

JAN 30 1985

Docket Nos. 50-277
50-278

Philadelphia Electric Company
ATTN: Mr. S. L. Daltroff
Vice President
Electric Production
2301 Market Street
Philadelphia, Pennsylvania 19101

Gentlemen:

Subject: FEMA Peach Bottom Exercise Report

Attached is a copy of the final exercise report prepared by the Federal Emergency Management Agency (FEMA) for the October 17, 1984, joint emergency exercise of State and local radiological emergency preparedness plans for the Peach Bottom Atomic Power Station. FEMA will furnish a copy of this report to the States of Pennsylvania and Maryland.

This exercise report identifies two Category A deficiencies. Two municipalities in Lancaster County, Drumore Township and Little Britain Township, did not allow Federal observation, and Fawn Grove Borough/Fawn Grove Township in York County did not demonstrate an adequate overall level of emergency preparedness. FEMA stated that remedial exercises will be scheduled to address these deficiencies.

As discussed with Mr. R. Logue of your staff, we have scheduled a meeting at the NRC Region I office in King of Prussia the week of February 25, 1985. The purpose of the meeting is to discuss the status of the Category A deficiencies and your plans for facilitating their resolution.

If you have any questions concerning this matter, please contact Mr. Terry L. Harpster of my staff at (215) 337-5208.

Sincerely,

Original Signed By:

Ronald R Bellamy

for Thomas T. Martin, Director
Division of Radiation Safety
and Safeguards

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Enclosure: As stated

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SURNAME ▶						
DATE ▶						

Philadelphia Electric Company 2

JAN 30 1985

cc w/encl:

R. S. Fleischmann, Station Superintendent
 John S. Kemper, Vice President, Engineering and Research
 Troy B. Conner, Jr., Esquire
 Eugene J. Bradley, Esquire, Assistant General Counsel
 Raymond L. Hovis, Esquire
 Thomas Magette, Power Plant Siting, Nuclear Evaluations
 Public Document Room (PDR)
 Local Public Document Room (LPDR)
 Nuclear Safety Information Center (NSIC)
 NRC Resident Inspector
 Commonwealth of Pennsylvania

bcc w/encl:

Region I Docket Room (with concurrences)
 Senior Operations Officer (w/o encls)
 DPRP Section Chief
 D. Matthews, NRC IE:HQ
 G. Simmonds, NRC IE:HQ

OFFICE	RI:DRSS	RI:DRSS	RI:DRSS	RI:DRSS		
SURNAME	Terc/tp	Harpster	Bellamy	Martin		
DATE	1/29/85	1/29/85	1/30/85	1/ /85		

FEDERAL EMERGENCY MANAGEMENT AGENCY

AND

REGIONAL ASSISTANCE COMMITTEE

REGION III

EXERCISE EVALUATION REPORT

FACILITY: PEACH BOTTOM ATOMIC POWER STATION

OPERATOR: Philadelphia Electric Company

LOCATION: Peach Bottom Township, York County, Pennsylvania

REPORT DATE: November 30, 1984

EXERCISE DATE: October 17, 1984

PARTICIPATING

JURISDICTIONS: State of Maryland
Cecil County
Harford County

Commonwealth of Pennsylvania
Chester County
West Nottingham Township
Lancaster County
East Drumore Township
Fulton Township
Martic Township
Providence Township
Quarryville Borough
York County
Delta Borough
Fawn Grove Borough
Fawn Grove Township
Lower Chanceford Township
Peach Bottom Township

NON-PARTICIPATING JURISDICTIONS: Drumore Township, Lancaster County
Little Britain Township, Lancaster County

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Summary of Reports

Emergency Operations Facility (EOF)

In general all Pennsylvania and Maryland staff members displayed adequate training and knowledge. Facilities and resources at the EOF were adequate.

Joint Media Center

Pennsylvania and Maryland staff at the Joint Media Center displayed adequate training and knowledge.

Red Cross Field Headquarters

The Red Cross performed its assigned tasks in a satisfactory manner.

Pennsylvania Emergency Management Agency (State EOC)

Pennsylvania participated in this exercise in order to support the participation of the county and local governments needing to participate fully in order to meet the frequency requirements of 44 CFR 350.9. Pennsylvania, itself, participated fully in the Beaver Valley exercise of June, 1974 and the Limerick exercise of July, 1984.

In keeping with its limited participation, the Pennsylvania Emergency Management Agency (PEMA) requested representation at the EOC of only several key state agencies. Operations and communications staff were activated to an adequate extent.

With only minor exception PEMA's operations proceeded smoothly and efficiently.

Bureau of Radiation Protection (BRP)

The BRP has successfully demonstrated its capabilities in many previous exercises including the Beaver Valley and Limerick exercises in 1984. Because of a combination of scenario plant conditions and Pennsylvania's policy of evacuating the entire 10-mile EPZ, BRP's capabilities were not taxed in this exercise. The agency was remiss in not obtaining and relaying to PEMA sufficiently frequent updates as to plant conditions and meteorology.

Pennsylvania Access and Traffic Control

The Pennsylvania State Police (PSP) demonstrated their ability to effectively and efficiently perform their traffic control responsibilities.

Chester County

Because Chester County participated fully as part of the Limerick Generating Station REP exercise on July 25, 1984, it participated to only a limited extent during the Peach Bottom REP exercise. This involvement adequately

supported the needs of their one municipality in the plume EPZ, West Nottingham Township.

West Nottingham Township

Emergency management operations at West Nottingham Township were conducted according to plan and in an effective manner. Township personnel were knowledgeable and capable. Although not fully activated personnel responsible for staffing the county relocation center at Lincoln University gave every indication of being prepared to perform their emergency functions.

Lancaster County

The Lancaster County staff performed as a well organized professional team. The message center staff insured that all messages, were logged, copied and distributed to the proper staff members. In all cases messages were received and verified in a timely manner. The situation room staff verified that all actions to be taken during a specific phase of the emergency were taken and recorded on status sheets. It was evident throughout the exercise that all members of the staff had sufficient training and knowledge necessary. The county's medical support, relocation center, and mass care facilities and related monitoring and decontamination functions were overall accomplished quite satisfactorily.

Drumore Township

No federal observation of the township's operations was permitted.

East Drumore Township

Adequate knowledge of local need and available resources was demonstrated. Additional training in and familiarity with the municipal RERP would benefit the East Drumore Township EOC. Every attempt should be made to complete the township plan and to recruit additional staff for 24 hour manning. Although the County is aware of the unmet needs of East Drumore Township, these resources should be requested by the municipality.

Fulton Township

The township's performance was minimally satisfactory. Additional training is needed for the EOC staff to include become familiar with specific staffing duties and communications systems and procedures. A 24 hour staffing capability needs to be demonstrated.

Little Britain Township

No federal observation of the Township's operations was permitted.

Martic Township EOC

Martic Township EOC staff effectively demonstrated the knowledge and training necessary to protect the public in their municipality in the event of an emergency involving the Peach Bottom Atomic Power Station.

Providence Township EOC

Generally the staff at the Providence Township EOC displayed adequate training and knowledge to respond to an emergency at Peach Bottom Atomic Power Station. However, the Radiological Officer was not aware of the responsibilities of his position and did not arrive at the EOC until 1900 hours, after the sirens were sounded and evacuation started. Dosimetry and instructions were issued by the EMC.

A RACES operator was provided to the township for backup communications. However the equipment he had was not powerful enough to operate inside the EOC. The RACES net was established in the operators' vehicles. This type of operations was not adequate to insure the EOC received all messages. Messages were lost whenever the operator had to go into the EOC. Message forms were not filled out by the RACES operator until after the exercise was over.

Quarryville Borough

The Quarryville Borough EOC staff handled their responsibilities in a well organized, effective manner.

York County

York County by virtue of its participation in the November, 1983 Three Mile Island exercise had fulfilled the requirement to fully participate in an exercise once every two years (the sub-county jurisdictions in the Peach Bottom EPZ are different than those in the Three Mile Island EPZ). In this exercise York County agreed to participate to the extent necessary to support the EPZ. However, the county would not permit federal observation of its EOC operations.

Monitoring and Decontamination Center, Airville, Pennsylvania

Monitoring personnel demonstrated adequate knowledge and training with regard to monitoring procedures but should be provided additional training to ensure full understanding of contamination prevention procedures. The design of the center should be reevaluated to prevent possible contamination of EOC personnel and the center itself; provisions should be made for the collection of contaminated water used for decontamination procedures.

Mass Care Activities

Activation of mass care facilities was simulated for this exercise. Staff present appeared to be familiar with their designated responsibilities.

Delta Borough/Peach Bottom Township EOC

Overall, the EOC staff was knowledgeable with regard to emergency operations; however clarification and additional training is needed with regard to the coordination and dispatching of route alert teams protective actions for farmers and procedures for obtaining KI in the municipality.

The installation of an additional telephone line should be considered. Also, a location outside of the 10-mile EPZ should be identified for the relocation of EOC staff if required.

Fawn Grove Borough/Fawn Township EOC

This EOC did not satisfactorily implement the REP plans of the two municipalities. Future exercises should demonstrate a tighter direction and control of emergency management operations. The municipal communications network should be reassessed and revised to provide the timely receipt of exercise messages at the EOC. Clarification is needed concerning the timing of route alerting; route alert sectors should be restructured to provide more timely completion of routes. The cause of the lack of notification to the EOC directing the administration of KI to emergency workers should be investigated and corrective action taken as warranted. Complete twenty-four hour staffing should be established; lists of mobility-impaired individuals should be prepared and maintained at the EOC. The EBS station should be monitored for the airing of EBS messages during future exercises.

Lower Chanceford Township EOC

The township satisfactorily implemented its REP plan. Twenty-four hour staffing should be established for all EOC positions. Future exercises should demonstrate full staffing at the EOC and simulated or demonstrated activities associated with the relocation of EOC staff and operations.

Maryland State EOC

Notification and mobilization of the emergency response staff occurred promptly and efficiently. The staff demonstrated good coordination with the county EOC's, PEMA, and the EOF. A train derailment in Cecil County, involving hazardous materials, resulted in early termination of the exercise, at about 1930 hours. As a result, the opportunity for the State EOC staff to demonstrate their capability for providing unmet resources to the counties was limited. Those request that were received in time to respond, however, were handled appropriately.

Malfunctions with both direct telephone line linking the utility with the State and County EOCs and other locations emphasized the lack of radio backup for this primary notification and conferencing system. Although commercial telephones were substituted, without problem, during the exercises, it is recommended that a dedicated radio link be established between the utility and the State EOCs in order to provide a reliable and immediately available backup. Another communications equipment problem, a malfunctioning telecopier, caused problems for the State EOC public information staff in coordinating new releases with the Joint Media Center at Muddy Run.

There was a delay in processing the utility's notification messages at the Alert and Site Area Emergency phases, due in part to the fact that the utility's reporting format is different from that used by the State. It is recommended that a reporting/recording format be established which is mutually agreeable to the utility and states.

There was good coordination of news releases between State and County PIOs, but an important public information function was not addressed--detailed evacuation instructions for the public were not prepared.

