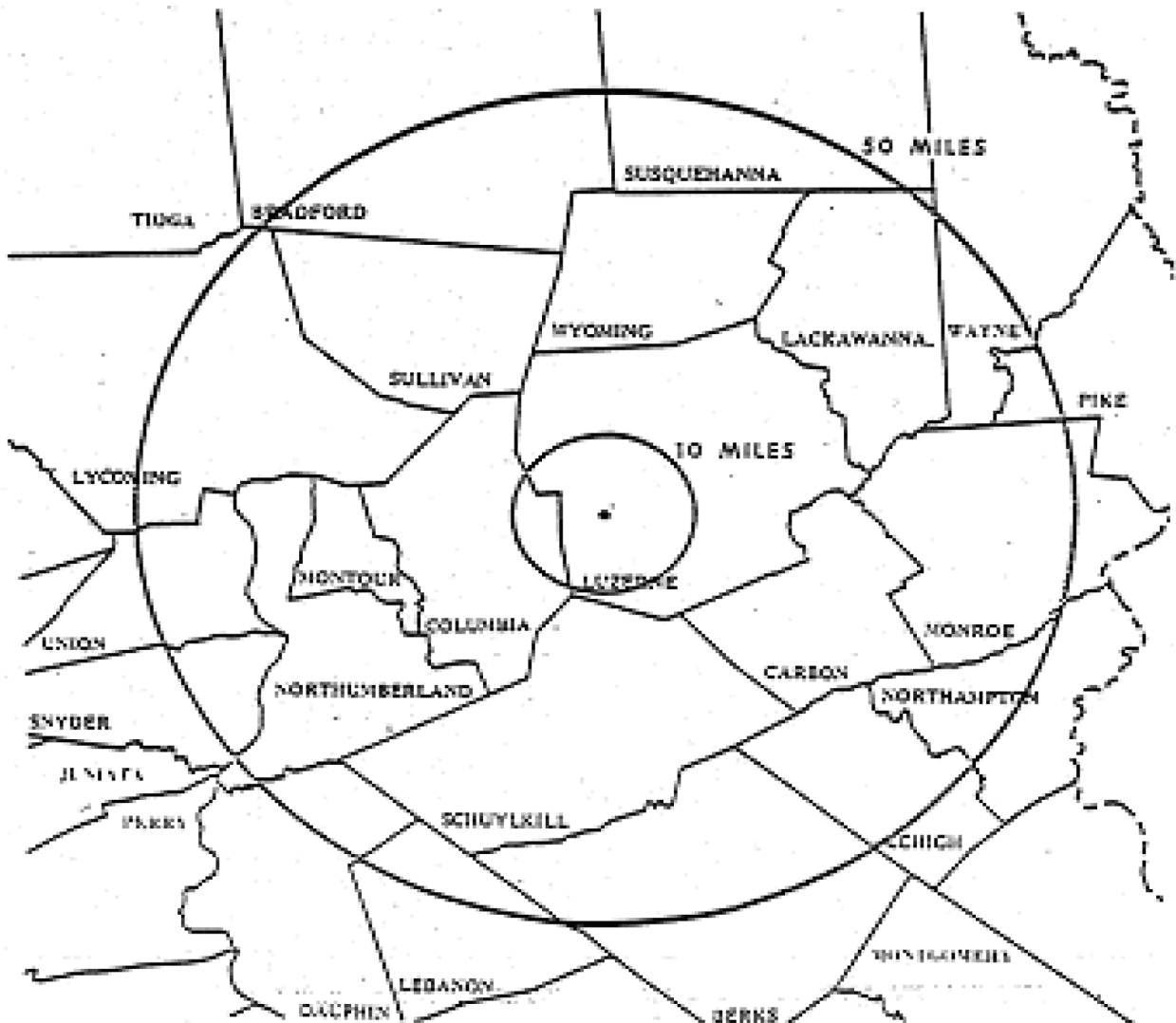


TAB 2
ATTACHMENT D
APPENDIX 24

MAP OF RISK AREAS

SUSQUEHANNA STEAM ELECTRIC STATION

PLUME EXPOSURE PATHWAY EPZ AND
INGESTION EXPOSURE PATHWAY EPZ

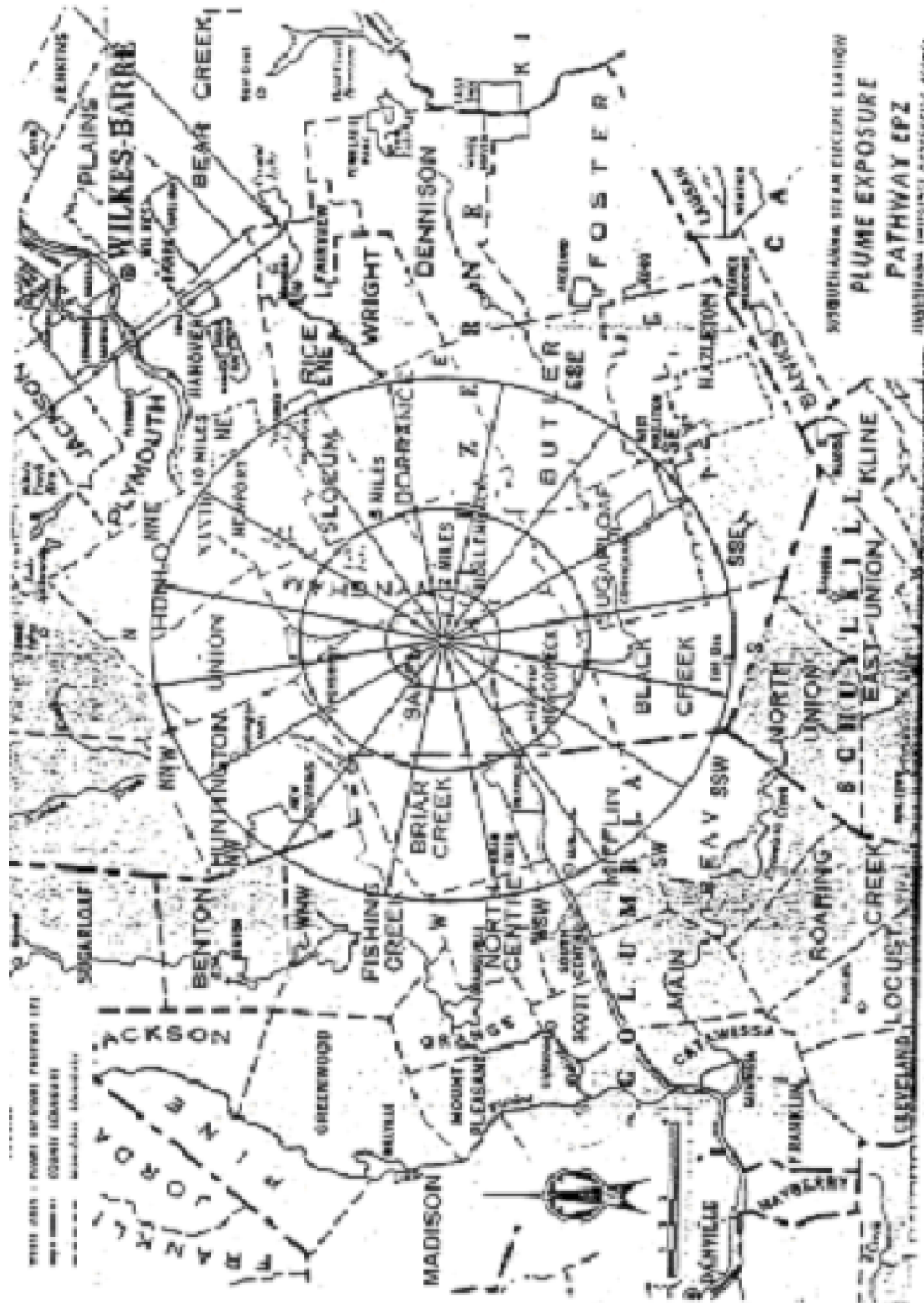


Risk Counties: Columbia, Luzerne

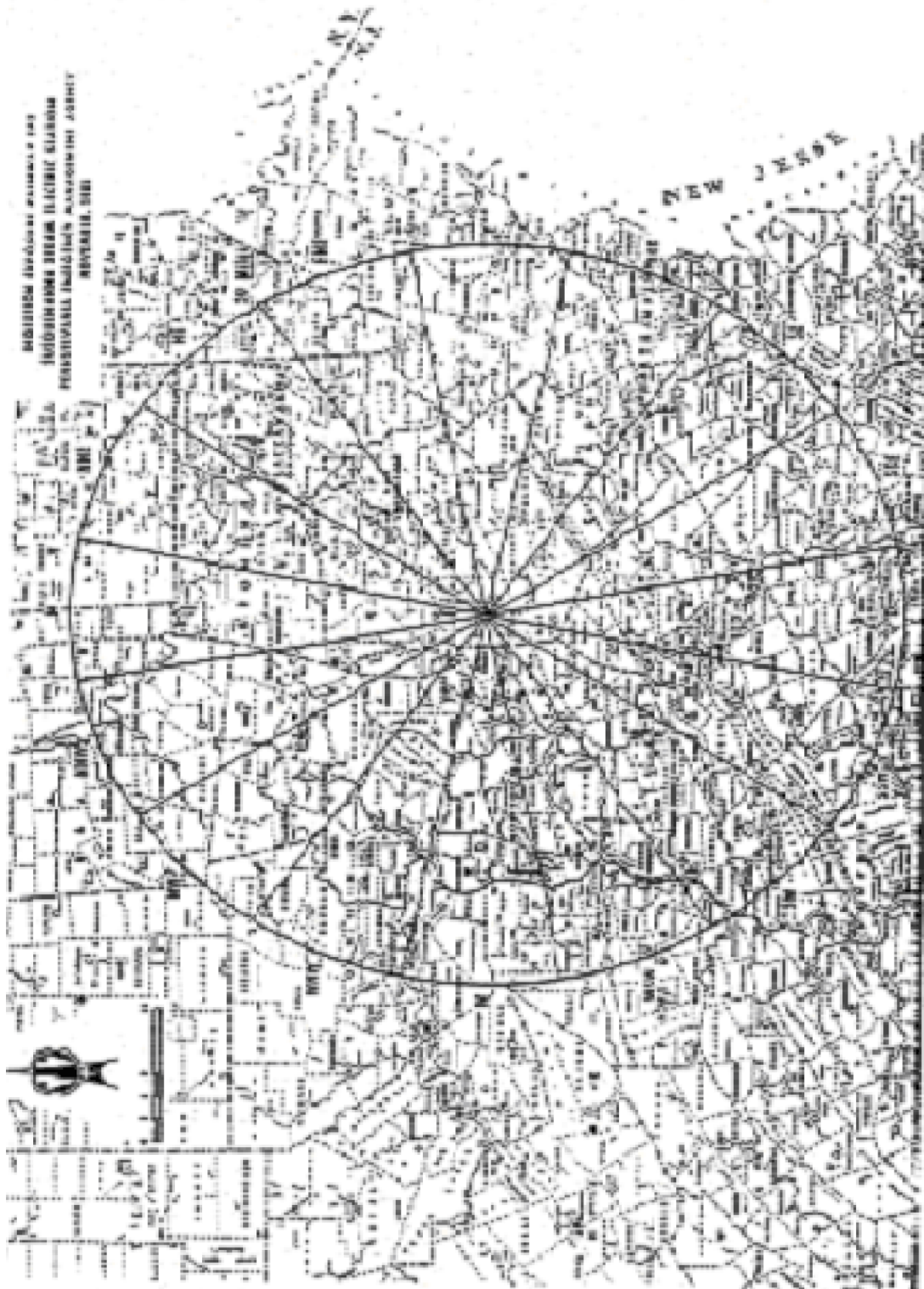
Plume Exposure Pathway EPZ

The 50 Mile Radius Designates The Ingestion Exposure Pathway EPZ

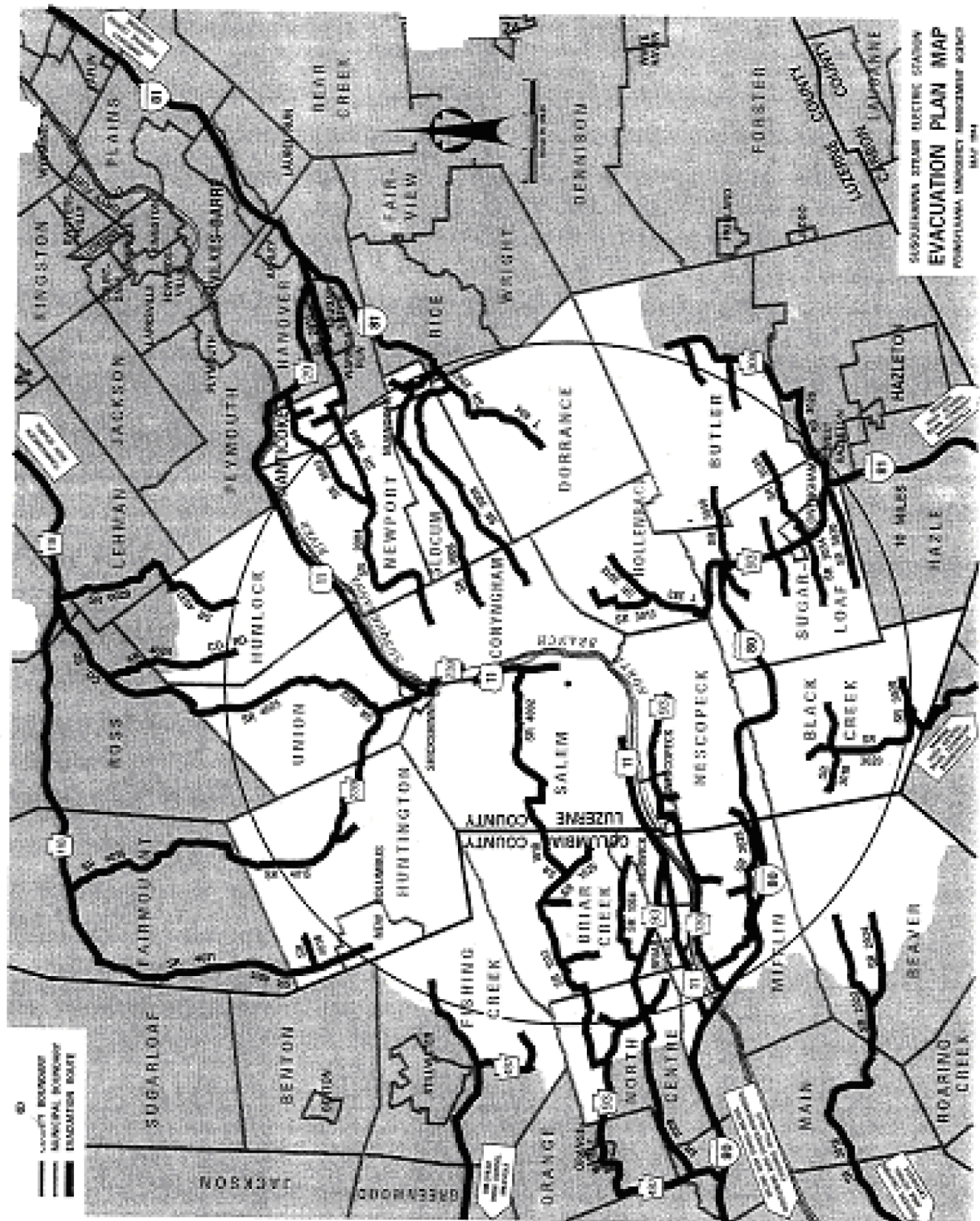
TAB 3
ATTACHMENT D
APPENDIX 24



TAB 4
ATTACHMENT D
APPENDIX 24



TAB 5
ATTACHMENT D
APPENDIX 24



ATTACHMENT E

APPENDIX 24

SITE CHARACTERISTICS

1. THREE MILE ISLAND NUCLEAR STATION

A. General

The Three Mile Island (TMI) Nuclear Station (40° 9' 12" N/76° 43' 25" W) is a nuclear power plant operated by AmerGen Energy Company (see Tab 1 to this