Accident Assessment Center

Protective action recommendations were made by the accident assessment staff based upon all appropriate factors, including plant status, field readings, utility recommendations, and their own calculations. After being unable to duplicate the utility dose projections, the staff discovered that the utility had apparently changed the method of dose calculation without advising them. This was confirmed following the exercise when the State received a revised dose projection procedure from the utility. This has not been cited as a deficiency in this report as the utility was at fault, the problem has since been corrected, and it did not affect the outcome of the exercise. The ACC staff's decision to recommend evacuation of the entire EPZ portion of both risk counties was timely. However, there was a delay of about thirty minutes in obtaining the concurrence of the Secretary of Health and relaying the decision to the State EOC. It is recommended that the state agencies involved review the protective action recommendation procedure with the goal of reducing this time for relaying the decision.

Radiation Monitoring Team

The field team demonstrated good capability for performing radiation monitoring. Mobilization of the team occurred according to plan. The team had appropriate equipment and exposure control items, technical operations were performed well, and no problems were experienced with communications.

Technical operations in collecting samples and sending them for laboratory analysis were well-demonstrated by the team. For demonstration purposes, the team was activated earlier than would occur in a real emergency, but their deployment occurred smoothly. The team had the appropriate equipment, and demonstrated good capability for exposure control. The team's mobile radio malfunctioned, but they maintained adequate communications by using pay telephones.

Agriculture Sampling Team

The Maryland Agricultural team capability demonstrated implementation of its responsibilities of gathering samples in the 50 mile ingestion EPZ.

Cecil County

Cecil County's overall performance in this exercise is considered adequate despite problems in some aspects of its operations. Further training is needed in the use of potassium iodide; as is a review of the county's division of responsibilities for the movement of mobility-impaired individuals.

For various reasons, including compromise to accommodate Pennsylvania's scheduling needs, many of Cecil County's response activities were played out of sequence with the initiating plant conditions.

Harford County

Harford County's overall performance was satisfactory. As in Cecil County, the large number of activities conducted out of sequence with the scenario diminished the volume of the exercise as a training tool and prevented a thorough evaluation of the timeliness of event-driven response actions.

BACKGROUND

Federal requirements dictate that periodic Radiological Emergency Response Preparedness exercises be conducted in support of nuclear power plants to evaluate major portions of emergency response capabilities. The exercises test integrated capability and a major portion of the basic elements existing within emergency preparedness plans and organizations. The exercises simulate a coordinated response by State and local authorities, along with the utility, to include mobilization of personnel and resources adequate to verify the capability to deal with an accident scenario requiring responses up to, and including, evacuation. This was the second full-scale Peach Bottom exercise. The first was held in 1982. A small scale exercise was held in 1983.

The purpose of this report is to record the capabilities of state and local governments to implement their plans for response to an accident at the Peach Bottom Atomic Power Station as observed by a team made up of individuals from FEMA Region III and the Regional Assistance Committee supported by Argonne National Laboratory. Deficiencies are identified and corrective actions recommended.

PARTICIPATING STATE/COUNTY/MUNICIPAL GOVERNMENTS

States

Maryland
Pennsylvania

Plume EPZ Jurisdictions

Cecil County, Maryland

Harford county, Maryland

Chester County, Pennsylvania
Chester County Municipalities:
West Nottingham Township

Lancaster County, Pennsylvania
Lancaster County, Municipalities:
East Drumore Township
Fulton Township
Martic Township
Providence Township
Qaurryville Borough

York County Municipalities:
Delta Borough
Fawn Grove Borough
Fawn Township
Lower Chanceford Township
Peach Bottom Township

NON-PARTICIPATING JURISDICTIONS

Plume EPZ Municipalities

- * Drumore Township, Lancaster County
- * Little Britain Township, Lancaster County

- * No observers allowed.

PEACH BOTTOM ATOMIC POWER STATION

REP EXERCISE

OCTOBER 17, 1984

Observer Assignments

RAC Chairman	James Asher (FEMA)
Nearsite EOF	Craig Gordon NRC)
Joint Media Center	Hugh Laine (FEMA)
Red Cross Field Headquarters	Dale Petranech (Red Cross)
Pennsylvania EOC	Joseph Gavin (FEMA) James Levinson (Argonne)
PA. Bureau of Radiation Protection	Andy Hall (Brookhaven-DOE)
PA. Traffic and Access Control	Walt Adams (DOT)
PA Air Sampling Team	Ken Lerner (Argonne)
PA Agricultural Sampling Team	Cheryl Malina (USDA)
PA. Support Hospital	Hank Mitskas (FDA)
PA. Communications	Fred Donnelly (FEMA)
Chester County	Rick Kinard (FEMA)
West Nottingham Township	Etta Sims (FEMA)
Lancaster County	Janet Lamb (FEMA) Bill Knorezer (Argonne)
East Drumore Township	Patty McCallion (FEMA)
Fulton Township	Roman Siletsky (FEMA)
Martic Township	Darrell Harmons (FEMA)
Providence Township	Roman Hele (FEMA)
Quarryville Borough	Suzanne Root (FEMA)
York County Municipalities:	
Delta Borough	Tom Majusiak (FEMA)

Fawn Grove Borough	
Fawn Township	Al Henryson (FEMA)
Lower Chanceford Township	Karen Oakley (FEMA)
Peach Bottom Township	Craig Pattani (FEMA)
Maryland EOC	Steve Hopkins (FEMA) Bob Nesius (Argonne) Hans Henzel (FEMA)
Maryland Department of Health	Bill Belanger (EPA)
Md. Traffic and Access Control	Walt Adams (DOT)
Md. Communications	John Sullivan (FEMA)
Md. Radiation Sampling Team	Jim Opelka (Argonne)
Md. Agricultural Sampling	Bill Gasper (Argonne)
Cecil County	Robin Danforth (FEMA) Ed Tanfman (Argonne) Paul Farber (Argonne)
Harford County	Don Newsom (Argonne) Penny Wallingford (Argonne) Mike Freeman (FEMA)

EVALUATION CRITERIA USED

The Commonwealth of Pennsylvania and local governments' response during this exercise was evaluated in relationship to the Commonwealth of Pennsylvania Disaster Operations Plan, Annex E - Fixed Nuclear Facilities, dated November 1981 and the draft Radiological Emergency Response Plans for Accidents at the Peach Bottom Atomic Power Station for Chester, Lancaster and York Counties, along with the various draft municipal Radiological Emergency Response Plans.

The State of Maryland and local governments' response during this exercise was evaluated in relationship to the State of Maryland's Radiological Emergency Plan and for Fixed Nuclear Plan which is Annex Q of the Maryland Disaster Assistance Plan; and draft Appendix 2 of that plan, which is site specific to Peach Bottom; and the draft Radiological Emergency Response Plans for Fixed Nuclear Facilities of Cecil and Harford County.

OBJECTIVES OF THE EXERCISE

Maryland

1. Radiological Emergency Plans

To demonstrate the adequacy and capability of implementation of State and County radiological emergency response plans.

2. Accident Assessment

a. To demonstrate the effectiveness of the State accident assessment system, to include adequacy of equipment, personnel staffing and competency skills with respect to reporting, dose projection, field measurement, actions for coordination, communications and decision(s) for recommended protective actions.

b. To demonstrate the activation and staffing of the Ingestion Pathway Coordinating Center (IPCC) to the extent necessary to facilitate communications, command and control functions.

3. Notification and Communications

a. To test and demonstrate the adequacy of the PBAPS notification and alert procedures in the following areas:

(1) Notification by PBAPS to State and County government.

(2) Notification by the Maryland Emergency Management and Civil Defense Agency (MEM&CDA) to the Department of Health and Mental Hygiene, Division of Radiation Control (DRC), plume zone and ingestion zone county emergency operations centers (EOC), selected State Departments/Agencies, Federal Emergency Management Agency (FEMA), contiguous States, American Red Cross.

(3) Notification by Plume Zone and Ingestion Zone Counties and State Departments/Agencies of emergency response staff personnel.

b. To test and demonstrate the ability of key emergency response personnel in implementing notification procedures in the event of an accident at PBAPS, to include continuing notification and coordination.

c. To demonstrate the ability of State and County authorities to alert and notify the public within the plume exposure pathway emergency planning zone for the PBAPS. To include operability of prompt notification system sirens.

d. To demonstrate the ability of State and County authorities to provide the public with in the PBAPS plume exposure pathway emergency planning zone of the plant periodic updates of emergency status.

e. To test and demonstrate the adequacy of external communication

systems from PBAPS, State, and County emergency operations centers and field locations. Federal agencies and contiguous States system will also be checked.

f. To demonstrate timely feedback to the AAC, ECC, and EOF from the Counties and the State EOC on the status of protective action implementation and of other situations affecting County operations.

4. Command and Coordination

a. To demonstrate the ability of key (State, County) emergency response personnel to initiate and coordinate timely and effective decisions with respect to an accident at PBAPS.

b. To demonstrate the capability of Federal, State and County emergency response agencies to identify and provide resource requirements.

c. To demonstrate the capability of State and County governments in coordinating (internally/externally) actions, needs and status of situations between organizations for the purpose of acquiring support and evoking appropriate decisions.

d. To demonstrate the level of support and participation provided by the responsible elected/appointed officials.

5. Protective Actions

a. To demonstrate the capability of the State, County and State Department/Agencies emergency response systems to make decisions and to implement the following protective actions:

- (1) Take shelter (limited)
- (2) Evacuation (limited)
- (3) Access Control (limited)
- (4) Food, water, milk and livestock feed control (limited)

6. Parallel Actions

a. To demonstrate the capability of the State, County and State Departments/Agencies emergency response systems to make decisions and to implement the following parallel actions.

(a) To demonstrate methods and resources for distribution, issuance and administering of potassium iodide (KI) to emergency workers.

(b) To demonstrate methods and resources for distribution of dosimetry to emergency workers.

(c) To demonstrate personnel monitoring, equipment monitoring and decontamination procedures.

(d) To demonstrate the methods and capability of State, County, local emergency personnel for keeping radiation exposure records.

(3) Law Enforcement and Crime Prevention (not to be exercised).

(4) Mass Care (Limited)

(a) To demonstrate the capability of the State and County emergency response system to provide food, clothing and shelter for evacuees to include evacuation center operations.

(5) Reentry and Recovery (not to be exercised)

7. Public Information

To demonstrate the State and County Public Information Program and the adequacy of the interface of State, County and PBAPS public information systems with the news media.

8. Emergency Operations Center

a. To test and demonstrate the adequacy of the emergency operations centers with respect to space, comfort and function for managing a fixed nuclear facility incident.

b. To test and demonstrate the adequacy, appropriateness, and effectiveness of the internal communications system within the EOC, to include maps and displays.

c. To demonstrate the adequacy of staffing and competency of staff.

d. To test and demonstrate the adequacy of access control and security means for EOC.

THE OBJECTIVES OF THE EXERCISE

Pennsylvania

1. Test and evaluate the capabilities of state, counties and municipalities to interface and coordinate with each other in the following areas:

- a. Notification of Officials and Staff

The adequacy of the nuclear incident notification and alert procedures from the fixed nuclear facility to PEMA, BRP, risk counties and municipalities and support counties.

- b. Public Alert/Notification and Information

The ability of state, county and municipal authorities to alert, notify and update the public of incidents within the plume exposure pathway emergency planning zone, to include actual use of sirens, EBS announcements, route alerting and other communications means available.