Attachment). It consists of two units that are pressurized water-type systems. Unit One is an 819 Mw (megawatt) reactor and Unit Two was a 906 Mw reactor. Unit 2, damaged in March 1979, is shutdown permanently. The unit reached Post Defueling Monitored Storage in 1993 and will hereafter be maintained in a non-operating storage status.

The minimum exclusion distance specified for the Three Mile Island plant is 2,000 feet. Included within the 2,000 feet radius is a portion of Three Mile Island, a portion of Shelley Island and a portion of the Susquehanna River. AmerGen Energy Company owns all the land within the exclusion area.

B. Physical Characteristics

TMI is located in southcentral Pennsylvania in Londonderry Township, Dauphin County. The site is part of an 814-acre tract consisting of several adjacent islands in the Susquehanna River. The power plant is physically located on Three Mile Island that is one of the largest islands of the group. It is at an elevation of 300 feet above mean sea level (MSL); is relatively flat; and, is wooded on the periphery and southern portion. Of the 470 acres, which comprise the island, approximately 200 acres in the northern portion are used for the plant.

Soils on the island are of the Duncannon-Chavies-Tioga Association, which are basically deposits of alluvial sand, silt, and clay. Underlying bedrock is red sandstone and shale.

The normal pool elevation of the Susquehanna River in this area is 277 feet above MSL. Hills on both sides of the river in this vicinity rise to elevations of over 500 feet. The plant grade is 300 feet above MSL.