- c. Communications

The adequacy of and/or the need for all planned internal and external communications systems among and between the participants to include backup communications systems, EBS and RACES.

- d. Emergency Operations Center (State/County/Municipal)

The adequacy of the emergency operations centers with respect to security, space, comfort, staffing and function for managing responses to nuclear facility incidents.

- e. Direction and Control

The ability of key state, county and municipal emergency response personnel and elected officials' support for the initiation and coordination of timely and effective decisions and their ability to provide resources requirements for incidents.

- f. Emergency Plans

The adequacy and capability of implementation of state, risk and support counties and municipal emergency response plans.

- g. Public Information

The adequacy of the interface of state, county and nuclear facility public information systems with the news media, to

news media briefing rooms, rumor control measures, etc.

h. Accident Assessment (Bureau of Radiation Protection)

The effectiveness of state BRP nuclear facility accident assessment system, to include adequacy of equipment, personnel staffing and competency skills with respect to reporting, dose projection, field measurement, coordination and communications.

i. Protective Measures

The capability of the state, county and municipal emergency systems to implement sheltering or evacuation and to take actions to activate such support functions as reception center, mass care-decontamination centers, decontamination stations, risk school district procedures, ambulance services, bus operations, and pickup points.

j. Radiological Exposure Control

The capability of state, county and municipal emergency response personnel to implement access control points and traffic control points, the assurance of dosimetry and KI and the record keeping and demonstration procedures.

SCENARIO CHRONOLOGY

The scenario for this exercise called for a series of unusual events at Peach Bottom through the midday hours involving an onsite injury, a fire and an unplanned shutdown, culminating in an alert declaration at mid-afternoon occasioned by a radioactive release. Increased radioactive releases coincided with a site area emergency to be declared at approximately 1630-45. Further increased releases were to reach a level by 1830-1845 that would prompt evacuations out to 10 miles in both Pennsylvania and Maryland. By approximately 2100 the situation at Peach Bottom was to have stabilized to a point where reentry could be permitted with the exercise terminating at approximately 2200.

<u>Projected Time</u>	<u>Event</u>	<u>Actual Time</u>
1130-1145	1st Unusual Event Declared	1158
1245-1315	2nd Unusual Event Declared	1312
1400-1415	3rd Unusual Event Declared	1407
1500-1515	Alert Declared	1500
1630-1645	Site Emergency Declared	1630
1830-1845	General Emergency Declared	1805
1845-1900	Evacuation Decision	1803(MD)
		1805(PA)
	Evacuation Implemented	1835(MD)
		1830(PA)
2200	Exercise Termination	1930(MD)
		1925(PA)

DEMONSTRATION OF RESOURCES

- State, county and participating municipal emergency operations centers
- Communications systems and equipment
- Staffing of facilities
- Prompt notification system, including siren system and EBS
- Route alerting by various fire and police departments
- State and county media centers, including rumor control
- Field sampling teams (air, water, agriculture) and equipment
- Designated reception and mass care centers
- Designated emergency worker decontamination stations
- Designated hospitals (risk and support)
- Designated access and traffic control points
- Self-reading dosimeters (both actual and simulated), dose records, and simulated TLDs and potassium iodide for emergency workers

OBJECTIVES STILL TO BE MINIMALLY ACHIEVED

Non-participating (i.e. non-observed) jurisdictions did not meet any of the objectives.

Fawn Grove Borough and Fawn Grove Township did not meet parts of sections 1.(a.), (b.), (c.), (d.), (e.), (f.) and (j.) of the objectives set forth by Pennsylvania.

The communities referenced as not demonstrating twenty-four hour staffing capability did not fully meet objective 1.(d.) (Pennsylvania).

PREVIOUS DEFICIENCIES

The report on the June 28, 1983 small-scale Peach Bottom exercise noted five minor deficiencies. These have been eliminated. The report on the June 16, 1982 full-scale exercise listed 12 recommendations. These recommendations have been satisfactorily acted upon with one exception. There remains a difference between Maryland and Pennsylvania in the practice, if not the policy, of the sounding of sirens and activation of EBS. The confusion generated by the uncoordinated siren sounding was again evidenced in this exercise. This report suggests some means of minimizing confusion between the jurisdictions of the two states in the absence of coordinated siren soundings.

Exercise Reports

Emergency Operations Facility

I. Activation and Staffing

The EOF was activated at the Site Area Emergency classification and was prepared to perform the following functions within about an hour: management of radiation effluents, environmental monitoring, dose assessment projections, notification/communications with Pennsylvania and Maryland emergency response representatives and establishment of dedicated lines for communications between State EOC's.

The State of Pennsylvania deployed two representatives with the capability to evaluate plant systems in order to quickly apprise State EOC personnel of changing plant conditions. Four (4) Maryland State personnel were available to obtain technical and other relevant information (protective action recommendations, etc.) from the utility and to transfer it to the dose assessment staff in Baltimore. A liaison from Harford County was also present to act as communicator for information flow into the local EOC. Pennsylvania representatives arrived at the EOF within one hour of activation; discussions with Maryland staff revealed that they had been present since the Unusual Event classification, per instructions from upper level state management. In general all Pennsylvania and Maryland staff members displayed adequate training and knowledge to satisfy their emergency response roles.

II. Facilities

Facilities and resources at the EOF appeared adequate. Within the area designated for State personnel dedicated telephone lines, commercial telephones, maps of 10 mile EPZ and 50 mile ingestion pathway were available. Access to status boards, the dose assessment areas and conference room was unhindered. The space allotment provided for state use was sufficient for the number of personnel during this exercise (7); however, crowding could occur should additional representatives be necessary.

III. Communications

The communication system available at the EOF for use by state personnel was in place and operational at official EOF activation. Two dedicated lines (one for use by each State) were available which linked the EOF with the Pennsylvania and Maryland EOC's.

A similar line is positioned in the dose assessment area for use by the PECO dose assessment team leader to provide both states with

first hand information. Another two dedicated lines were present to provide the interface between the EOF and Cecil and Hartford Counties and the Maryland EOC. Three commercial telephone lines were available and functional throughout the exercise. A ringdown telephone is also used only by BRP staff for private and immediate information transfer between the EOF and BRP in Harrisburg. A portable radio is used by Maryland staff to monitor activities of State offsite monitoring teams. Messages transmitted via dedicated lines contained the following information: brief event description, class of emergency, potentially affected population areas, relevant meteorological data, and whether protective measures were necessary.

III. Information Functions

Since most activities relating to public information and media communication took place at the Muddy Run media center, interaction among utility, State, and county emergency personnel was limited at the EOF. Press releases issued by the utility were generated at the news center and telefaxed to the EOF for review by the Site Emergency Coordinator with subsequent distribution to the State representatives in the EOF.

IV. Dose Assessment and Protective Action Recommendations

The EOF serves as the central point for collection, evaluation, and distribution of radiological data and plant parameters. The ability of the state personnel to obtain any necessary technical data appeared adequate. Timely transmittal to Maryland and Pennsylvania for dose assessment was possible. Also, periodic changes in plant status, radiation releases, and meteorological conditions were available for relay by state emergency response staff to their EOC's. Although protective action recommendations were discussed between the two states and utility during conferencing with the Site Emergency Coordinator, state personnel related the recommendations back to their EOC's individually. (See reports on operations at the Pennsylvania BRP and at the Maryland Department of Health and Mental Hygiene for further discussion of the relay of technical data to the two states' accident assessment personnel).

Joint Media Center

The Joint Information Center at Muddy Run State Park was fully staffed by utility personnel at 1400. At 1510 it was announced that at 1400P an alert had been declared. Those in the building were asked to sign in the log book at the time.

The Maryland PIO and staff arrived at 1630. This was a full-scale exercise for the State of Maryland. The PIO is very professional and sufficiently knowledgeable of the nuclear response plans so as to be able to operate effectively in a real situation. The news releases were prepared in Pikesville EOC and telefaxed to the Joint Information Center for distribution to the media. Coordination between the EOC PIO and the

Joint Information Center was good. Coordination with the counties was to be done from the EOC in Pikesville. Only three releases were received and they did not address protective actions as there was no hazard to the public at the time of the releases. The Maryland PIO participated in one joint media briefing.

This exercise was not full-scale for the Pennsylvania Emergency Management Agency. The PEMA PIO and staff have demonstrated on numerous occasions their professionalism and knowledge in emergency preparedness and dealing with the media to keep the public fully informed in an emergency situation. Releases are developed in PEMA Headquarters and telefaxed to the Joint Information Center. Five releases were distributed and the PIO participated in all three news briefings.

Red Cross Field Headquarters, York County

The Red Cross established a Field Headquarters at the York County Red Cross Chapter to support the Bi-State Red Cross operations.

Commercial telephones were the primary means of communication between all Red Cross Chapters providing services in the Host Areas, Red Cross state liaisons in Maryland and Pennsylvania and Red Cross at the National Level in Alexandria, Virginia. There was limited radio backup communications to some locations. Anticipating requests from state and Red Cross Chapters, the field office requested supplemental cots and blankets from Lancaster Pennsylvania; New York, New York; Philadelphia, Pennsylvania; and Dayton, Ohio.

Request for additional food from USDA stockpiles was simulated.

There was sufficient space to accommodate the Red Cross operation. The office was not fully staffed. The representative from Alexandria, Virginia was prepositioned at the field headquarters.

Red Cross Field Headquarters Deficiencies/Recommendations

1. The Red Cross plans to open a field headquarters to support the Red Cross Mass Care effort in exercises and actual events; its activities should be included in the scenario and problems to test its capability injected.
2. The Red Cross state liaison officers should be advised prior to the scenario being prepared so that Red Cross exercise objectives can be included.

Pennsylvania State EOC

I. Activation and Staffing

As it was a normal work day, state staff were present at the EOC at the beginning of the exercise. Several Unusual Event notices were received during the morning and early afternoon hours. At 1426 a message was received from the utility advising of an unusual event declaration at 1407 and also advising that previous unusual events

had been cleared up. At 1505 notice of an Alert declaration was received from the Bureau of Radiation Protection (BRP) along with information that an uncontrolled airborne release of radioactivity was ongoing, but below levels considered hazardous to the public.

Immediately following receipt of the Alert declaration, PEMA contacted all state agencies including the six scheduled for further participation in this exercise (State Police; Department of Transportation, Military Affairs, Department of Environmental Resources (in addition to DER's Bureau of Radiation Protection), Department of Health and Department of Agriculture). The three Pennsylvania counties in the Emergency Planning Zone were contacted within eight minutes of PEMA's receipt of the Alert message. A PEMA liaison to the Bureau of Radiation Protection (BRP) was dispatched at approximately 1530.

Scheduled staffing of the State EOC by Pennsylvania agencies was completed by 1630 (prior to the site area declaration) although the Departments of Health and Environmental Resources decided not to deploy representatives to the EOC.

EOC staff displayed adequate training and knowledge with the minor exceptions noted below (see discussions of internal communications and PIO operations). The State Operations Officer was aware of the problems concerning dose assessment and protective action recommendations discussed below and was active in trying to extract information from BRP.