The climate of southern Dauphin County is mild and humid. Weather is variable because the prevailing westerly winds bring both high and low-pressure

systems through the area every few days. Average annual precipitation for the southern portion of the County is about 38 inches and average annual temperature is 52 degrees.

C. Land Use Characteristics

The TMI site is surrounded mostly by farmlands within a ten-mile radius. The nearest community is Goldsboro Borough on the west shore of the river one-mile from the plant. The nearest major population center over 25,000 people is Harrisburg City, population 52,376, which lies just over ten miles to the north.

There are 15 industrial firms located within a five-mile radius employing approximately 1,700 people. The Harrisburg International Airport is located 3 miles northwest of the TMI plant. A NRC estimate of aircraft risk to TMI Units One and Two indicates an acceptably low risk for either plant provided less than 2,400 operations per year were by aircraft in excess of 200,000 pounds. The NRC requires AmerGen Energy Company to continue periodic monitoring and reporting of airport usage and will reevaluate the adequacy of plant protection if traffic by heavy aircraft is reliably projected to exceed 2,400 per year.

An access bridge for plant personnel connects State Highway Route 441 with the north end of the island. A wooden bridge connects the southern portion of the island with 441 also. Conrail lines are located on both sides of the river, the closest being a one-track line adjacent and parallel to Route 441 on the east shore.

TABS:

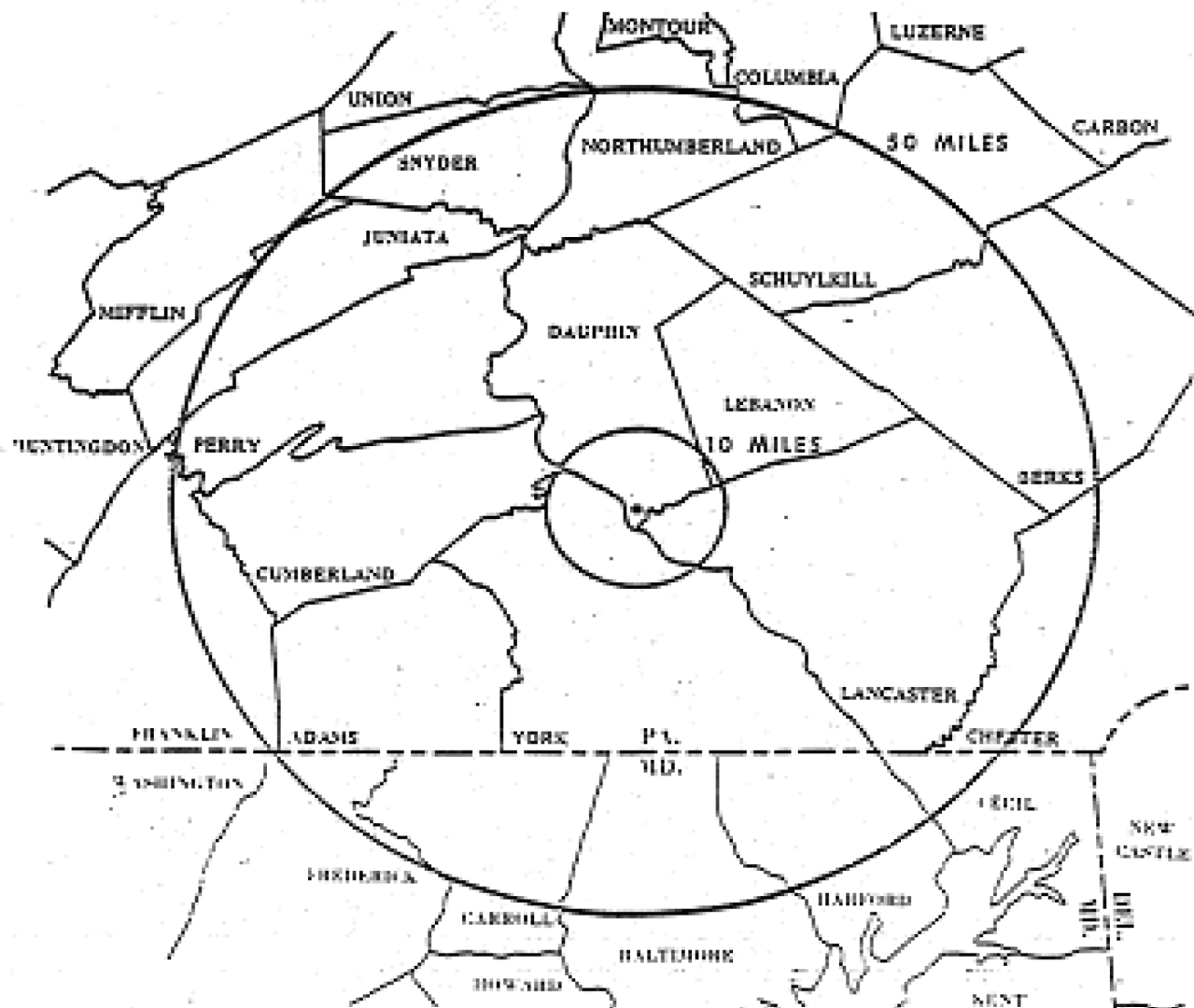
1. Site Specific Map
2. Site Specific Risk Area Map
3. Site Specific Plume Exposure Pathway EPZ Map
4. Site Specific Ingestion Exposure Pathway EPZ
5. Site Specific Evacuation Plan Map

TAB 2
ATTACHMENT E
APPENDIX 24

MAP OF RISK AREAS

THREE MILE ISLAND NUCLEAR STATION

PLUME EXPOSURE PATHWAY EPZ AND
INGESTION EXPOSURE PATHWAY EPZ



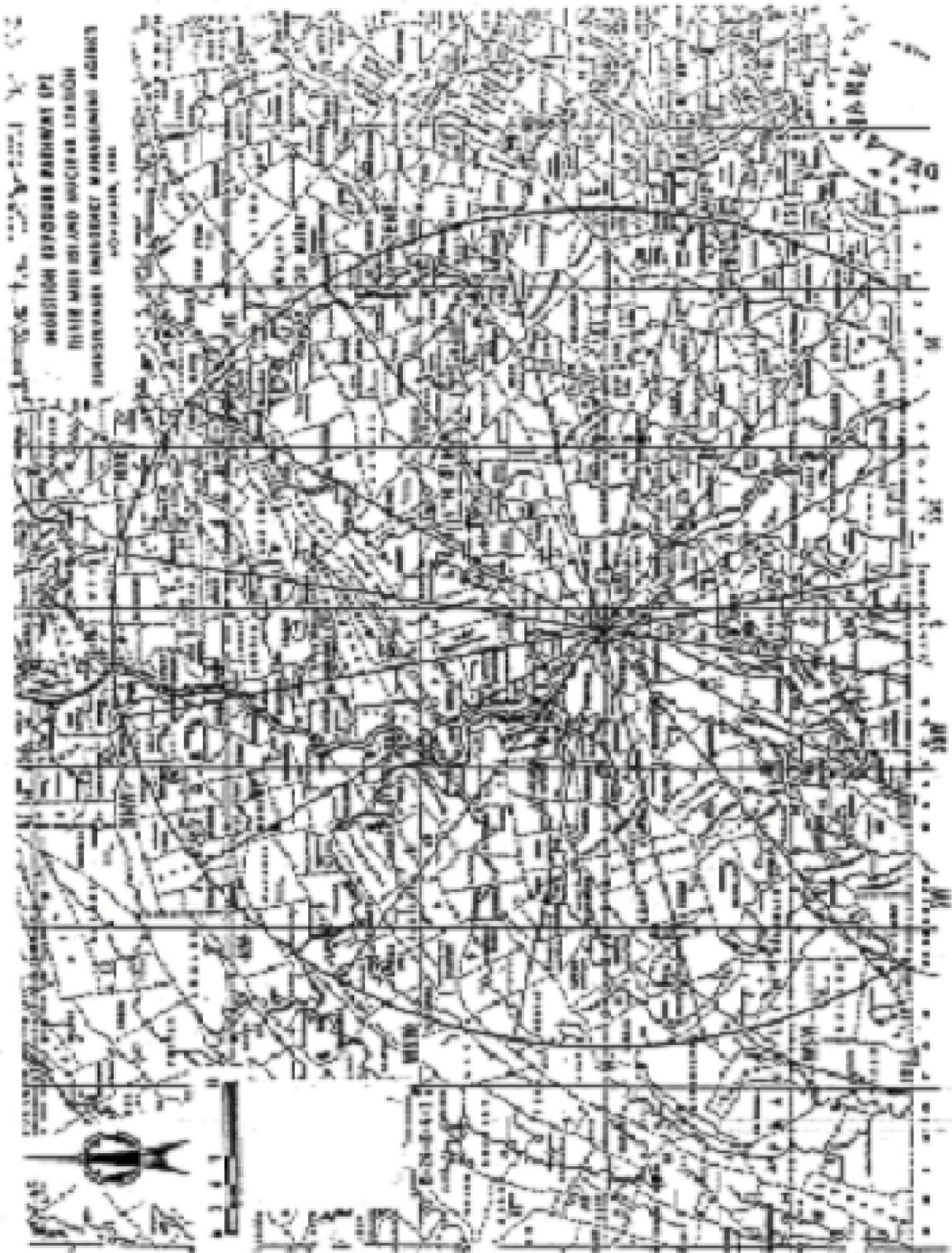
Risk Counties: Cumberland, Dauphin, Lancaster, Lebanon, York