II. Emergency Operations Management

The Operations Officer was effectively in charge throughout the exercise. He was assisted by a shift leader and several liaison officers who coordinated response actions and information with the risk counties and PEMA's central area office. The public address system was used to brief EOC staff as additional information became available. On several occasions, however, the PA system did not function adequately, leading to some information not being promptly received by the entire EOC staff. Plans and checklists were available and utilized; incoming and outgoing messages were logged, and photocopied before being routed to the appropriate EOC staff. Badges were issued to all present in the EOC and a security officer was posted at the entrance. The EOC was notified of the latest Unusual Event at 1407, Alert at 1505, Site Area Emergency at 1635 and General Emergency at 1807.

Appropriate actions were taken to coordinate response actions with the risk counties including the activation of the Alert and Notification system. A very limited amount of coordination with Maryland was observed. PEMA had been advised prior to the exercise that Maryland would sound its sirens at the Alert stage; thus there was no attempt to coordinate siren sounding during the exercise. Neither was there an attempt to coordinate evacuation with Maryland. One York County EOC dispatched a route alerting team when Maryland's sirens were sounded.

III. Facilities

The State EOC in Harrisburg is an excellent facility with adequate space furniture, lighting, equipment and telephones to support all response personnel. Status boards were visible and were updated. All appropriate maps were available and posted in the operations room.

IV. Communications

Primary communications with the licensee, BRP, PEMA's Central Area office and the risk counties (Chester, Lancaster and York) were demonstrated through the use of dedicated telephone lines; both commercial phones and radio nets were used as backup. The commercial phone line was used to contact FEMA and Maryland with radio as backup.

No problems, such as were experienced in the July 1984 Limerick exercise, were experienced with the new teletype system for transmitting hard copy messages to various jurisdictions.

V. Dose Assessment and Protective Action Recommendations

Dose assessment activities are not performed at the State EOC, but instead performed by BRP at their headquarters. It should be noted that dose projection/assessment values were not received at the State EOC. The BRP personnel indicated they were experiencing difficulty in obtaining release rates from the EOF. The only release information received was during the Unusual Event. These values were received at the EOC without units or proper exponential format and were relayed to the counties even though they were meaningless in the forum received and relayed.

Even though responsibility for accident assessment and protective action recommendations lies with BRP, there is a real need for PEMA to have a continually updated picture of plant conditions, releases, etc. (Annex "E", Basic Plan, Section VII, A. 8.j established BRP's responsibility in this regard). The PEMA Operation Chief was obviously not satisfied with the information coming from BRP.

Protective action recommendations were reached for both plume and ingestion pathway hazards. The decisions were based on BRP's recommendations which were based on plant status as no release values were presented. The utility's recommendations were relayed to PEMA by BRP for concurrence. Pennsylvania and Maryland were kept informed of each others recommendations although actual coordination between the states was not observed. Potassium iodide was authorized for emergency workers in the field as well as farmers who were required to periodically tend livestock. The authorization was consistent with planned procedures and made by the Secretary of Health. The authorization was transmitted to each of the County EOC's and for information purposes, to Maryland (by the Maryland liaison).

VI. Public Alerting and Instruction

The State EOC played a secondary role in public alerting. The state EOC was notified of a General Emergency by the utility via the "blue" phone. PEMA officials discussed BRP's protective actions and promptly transmitted the information to the counties. Prior to the escalation to General Emergency, the State EOC coordinated time synchronization with the counties and requested time estimates for siren activation/EBS notification procedures. Such preparation and anticipation enhanced the effectiveness of the overall operation.

Public instructions, concerning evacuation were not drafted at the State EOC. Press releases were drafted that were generally clear and appropriate to each situation. Prescribed messages were used and transmitted to the Joint Media Center for dissemination.

Communication between the State EOC operations staff and the PIO on duty at the EOC was somewhat weak. It was observed that public address announcements were not always heard in the PIO's office. As the PIO was not always up-to-date on current developments, including the declaration of general emergency.

VII. Protective Action

PEMA, upon recommendation of BRP, simulated a request to the Governor's office and then issued the Governor's evacuation order for evacuation of the entire 10 mile EPZ. As noted elsewhere, this recommendation was based entirely on plant conditions; no offsite dose projections were forthcoming from BRP.

Implementation of ingestion pathway protective actions were simulated at the State EOC. Current information on the number of dairy farms, herd sizes, and food processing plants was available. However, because of the large number of farms (50,000) in the 50-mile EPZ, no individual listing of farmers was available. Farmers were notified through press releases and messages to County EOC's to shelter herds and placed them on stored feed and water. Farmers were instructed to report to their respective county EOCs to obtain dosimeters, KI, and identification certificates. Farmers were to be instructed on appropriate use of dosimeters and KI, and correct procedures for reentry to tend their livestock. Correct procedures for sheltering and feeding livestock were included in the press releases. State Agricultural Extension Service, USDA personnel, and County Agents would be available to assist farmers in implementing protective actions.

XI. Media Relations

Space was designated for press briefings at the State EOC, however no briefings were actually given. Press releases were prepared at the State EOC for presentation at the Joint Media Center. The releases were generally accurate, understandable, and clear. Efforts were made to ensure the information was consistent with utility releases.

X. Recovery and Reentry

Recovery and reentry activities were not demonstrated.

Bureau of Radiation Protection-Harrisburg, Pennsylvania

Since the exercise was utilized as a training opportunity by BRP, a somewhat redundant staff had been prepositioned. Call-up procedures were followed for all other notifications. The field monitoring team and a nuclear engineer were dispatched respectively to the vicinity of the plant and to its EOF at 1530, as a precautionary measure in response to the first Alert at 1500, which suggested that a malfunction had occurred at the plant.

Since a small number of persons were involved, all working in a compact area in which face-to-face conversation is practicable and in which phone and radio conversations can readily be heard by other interested parties, there was a minimum of formality. Thus messages were noted sequentially on a pad, but formal message logs as such were not kept and written copies were not made and distributed. All incoming information was promptly shared among the working staff and the incident manager (the Director of the BRP) was kept informed of significant developments.

The facilities are somewhat cramped, but are adequate for the response to nuclear power plant emergencies. Suitable maps for all the nuclear power reactor sites in Pennsylvania are available.

The installed communications included dedicated landlines to PEMA, to the utility and to the EOF; commercial back-up and the states radio net. All were utilized appropriately.

If periodic updates of plant conditions and meteorology were available at the utility's EOF, this information was not made available on a regular basis to BRP, nor was BRP sufficiently aggressive in requesting it (prior to about 1900). Such information as was provided did not include the source term in readily interpreted units.

The BRP response was a limited one; its staff made only one dose assessment and requested only one measurement from the one field team. These were performed appropriately. The BRP assessment at 1710 led to dose estimates about 10 times those of the Utility (for the same locations). No follow-up was made, apparently because of the fact that they were both inconsequential (<1mr/hr whole body). No further dose assessment was made following the receipt of information of significant releases from the plant shortly after 1800. Plant conditions causing releases and the releases themselves, led to the declaration of a General Emergency by the Utility at 1805 and recommendation by BRP to PEMA of an evacuation. In keeping with Pennsylvania policy the evacuation recommendation was for 360° out to the limits of the 10-mile EPZ.

BRP Air Monitoring Team

I. Activation and Staffing

The Pennsylvania BRP field monitoring team was activated by a phone call at 1542 from the BRP headquarters in Harrisburg and dispatched from its field office. The team's equipment was pre-packed in emergency kits and matched the list in its procedures manual. Equipment was inventoried and checked previously following notification of Alert (1515). The team left the office at 1550. They arrived on location at 1742; thus traveling time was about 2 hours.

The team was composed of two BRP health physicists. Round-the-clock activation procedures consist of a list in the plan of qualified personnel, with work and home phone numbers. Team members are often on the road on routine inspection duties but can be recalled via radio if in a state car. There is no specific "duty officer" system. During off-hours there may be a delay in obtaining equipment since the team does not have a key to its office building.

II. Equipment and Procedures

The team had a full complement of equipment as per its list, and a manual covering sampling and counting procedures. Some of the equipment (filter paper, etc.) was damaged in a fire and may be of questionable utility. The pancake probe was broken. While en route to the site the team was assigned a specific monitoring location, located it on the map and proceeded to it. The team had good maps and was familiar with the area. When on location the team called in to say it had arrived, then set up the equipment. The team members demonstrated a technique to see if they were in the plume using a pancake probe with and without shielding to detect beta radiation. They took an air sample of 27 cubic feet with a paper filter and silver zeolite cartridge for iodine detection. Iodine detection technique was demonstrated with an Eberline "SAM-2" assay meter. The meter was calibrated with a check source and adjusted for iodine counting, then the sample was counted. The team also ran through the calculation procedure in the manual to convert raw data into iodine concentration in microcuries per cubic centimeter. The whole procedure took about 45 minutes and readings were called in at 1820. In an actual event, this time could be pared down by drawing the sample on location and then counting it while en route to the next location, according to the team members. The team in general was familiar with its equipment and procedures.

III. Communications

The team was in a radio-equipped state car and maintained contact with its base in Harrisburg throughout the exercise. A repeater was

used and reception and transmission were generally good. There is no back-up radio; back-up communications would have to be by telephone.

IV. Radiological Exposure Control

The team had low, mid and high-range dosimeters (0-200mR, 0-20R and 0-200R) and a film badge. The team kept a record of dosimeter readings and was cognizant of the danger of being "in the plume." The team had KI and was notified to take it at 1820 via radio. The team did not use anti-contamination clothing or equipment and did not demonstrate a decontamination procedure.

Pennsylvania Agricultural Sampling Team

I. Field Team Mobilization

Mobilization of the Agricultural Sampling team for the State of Pennsylvania was not demonstrated since the actual sample taking was done out of sequence of regular scenario events. One two-member team, comprised of State Milk Sanitarians, was prepositioned at the State Department of Agriculture in Harrisburg. Prior to deployment, the team was briefed on sampling locations, types of samples to be taken and exposure control procedures.

The current system for mobilizing agriculture field teams begins with PEMA calling the State Department of Agriculture Emergency Response Coordinator. The Coordinator calls the Agricultural Regional Bureau Chief who calls the various agriculture divisions.

These divisions provide the personnel for the agriculture teams. The BRP advises the Emergency Response Coordinator of sampling locations.

II. Field Team Equipment

The issuance of radiation monitoring instruments was "simulated" for this exercise. Twelve CDV-700 radiological survey instruments are available from PEMA for use by agricultural sampling teams.

Team members did have the proper equipment for taking milk, water, feed, pasture, soil and vegetation samples. Included in this equipment were scoops, plastic collection bags, plastic containers, writing material, knives, identification labels and collapsible aluminium ladders for checking milk in tanker trucks.

III. Technical Operations

Agricultural sampling team members were very familiar with the region being monitored and experienced no difficulty in locating the sampling locations.

Two farms within two miles of the Peach Bottom facility were sampled—one farm located in Lancaster County, the second located in

York County. The team demonstrated the proper technique for the collection of milk, water, pasture and feed samples. The samples were delivered to the State Bureau of Radiation Protection Laboratory in Harrisburg for analysis.

IV. Field Team Communications

The issuance of communication equipment to the agricultural sampling team was simulated for this exercise. However, twelve two-way radio are available for the team's use. These radios are issued by PEMA. Radio communications would be established between the Agricultural Emergency Coordinator at the State EOC and the field teams.