Plume Exposure Pathway EPZ

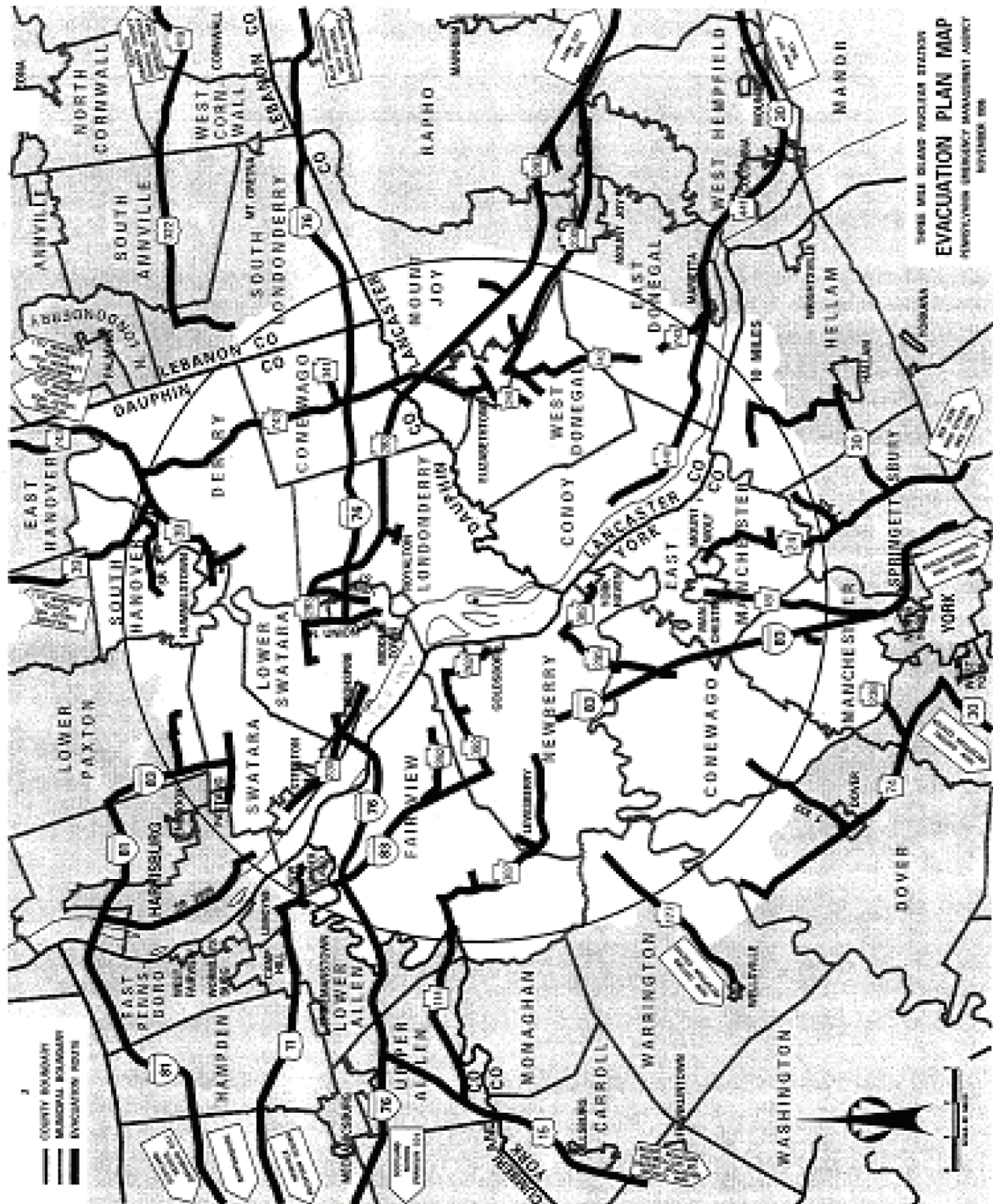
The 50 Mile Radius Designates The Ingestion Exposure Pathway EPZ

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TAB 4
ATTACHMENT E
APPENDIX 24
THREE MILE ISLAND NUCLEAR STATION



TAB 5
ATTACHMENT E
APPENDIX 24



ATTACHMENT F

APPENDIX 24

50-MILE RADII OF NUCLEAR POWER PLANTS WITHIN OR AFFECTING PENNSYLVANIA