V. Field Team Exposure Control

The agricultural sampling team was equipped with disposable plastic suits, gloves and heavy boots. The issuance of KI was not demonstrated, but instructions for taking were printed on individual exposure records. Team members were also knowledgeable of the locations of the various decontamination centers in Lancaster and York counties.

The following dosimetry equipment is available for issuance to each team member: (19 CDV 730) (0-20R), (1) TLD Thermoluminescent Dosimeter, (1) issue of KI, and (1) PEMA radio. However, for this exercise the issuance of this equipment was simulated.

The team members were issued CDV-742 high range (0-200R) dosimeters for use during the exercise. Although team members have been trained in the proper use of this equipment, they took no readings during the exercise. Both dosimeters remained untouched in the front seat of the State vehicle.

Pennsylvania Access and Traffic Control

The Pennsylvania State Police (PSP) demonstrated their ability to effectively and efficiently perform their traffic control responsibilities. In an actual event three PSP staging areas are planned at the York, Avondale and Lancaster barracks. For the exercise, only Lancaster was activated. However, officers from the York and Avondale barracks who would be responsible for organizing their respective units participated in this exercise by reporting to Lancaster.

All officers scheduled to man either a TCP or ACP reported to the Lancaster barracks at approximately 1000. A comprehensive briefing was then given by the staging officer. Prior to the briefing each officer was issued appropriate dosimetry and given a room assignment. The briefing primarily addressed:

Dosimetry

Purpose of the equipment and how to use it.

Radiation

Critical levels
Use of KI
Preventive measures

TCP

Expedite movement of traffic
Familiarity with adjacent control points
All information and requests for assistance to
to be directed to staging area
Wreckers available by contacting staging area
To continually maintain contact with staging area
(Use outside speakers when out of vehicle)
Keep staging areas advised of all unusual events

ACP

Same as TCP with the addition of:
Regulate ingress to the EPZ; only authorized (official)
individuals permitted to enter. Any questions should
be directed to the staging area.

Staging Area Log

Chronology of events, includes reporting times
Decontamination and Reception Centers

At approximately 1130 the officers were instructed to man their respective control points. Each officer visited was fully aware of his duties, arrived promptly at the correct location and demonstrated a good understanding of the concepts covered at the briefing. The only part of the briefing that could possibly be strengthened is to further clarify that the decontamination stations are primarily for emergency workers only. A few of the officers indicated that the public could be directed to these locations.

Pennsylvania State Deficiencies/Recommendations

1. Internal communications in the EOC suffered because of technical problems with the public address system.
2. PEMA accepted dose rates from BRP in unintelligible form (without units and with incorrect exponential format) and relayed them to the Counties in such form. The PEMA Operations Chief took note of this mistake and attempted to acquire intelligible information from BRP but not until after the misinformation had been relayed to the Counties.
3. In the absence of a coordinated siren sounding between Maryland and Pennsylvania, Pennsylvania should notify its risk jurisdictions when Maryland is about to activate its sirens and remind them that no actions are called for in Pennsylvania at that time.
4. Periodic updates of plant conditions and meteorology were not made available to BRP on a regular basis, nor was BRP sufficiently aggressive in acquiring this information for relay to PEMA.

Chester County EOC

I. Activation and Staffing

Telephone facilities located in the Chester County Communications Center provide a link between the utility and the county, while telephone and teletype link Chester County and PEMA. In addition, a dedicated telephone line was installed between PEMA and the county EOC. A call was received by the county over the PEMA telephone line at 1510 informing the County of the Alert. Because this was a partial participation exercise, only the Deputy Emergency Management Coordinator (EMC) was on hand at the EOC throughout the exercise.

As the County Communications Center is operational 24-hours a day, all notifications of an emergency at Peach Bottom are routed through that point. A call-down list is available to notify and/or activate emergency response personnel, depending on the emergency classification level. Although the Deputy EMC was the only individual on-hand, he responded in a prompt manner in notifying all organizations of the simulated emergency. They included West Nottingham Township, various schools (both public and private), campgrounds, the American Red Cross and the designated EBS station. This process took approximately 25 minutes to complete. The county also assigned a liaison to the reception/mass care center at Lincoln University.

II. Emergency Operations Management

The individual in charge of the County's emergency response was the Deputy Emergency Management Coordinator. A copy of the County's radiological emergency response plan was available, along with other resource materials, and was referred to when appropriate. The Deputy EMC maintained a message log throughout the exercise.

Besides receiving the Alert message at 1510, Chester County was notified, by PEMA, of the Site Emergency at 1645 and the General Emergency at 1815, at which time the County was instructed to sound the sirens and activate EBS at 1830 and then proceed to evacuate the entire 10-mile EPZ. The County also received an advisory from the Pennsylvania Department of Agriculture at 1715 for farmers to shelter animals and place them on stored feed.

The Deputy EMC remained active throughout the exercise communicating with other jurisdictions and organizations (as an example Red Cross at 1700) and keeping all parties up-to-date on the status of the emergency.

III. Facilities

As discussed in the September 19, 1984 Limerick Generating Station Exercise Report, the Chester County EOC provides the basic necessities for emergency response, although its location vis-a-vis

other facilities (the County Communications Center and lavatories) is less than ideal. For the Peach Bottom exercise, emergency classification levels were posted and a status board was clearly visible, which was kept current regarding all significant events. Available, but not posted were maps containing such information as the plume EPZ, evacuation routes and reception/mass care centers.

IV. Communications

Demonstrated communications during this exercise included, a dedicated telephone line and teletype to PEMA with commercial telephone being the other primary means of communications to the risk municipality, schools, Red Cross, and the designated EBS station, WCOJ. A volunteer amateur radio network, ARES, also set up stations at the County EOC, West Nottingham Township and at the reception/mass care center at Lincoln University. The county's other emergency radio networks were also utilized to communicate with ambulance services, fire companies and the police.

V. Dose Assessment and Protective Action Recommendation

Not applicable to County.

VI. Public Alerting and Instruction

Public alerting was initiated by a call from PEMA at 1815 informing Chester County that sirens should be sounded and EBS activated at 1830. This was done by the county at the designated time, although the Federal observer was informed that the county, in monitoring the radio station, could not hear the actual broadcast of the simulated emergency message. The Deputy EMC explained that this may be due to the fact that the radio station (WCOJ) often broadcasts at a lower power output in the evenings. In addition, WCOJ is not operational 24-hours per day. The County EOC also activated the appropriate fire companies to perform route alerting of West Nottingham Township, which was commenced at approximately 1835.

VII. Protective Action

As this was a partial participation exercise the county did not play a major role in evacuation and access control. According to the Deputy EMC, there are adequate resources available to deal with bad weather and stalled or wrecked cars and to deal with access and traffic control points. Reception centers were ordered to be activated in a timely manner.

Arrangements were made by the county to simulate the supplying of ambulances to the township for the evacuation of mobility impaired individuals; and the dispatch of buses to the West Nottingham EOC for transit dependent individuals was also simulated.

VIII. Radiological Exposure Control

The Chester County EOC is well outside the plume exposure EPZ and thus no dosimetry would be needed for those working at that location. As called for in the county RERP, during the Alert (at approximately 1545) the County Radiological Defense Officer was dispatched to West Nottingham Township with dosimetry, KI, chargers and report forms for the emergency workers at that location. He is well-versed on the proper procedures concerning the uses of this equipment and the maximum radiation dose allowable without authorization. The Federal observer was informed that permanent record devices have not yet been obtained for emergency workers.

IX. Media Relations

Chester County did not demonstrate its media relations capability during this exercise due to its partial participation. It was noted that emergency information for the public within the 10-mile EPZ was contained in the Southern Chester County Telephone Directory.

X. Recovery and Reentry

Recovery and reentry was not an exercise objective.

Xi. Scenario

The Peach Bottom REP exercise gave Chester County sufficient opportunity to test its interrelationship with other jurisdictions.

Reception and Mass Care Center

I. Activation and Staffing

The West Grove Fire and Police provided three personnel, a Chief with patrol car and two patrolmen using their own vehicles. Red Cross personnel consisted of a Supervisor, Nurse, and one additional person. One RACES operator in a private vehicle was present as well as radiological monitoring team (2 people), and a consultant from the Utility. No additional personnel were activated.

Lincoln University Security Officer received a call from Chester County EOC at approximately 1650 informing them the Red Cross would arrive in a half hour to set up in the Alumni Gym Building. Participating staff were notified by their parent organization by phone and mobile radio. The first arrival on site was a patrolman from West Grove Fire and Police (1745), the last arrival the consultant from the Utility (1915).

The staff present had the necessary background and training to perform their emergency functions, they were not in sufficient numbers, however, to perform a full-scale demonstration. Procedures for 24 hour staffing were explained by organizations present. Staffing would be accomplished from within those organizations.

Chester County EOC Deficiencies/Recommendations

1. The designated EBS station could not be received at the County EOC nor is the station operational 24-hours a day.
2. No permanent record devices (film badges or TLD's) are in existence for emergency workers in Chester County. Attempts should be made to procure this equipment.
3. Although the reception and mass care center staff gave every indication of being prepared to perform their emergency functions they did not so demonstrate. At the next exercise a fuller demonstration of plan implementation should be conducted.

West Nottingham Township EOC

I. Activation and Staffing

At 1545 hours the EMC arrived at the Township Building with two way hand-held radio, and entered the Township EOC operations room. The deputy EMC accompanied the EMC. The Township EOC was officially opened and the call-down list was immediately activated. The Fire and Police Chiefs were notified of the Alert notice via telephone. At 1650 the RACES operator was notified by telephone of the Alert status and arrived at the EOC shortly thereafter. None of the Township Supervisors were present at the EOC. Some numbers called were incorrect and some Township officials were en route between work and their residences and thus were not able to be reached. The Township secretary/communications support person arrived at 1800 hours and relieved the Deputy EMC of logging incoming messages. At 1750 hours the Fire Chief reported to the EOC. The police (security officer) also arrived at the EOC during this time. The EMC informed the Federal Observer that while security was available the police chief would not be able to remain at the EOC. The local police chief left the EOC shortly thereafter. A sign-in sheet however was mandatory for all who entered the EOC. Traffic within the EOC was kept at a minimum. Key staffing consisted of the above-mentioned personnel and appeared to have been completed by 1800 hours, upon the arrival of the auxiliary police representative of the Oxford-Union Fire Company.

The organizations represented at the EOC were Fire/Police, Ambulance, EMC and his deputy, RACES, Township Secretary, Energy Consultant representative and the Farmers Association. The staff displayed a better than adequate knowledge of their responsibilities and the West Nottingham emergency operations plan. Round the clock staffing availability was demonstrated by the double staffing of the EMC and Deputy EMC. It was observed that each are capable of continuing EOC operations, independently, if necessary.

II. Emergency Operations Management

The EMC, as designated in the plan was effectively in charge of the Township's operations. The EMC was knowledgeable of operations

procedures and was effective in directing his staff to address various situations. All messages were logged and posted on a large "Event Chronology Status Chart." The EOC was notified by the County of the Alert status at 1515 hours and of Site Area Emergency at 1650. The General Emergency status message reached the EOC at 1815 hours. All EOC communications were via two way radio and the telephone. At 1815 hours the EOC was notified that the sirens would sound at 1830 and that evacuation procedures should be implemented immediately following the sirens. There are two sirens in West Nottingham Township which were audible in the EOC.

At 1815 buses were dispatched to the transportation pick up points and the (3) alert teams activated. The alert teams were well versed in the Township plan and were issued verbal instructions and given a prepared evacuation map which indicated the alert team dispatch routes, traffic control points, bus pick up stations and emergency evacuation routes. The map is divided into nine (9) sectors.

III. Facilities

The EOC was adequate for an emergency response operation. Three commercial telephones were operable along with a two way hand held radio. The County-owned COM-VAN, operated outside the EOC with direct communications inside the EOC. ARES/RACES operation was not possible within the EOC without an antenna. Ample space, tabular and graphic information was available and updated regularly.

IV. Communications

The Township had sufficient communications capability to ensure that messages could be received and transmitted to field workers. The COM-VAN is capable of direct communications with the EOC via radio and telephone. The RACES operator was not capable of transmitting from within the EMC due to non-availability of an antenna at the EOC. The COM-VAN, however was capable of tying in on the neighboring counties of Cecil and Delaware, the fire company (Union Oxford), local and state police, and Sheriff. The COM-VAN has 80 frequencies and a County fire net. It is equipped with auxillary generators.

V. Dose Assessment and Protective Action Recommendation

Not Applicable.

VI. Public Alerting and Instruction

Having received and verified a call from Chester County at 1830 hours the EMC dispatched the three route alert teams at 1835 hours. All teams had returned to the EOC by 1945 hours. One team did not complete route alerting as they were called to an actual emergency situation. The other two teams reported that completion of the route alerting was accomplished within 20 and 30 minutes. Bull horns were

used in route alerting. An Amish farmer was also notified to evacuate via door to door contact as the Amish do not have telephones.

The three non-ambulatory residents were notified by the EMC that transportation (ambulance) would arrive in order to evacuate them to the mass care center at the Lincoln University Campus. The EBS station could not be received within the EOC on the portable radio. The EBS message, however, supposedly aired at 1830 hours.

VII. Protective Action

Traffic control points were activated at the required time and manned by the police/fire volunteers and ambulance service. The Township maintains a list of three residents who require special care or ambulance service. All were notified by phone. There are no hospitals or nursing homes within the Township. The Nottingham Inn and Park ranger were contacted in order to determine the number of transients in the Township. Adequate personnel and available vehicles ensured transportation and evacuation within the only Chester County community within 10 miles of the Peach Bottom Plant. About 2500 residents are located within the Township's corporate limits. In bad weather, the "Four-Wheel Drive Workers" would be called upon to assist in keeping evacuation routes clear of stalled or wrecked cars. The Township/County maintain a list of four-wheel drive vehicle owners.

The three non-ambulatory residents were contacted by telephone. An ambulance was dispatched to pick-up an iron-lung patient for dispatch to the mass care facility. School was dismissed at 1530 hours. The Township schools maintain a Standard Emergency Operations Plan for evacuation.

West Nottingham students/residents would be bussed to the Lincoln University Mass Care Center and parents would be notified to pick-up their children at the Center.

VIII. Radiological Exposure Control

West Nottingham Township EOC is a decontamination point. Therefore preparation and distribution of dosimeters to field workers and EOC personnel was demonstrated. The Township Coordinator maintained the KI and was aware of the proper dosage required. Field workers underwent simulated decontamination as they returned to the EOC from route alerting, transportation, and traffic control assignments. High range dosimeters, chargers, and record keeping sheets were maintained and assigned at the EOC.

IX. Media Relations

There was no media involvement at the EOC.

X. Recovery and Reentry

Not demonstrated during this exercise.

XI. Scenario

The scenario was an excellent test of their plan and was an excellent test of the Township manpower and adequate resources.

West Nottingham Township EOC Deficiencies Recommendations

1. Some of the phone numbers on the Township's call lists were not correct. These lists should be regularly checked for accuracy.

Lancaster County

Lancaster County EOC

I. Activation and Staffing

The Lancaster County EOC received a call from the Pennsylvania Emergency Management Agency, notifying the EOC of escalation to Alert status at 1511. After verifying the call, staff mobilization procedures were demonstrated. Written call down lists were used. Staffing of the EOC was complete by 1600. Lancaster County operates a 24-hour communications room which permits activation of the County EOC at any time.

The following staff members and organizations were represented in the EOC:

- County Commissioners
- Emergency Management Coordinator
- Deputy Emergency Management Coordinator
- Message Center Staff
- Situation Room Staff
- Communications Room Staff
- Police Group Officer
- Fire and Rescue Officer
- Medical Officer
- Transportation Officer
- Public Works Officer
- Public Information Officer
- Mass Care Officer
- Red Cross
- Radiological Officer
- County Agent
- RACES
- REACT

It was evident throughout the exercise that all staff members had sufficient training and knowledge to respond to an emergency at Peach Bottom. Round-the-clock staffing capability was demonstrated by presentation of a roster, and double staffing of some positions. Second shift personnel not present in the EOC were contacted by telephone.

II. Emergency Operations Management

The Emergency Management Coordinator, who is designated in the County plan, was a very effective leader and coordinator. Periodic briefings were held throughout the duration of the exercise. County Commissioners and staff members were involved in the decisionmaking process. Copies of the County plan and various agency SOPs were available and referred to. A situation room was established and used to record every action as it was completed. The message center which

has recently been organized proved to be a valuable method of insuring that all messages, incoming and outgoing, were properly logged, reproduced and distributed. Message handling was very efficient. It is suggested that the various agencies represented at the EOC utilize the telephones provided for them when relaying information and instructions to their staffs. This information could then be recorded on the message forms as already being transmitted (by telephone) and then entered into the regular message distribution system; thereby relieving the message center staff who were quite busy during the entire exercise.

A deputy sheriff controlled access into the EOC. All personnel were required to sign-in, were provided identification badges and were required to sign-out of the EOC when they left.

The EOC was notified of the Alert status at 1511, of Site Area Emergency at 1630 by the utility and 1645 by PEMA and General Emergency at 1805. At 1816 a call from PEMA informed the EOC that sirens would be activated at 1830, with EBS announcements to follow immediately thereafter. The County notified all municipalities and other interested parties immediately upon receipt of these notifications. In addition calls were places to all municipalities and other response organizations throughout the exercise to keep them informed of the current status and to ascertain the status of response actions. As noted above Lancaster County received notification of an escalation to Site Area Emergency from the Peach Bottom Atomic Power Station. As stated in Annex E, the utility should notify Lancaster County directly only at General Emergency. If the utility is going to continue notifying the County and in some cases, municipalities at times other than those stated in the plan, the plan should be changed to reflect this.

County Commissioners were present in the EOC throughout the exercise.

III. Facilities

The Lancaster County Emergency Operations Center (EOC) is located in the basement of the Lancaster County Court House. The EOC is large enough to accommodate the entire response organization. The EOC has separate rooms set up for the Operations Area, situation analysis, message center, communication center and RACES and REACT area. Large accessible maps were available and posted indicating EPZ sectors, evacuation routes, reception and mass care centers, traffic and access control points and population by township. Several status boards were available and kept current during the exercise.

IV. Communications

Communications systems available to Lancaster County EOC are very good. Primary contact with the State EOC was through a dedicated landline. The PMARS radio net, commercial telephone and a teletype system provided reliable redundant systems. Communications contact with the municipal EOCs was accomplished through commercial

telephone. In addition the County provided RACES and REACT operators to each action location. The County also has separate emergency radio net which can be tied into each municipal EOC. However some of the municipal EOCs were not tuned into this frequency. Police/Fire/Ambulance radio nets are also available in the communications room of the EOC.

The Philadelphia Electric Company has provided each of the townships and boroughs with a receive only scanner which can be programmed in any frequencies they wish to monitor. This may cause a problem in that any one of the locations can program in the frequency on which the plant operates and thereby monitor what is occurring at the power station. These municipalities could receive information before the County and possibly take actions on items that the County should be responsible for. Standard operating procedures should be established and municipalities trained on how they will use this equipment to its best advantage. In addition, if municipalities are going to rely on the scanners for information some means of battery backup power should be supplied.

The Red Cross also had a separate radio frequency which was utilized by the Red Cross Representative in the EOC to communicate to his field locations.

V. Dose Assessment and Protective Action Recommendations

Not applicable at County level.

VI. Public Alerting and Instruction

Upon arrival at the EOC, the Public Information Officer reviewed the news releases in the County plan and coordinated the use of messages with the EBS station. At 1816 PEMA notified the County that the sirens would be activated at 1830 with EBS announcement to follow. This was accomplished on schedule at Lancaster County. The EMC advised each municipality of the time of the Alert and Notification system activation, and further, to begin the route alerting in conjunction with siren sounding and the EBS announcement. The municipalities informed the County when route alerting was completed.

VII. Protective Action

Traffic and access control is a responsibility of the Pennsylvania State Police. A State Police Liaison Officer was present in the EOC throughout the exercise. Manning of traffic and access control points were demonstrated out of sequence for this exercise. This is discussed further under a separate section of the report. Adequate resources are available in the County to keep evacuation routes clear in an emergency. Reception center and mass care center personnel were placed on standby during the Alert stage of the exercise. Once it was evident that Reception centers and mass care would be required the staffs were promptly activated.

Lists of mobility-impaired individuals and their locations are maintained in the municipal EOCs. The transportation officer stated that ample resources are available for all transportation needs in the county. Municipalities were asked to provide any transportation resources requirements to the transportation officer in the County.

The County Agent advised farmers to shelter animals and place them on stored feed. These actions were accomplished in accordance with his SOPs and a news release sent out by the State EOC. The County Agent stated that he did not coordinate actions with the State Department of Agriculture. All tasks were completed properly in relation to implementation of ingestion pathway protective actions. However, it is suggested that some form of direct coordination between the County Agent and the State Department of Agriculture be initiated.

VIII. Radiological Exposure Control

For this exercise the CDV-724 (0-200R) dosimeter was distributed to the players. TLDs have not been provided to the Lancaster County EOC. The number of dosimeters met plan criteria and there was a supply of extra dosimeters. All players received 16 hours of radiological monitoring training. The staff person assigned to Radiological Exposure Control is a physician. This person exhibited excellent knowledge of KI procedures, dose limitations and decontamination procedures and facilities.

IX. Media Relations

The Lancaster County Public Information Officer was articulate and confident. He was kept well informed of the current situation by the Joint Public Information Center. The PIO felt that information received over the teletype system was so complete that further consultation with the Joint Public Information Center was unnecessary.

A Media briefing was given in the Lobby of the Lancaster County Court House. This area is open to the general public. The briefing was held at 1700 when most of the personnel working in the Building were leaving for the day. It is suggested that an area be set aside which would grant an environment more conducive to an interview with the press. The interview was accurate and complete, giving times of status changes, rumor control numbers, participants involved and areas affected. The media center location noted in the County Plan (Appendix 7, Annex 7) was not used during the exercise. If a new location is going to be used for the media center the plan should be changed to reflect this.

X. Recovery and Reentry

Not demonstrated during this exercise.

XI. Scenario

The scenario provided sufficient action to test the County's capabilities to respond to protect its citizens. The EOC staff worked together as a well organized team to complete its assigned responsibilities in the protection of the public during an incident at the Peach Bottom Atomic Power Station.

Before informing the risk municipalities the exercise had terminated, the Lancaster County EMC insured that all assignments and evacuations were completed. Municipal EOCs were told to relocate their operations out of the 10-mile EPZ and inform the County of the new locations and phone numbers, thereby bringing this portion of an emergency to a logical conclusion.

St. Joseph's Hospital, Lancaster County

St. Joseph's Hospital appears to have the necessary personnel and equipment to handle any contaminated and injured victim they may receive.

The hospital's procedures appear adequate, but a field evaluation of the hospital's capabilities can not be determined without an actual demonstration with a contaminated, injured victim. The hospital uses standard CD equipment to monitor incoming patients. Communication between hospital and County EOC, and other support facilities was via radio and telephone lines.

Lancaster County Relocation Reception Center, Willow Street Vo-Tech

The Reception Center was fully staffed with personnel from County and local government, Red Cross, and RACES. The staff were familiar with their assigned tasks and demonstrated the abilities necessary to carry them out in accordance with the plan. One unique situation was the existence of a student nursing facility with approximately a 12-bed capacity. This room could be used as a backup to the existing medical facilities in the area.

It was staffed by two nurses. Radio communications provided by RACES was the primary communications. Various backup systems existed. The Reception Center would recommend opening additional Mass Care Centers if the numbers indicated a need.

Mass Care Facilities Lampeter/Strasburg School Complex

The Red Cross effectively managed the Mass Care operation at the school. County and local personnel performed the monitoring and decontamination functions described elsewhere. RACES provided communications. The center is located 20 miles outside the EPZ. One thousand people could be accommodated. The reception center would control the flow of evacuees to the Mass Care Center and open another facility before maximum capacity was reached.

Monitoring and Decontamination Lancaster County, Lampeter/Strasburg

All evacuees arriving at the Mass Care facility were monitored for possible contamination. The personnel present had the proper equipment and were familiar with its use. Correct monitoring procedures were observed with the exception that probes were not covered in plastic to prevent possible contamination of monitoring equipment.

Decontamination procedures were not demonstrated but monitoring personnel advised the observer of the correct method of decontamination. Decontamination would take place at the adjacent middle school. Staff had a working understanding of the procedures.

There was no plan for vehicle monitoring/decontamination.

Lancaster County Emergency Worker Monitoring and Decontamination

The emergency worker monitoring and decontamination facility was located at the Willow Street Fire House and activities were directed by the Willow Street Volunteer Fire Department. Sufficient personnel were present to accomplish the monitoring and decontamination of the workers. The staff was familiar with the equipment and how to use it. Correct monitoring procedures were demonstrated. In future exercises a plastic "baggie" should be placed over the probe to prevent possible contamination of equipment.

Personnel decontamination facilities were available but were not demonstrated. The staff did explain procedures to be used. They suggested that they would start the procedures outside the fire house in the future rather than inside the facility as they did this year.

Questions regarding the disposition of waste water (should water from decontamination of personnel be stored or wasted into the sewer system?) and contaminated clothing disposal were asked and they were referred to the County EOC.

Lancaster County Deficiencies/Recommendations

County EOC

1. It is recommended that various agencies represented in the EOC utilize the telephones provided for them when relaying information and instructions to their staffs. This information could then be recorded on the official message forms as already being transmitted (by telephone) and then entered into the regular message distribution system; thereby relieving the message center staff who were quite busy during the entire exercise.
2. The utility notified the County of Site Area Emergency contrary to the State and County Plan. This discrepancy between plan and practice should be reconciled.

3. Procedures should be established for the use of scanners and other equipment provided to municipalities by the utility.
4. Some form of coordination between the County Agent and the State Department of Agriculture should be established to facilitate implementation of protective actions for the Ingestion Pathway.
5. The media center location contained in the County Plan at Appendix 7, Annex 7 was not used for this exercise. In future exercises the media center should be the one reflected in the plan. The location should be noted in the County Plan.
6. Pre-exercise planning stages of future exercises at St. Joseph's Hospital should include planning a demonstration with a contaminated injured victim to coincide with the time the federal observer is at the facility.
7. Monitoring and decontamination equipment should be protected with a plastic cover where appropriate to prevent possible contamination.
8. Lancaster County should develop a system/plan for disposal of contaminated water and clothing.

Drumore Township EOC

The Township participated in the exercise; however, the Township did not allow federal observation.

Drumore Township Deficiency

1. Because no federal observation was permitted, FEMA is unable to find that emergency preparedness was adequate to provide reasonable assurance that appropriate protective measures can be taken to protect the health and safety of Township residents in the event of a radiological emergency at Peach Bottom Atomic Power Station.

East Drumore Township EOC

I. Activation and Staffing

At 1523 the EMC received a call from Lancaster County EOC at her place of employment notifying her of an Alert at Peach Bottom Atomic Power Station. She did not verify this call. She did, however, proceed to notify her Township Supervisors.

At 1535, the Township Supervisors, located at the Township EOC, received a call from Peach Bottom Power Station notifying them the drill had begun and that personnel should be notified. They (the Supervisors) had already begun notifying staff after the call from the Township EMC.

The EOC was not fully staffed for the exercise and did not demonstrate a 24 hour capability. In fact, staff present served dual roles. When questioned, they did not project a complete familiarity with the Township plan.

II. Emergency Operations Management

The EMC, as designated in the plan, was the individual effectively in charge of emergency operations. She kept her staff informed through the use of frequent informal briefings.

Both copies of the Township plan and checklists were available for use by the staff. Messages were recorded on message forms and logged on a message log. While distribution procedures were adequate for the exercise, with a full complement of staff, a specific individual (other than the EMC) would be required for message distribution. Security was controlled into the EOC through the use of a person posted at the door who assured individuals signed in and out and wore ID badges while in the EOC. The EMC was notified of the Alert at 1523, the Site Emergency at 1624 and the General Emergency at 1822. She did verify the Site Emergency with the County, EOC, the County EOC called to verify the General Emergency with the Township. At 1810 the County EOC notified the Township that the Governor had declared a disaster emergency and also that animals should be placed indoors and on stored feed.

III. Facilities

Facilities were adequate in terms of space, furniture, lighting and phones.

The EOC had maps displayed showing the EPZ, evacuation routes and relocation center. A status board was prominently displayed and kept up-to-date on the exercise events. The EOC lacks those things necessary to support extended operations. There are no showers, kitchen facilities, adequate bunking or a backup generator. However, the EOC would relocate, once evacuation of the citizens was complete, outside the EPZ.

IV. Communications

This township is well equipped with communications equipment necessary to handle an emergency at the Power Station. All events were posted in the EOC after everyone was given an oral briefing. The EOC kept a master log on all messages received or transmitted. There are four telephones installed which is a sufficient number to handle the personnel working in the EOC.

The Township had the Utility-provided scanner working and was monitoring the County Police, Fire and Emergency nets plus the weather net. A list of frequencies was posted next to the scanner in case they would have to reprogram the scanner.

The Township also had a RACES net established with the County to be used as a backup to the phones.

V. Dose Assessment and Protective Action

Not Applicable.

VI. Public Alerting and Instruction

Upon receipt of notification of the General Emergency, a route alerting vehicle was dispatched, concurrent with the sounding of the sirens, to cover an area where a siren was inoperable. The team left the EOC at 1832 and returned at 1904.

VII. Protective Action

The EMC placed several calls to the Presbyterian Nursing Home to ensure they were receiving their messages. There is one individual within the Township who requires oxygen, but he has his own supply and therefore required no special accommodations. There are no hearing impaired, mobility impaired or other individuals with special needs in the Township.

VIII. Radiological Exposure Control

The Township EOC had an adequate supply of low range dosimetry and chargers. Records on the distribution of the dosimeters were maintained and all personnel were given this equipment. EOC staff were not adequately trained in the use of the equipment and were not familiar with where to go for decontamination.

Because the EOC is within the 10-mile EPZ, simulation of relocation of the EOC outside the plume was demonstrated at 1908. The County EMA was notified by the Township at 1935 that evacuation was complete.

IX. Media Relations

The Township did not participate in any press briefings.

X. Recovery and Reentry

This was not demonstrated for this exercise.

XI. Scenario

The scenario provided the Township with the opportunity to exercise and test their plans and procedures.

East Drumore Township EOC Deficiencies

1. The Township does not have the capability for 24 hour operations. Staffing for the exercise was incomplete; participants played dual roles.

2. Staff did not demonstrate complete familiarity with many aspects of the plan. Additional training is necessary.
3. Township did not request resources from the County EMC for unmet needs. The EMC stated the County was aware of what their resources shortages are. Unmet needs should be explicitly made known to the County at the appropriate time.

Fulton Township EOC

I. Activation and Staffing

The call initiating activation of the EOC (Alert status) was received by the designated EMC at approximately 1517 at his home. Notification of key personnel was in turn accomplished by the EMC telephoning from his home. Staffing called for by the Township operations plan was never completed. The designated EMC arrived at the EOC at approximately 1530 and made no preparations for getting the facility operational. From 1530 to 1620 the operations room was not functional. At 1620 the Chairman of the Township Board of Supervisors arrived and proceeded to act as the EMC and EOC staff. At 1655 the designated Deputy EMC/Fire Chief arrived and at 1710 left the EOC for the Township firehouse from where he was to direct the route alerting. From this point there were two identifiable key staff personnel managing EOC functions: the Fire Chief at the firehouse with route alerting responsibility, and the Township Chairman with the remaining duties. Several emergency personnel were at all times present in the EOC but were not involved in any decision-making or direction and control duties.

II. Emergency Operations Management

The Chairman of the Board of Supervisors was the acting EMC. He was fairly knowledgeable on the operational requirements of the EOC and he referred several times to the Township operations plan to confirm his actions. The operations plan calls for staffing in the following areas: Police, Fire/Rescue, Ambulance, Transportation and Public Works Chiefs. Only the Fire/Rescue Chief position was staffed and was limited to the mobilization and implementation of route alerting.

Checklists were on hand and important events were logged on a status board. Individual message logs were not maintained. However, documentation of radio messages received between 1838 and 1950 did occur but this documentation was basically a duplication of events listed on the status board.

The Township personnel were notified of the Alert at 1517. The Site Area Emergency was received over the County emergency radio at 1637 and was verified on receipt of the transmission. The General Emergency was received and acknowledged over the same county emergency radio at 1817.

III. Facilities

The EOC facility was sufficient to accommodate the required personnel for an emergency operation. Two status boards were clearly visible and kept updated as to significant events and other various maps and charts were available.

IV. Communications

The Township has sufficient communications capabilities available but personnel were not sure how to use them. There was a recently installed telephone located in the EOC but the number had not been given to the County EOC. The only other phone available was not located in the EOC and was used for everyday traffic by everyone working in the Township Building. The Township did have alert teams established to notify schools and motels. The Township was given a receive only scanner by the Utility, but personnel were not sure what to use it for. Until 1730 the only radio monitored in the EOC was the County Fire net; at 1730 the township put the County Emergency net in the scanner. There was confusion as to which net to monitor for information. At 1637 the County fire net announced the Site Emergency, at 1639 the County emergency net announced the Site Emergency.

The Township communications plan shows a requirement for two Amateur Radio personnel with equipment, to be used during emergencies. Personnel did not know of this requirement and never requested the AMATEURS. The County sent a "REACT" operator to the Township at 1717 but he was unable to establish a communications link with the County or with other units within the County. At 1750 the RACES operator arrived and established communications. When both of the Amateurs arrived at the EOC it was a surprise to the personnel working in the EOC and they were not sure what to use them for.

The township had forms available for messages but they were not always used.

The current status at the Power Station was posted for everyone to review.

V. Dose Assessment and Protective Action Recommendation

Not Applicable.

VI. Public Alerting and Instruction

The EOC's role in Public Alerting was limited to route alerting which was implemented after the siren sounding. The operations plan calls for five area sector warning routes and maintains a current listing with updated telephone numbers of area alert teams. Although all five crews were present only one was actually dispatched and accomplished its mission in thirty-three minutes.

The EOC's role in distributing instructions to the public consisted of announcing instructions from route alert vehicles requesting that the public monitor the EBS.

VII. Protective Action

There was no activation of traffic control points observed. The Township is required to man one TCP in the township until the State Police can arrive on the scene. The Township was aware of their responsibility but did not man the traffic control point because they had ample fire/rescue personnel on hand and were satisfied that they could meet this requirement.

The Township has no known persons requiring ambulatory transportation or hearing impaired. The Township's only special requirement is to provide transportation for seventy-five people. The Township has the capability of providing this transportation and the appropriate vehicles were put on standby during the course of the General Emergency.

VIII. Radiological Exposure Control

The following dosimetry equipment was available: Direct-read (0-200R) dosimeter, charger and record keeping cards. Potassium iodide tablets were not available. The acting EMC seemed knowledgeable in the "zeroing" and use of the dosimeters and ensured that participating individuals were issued them. This was the extent of the observed Radiological Exposure Control performed by the EOC staff. According to the EMC one of the exercise players present was knowledgeable in the proper use of the dosimeters and potassium iodide. The Township operations plan makes no provision for decontamination procedures.

IX. Media Relations

There was no involvement by the media at the EOC.

X. Recovery and Reentry

Not demonstrated during this exercise.

XI. Scenario

The scenario was adequate to test the Township plan.

Fulton Township EOC Deficiencies

1. The township did not exercise staffing requirements as per their plan. An elected official acted as the EMC. The designated EMC made no attempt in preparing the Operations Room for operational readiness and was not available to serve as a key staff member. The Deputy EMC went to another facility and performed the sole function of route alerting.

2. No 24-hour manning capability was demonstrated.
3. The township never requested unmet needs, especially the need for a RACES radio and operator from the County.
4. Additional training and familiarity with the township plan to include responsibilities and communications systems available and use of those systems is needed for the EOC staff.

Little Britain Township EOC

This Township participated in the exercise; however, the Township did not allow federal observation.

Little Britain EOC Deficiency

1. Because no federal observation was permitted, FEMA is unable to find that emergency preparedness was adequate to provide reasonable assurance that appropriate protective measures can be taken to protect the health and safety of Township residents in the event of a radiological emergency at Peach Bottom Atomic Power Station.

Martic Township EOC

I. Activation and Staffing

The EMC was notified of an Alert at approximately 1510. The EMC, who works in Lancaster, verified the call and alerted the other EOC staff from his office. The Deputy EMC arrived first at the EOC, at 1530. The EOC was fully staffed at 1700. Represented at the EOC were the EMC, Deputy EMC, Police/Fire, Ambulance, RACES and Township Supervisors. The Township displayed capability for 24-hour, 2nd shift operations, but did not activate the 2nd shift. The EOC staff displayed an adequate knowledge of their duties.

II. Emergency Operations Management

The EMC was effectively in charge of the Township's emergency operations. The EMC was thoroughly familiar with operating procedures and effectively directed the EOC staff in a variety of tasks. The staff maintained checklists and messages were promptly logged and circulated. The EMC was notified of Alert status at 1511, Site Emergency at 1639 and General Emergency at 1818. The Governor's disaster proclamation was received at 1803. At 1828 the EOC was notified the sirens would sound at 1830. Route alerting was initiated at 1835 and completed at 1920. Evacuation was started at 1900 and complete at 1920.

III. Facilities

The EOC is fully adequate for emergency operations. Two emergency commercial lines were available, along with 6 portable RACES radios.

Ample tabular and graphic information was available, and a status board was maintained and kept updated.

IV. Communications

The Township had sufficient communication capability to insure messages could be sent and received. Messages were confirmed prior to action being taken. The status board was updated on receipt of a message or completion of an action.

V. Dose Assessment and Protective Action Recommendations

Not applicable.

VI. Public Alerting and Instruction

The Township relies on siren warning and EBS monitoring. There are no known hearing-impaired or other residents that require special notification. Three pre-determined alerting routes are contained in the Township plan. All three routes were physically traversed during the exercise. The alerting vehicles were dispatched at 1835 and returned at 1920.

VII. Protective Actions

Traffic control points were activated at the required time and were manned by Fire/Police volunteers. Buses were dispatched to pre-determined pick-up points. As noted above there are no known hearing-impaired or other residents that require special handling during evacuation.

VIII. Radiological Exposure Control

Dosimeters were distributed and records kept accordingly. All personnel who would be subject to exposure were issued a meter. All personnel were aware of the proper usage and maximum doses. Additionally, the Township has established a decontamination center for affected persons and has trained three individuals in the use of the CDV-700.

IX. Media Relations

No involvement at the township.

X. Recovery and Reentry

Not demonstrated during this exercise.

XI. Scenario

The scenario was sufficient to allow the Township to exercise its emergency procedures and requirements in its plan. The exercise was a valuable test of the Township's personnel and resources.

Providence Township EOC

I. Activation and Staffing

An Alert notice was received at the municipal building at 1515 over the CB scanner. Verification of the Alert notice was completed at approximately 1534 when the EMC arrived at the EOC. Total staffing was completed by 1900 when the Transportation Officer and Radiological Officer arrived. All staff members were aware of their responsibilities except the Radiological Officer.

The organizations represented at the EOC were: One additional Township supervisor, Providence Township Ambulance Association, three (3) sector captains, and one RACES operator.

The staff displayed adequate training and knowledge in order to carry out their assigned functions. Round-the-clock staffing capability was demonstrated by establishing a roster of assignments and double staffing.

II. Emergency Operations Management

The EMC, as designated by the Providence Township plan, was effectively in charge of the Township emergency operations. The EMC was knowledgeable of operational procedures and was effective in directing her staff to address various actions. This was important due to the fact that no checklists or written procedures were available for reference. Messages were promptly logged and distributed on the status board. The EOC was notified of the Alert status at 1515, the Site Emergency at 1644, and the General Emergency at 1820, by the Lancaster County EOC. All the events were received over the CB scanner and were verified by the EMC via telephone to the County EOC.

At 1900, a disaster proclamation from the Governor was received from Lancaster County EOC and verified by telephone by the EMC. At 1820 the EOC received a radio message from Lancaster County EOC informing all concerned that the sirens would be activated at 1830 and that evacuation procedures were to be implemented at this time. Route alerting procedures were demonstrated. Special evacuation problems such as mobility-impaired individuals were also covered in a timely fashion. The EOC staff knew where their designated reception areas were.

III. Facilities

The EOC facility was fully adequate for an emergency response operation. Four commercial emergency telephone lines were available along with one two-way radio and one portable RACES radio with a mobile auto unit. Ample tabular and graphic information was available and a status board indicating significant events was kept updated.

IV. Communications

The Township has sufficient communication capabilities available within the EOC as long as the telephone lines are available. The township was provided a RACES operator to work in the EOC, but this was not possible due to equipment limitations that the operator had. The Township had installed a RACES antenna on the roof of the EOC with a cable running into the EOC. The RACES equipment did not have sufficient power to operate on this antenna. The operator establish the RACES net in his vehicle and also had a REACT net in the vehicle. This arrangement was not satisfactory to insure that the Township receive all the messages being passed on both nets. The RACES operator lost messages whenever he would have to go into the EOC. The operator was logging messages he did receive in a book, then relaying them to EOC personnel by voice. He did not fill out any message forms until the exercise was over.

All messages being received over the telephones were logged on message forms and posted in the EOC.

V. Dose Assessment and Protective Action Recommendation

Not Applicable.

VI. Public Alerting and Instruction

The Township did play a major role in public alerting and instruction. A call was received at 1820 from Lancaster County to inform the EOC that sirens would sound at 1830 with EBS to follow. Route alerting was initiated in conjunction with those instructions. Telephone calls were made (simulated) and all concerned were notified.

VII. Protective Action

Traffic control points were not activated. Evacuation and access control is the responsibility of the State Police as per the Township's plan. No other measures concerning this place of activity were observed.

VIII. Radiological Exposure Control

The EMC distributed CDV-742 dosimetry for all staff and emergency workers. There was an adequate supply available. KI was not distributed. Instructions were available and issued along with the dosimetry. Several personnel were present who were aware of proper procedures concerning the uses, however, no one knew about maximum doses.

IX. Media Relations

There was space available for press briefings, however there was no involvement by the Media at this EOC.

X. Recovery and Reentry

Not Applicable.

XI. Scenario

This scenario permitted the Township to exercise its procedures and requirements contained within their plan and was a excellent test of Township manpower and resources.

Providence Township EOC Deficiencies

1. The RACES operator could not handle all messages to the EOC. Procedures and equipment should be reviewed and modified as needed.
2. The Radiological Officer was not knowledgeable about responsibilities and did not arrive at the EOC until 1900 when the evacuation was already underway. He should receive additional training.

Quarryville Borough EOC

I. Activation and Staffing

Lancaster Emergency Management Agency called the EOC at 1519 on a commercial telephone line. The EMC declared the EOC activated. All calls from LEMA were verified by the EMC.

Staffing was complete in the EOC by 1610. The organizations represented at the EOC were Mayor, Police Department, Borough Council, Public Works, Fire Department, and Ambulance Service. The staff displayed competence, and familiarity with plans and procedures. Second shift personnel were not present at the EOC, however, they are available and can be alerted if necessary.

II. Emergency Operations Mangement

The EMC, was effectively in charge of response operations. He is the person named in the EOC plan. The EMC spoke often with staff to give instructions, to put emergency procedures in effect, to answer questions, and to get information.

Staff kept message logs up-to-date and posted critical information on status board visible to all. A Security Chief, from the Borough Police Department guarded the door leading to the EOC.

The following elected officials were present and involved in decisionmaking: Mayor, Borough Council President and three Borough Council members.

LEMA notified EOC of following events over commercial phones: Alert 1519, Site Emergency 1642, General Emergency 1817.

III. Facilities

The EOC facility was fully adequate for an emergency response operation. Two commercial telephones were on hand as well as two portable two-way radios. Message board and maps were all available and kept up to date.

The clearly visible message board is an event chronology status board and staff kept the board up to date.

The following maps were posted: The plume EPZ, evacuation routes, relocation centers, access control points, and Radiological monitoring points.

IV. Communications

This is a very well equipped Borough in regards to communications capabilities. The personnel are well-trained on all phases of the equipment and are very knowledgeable on procedures. The Borough keeps in touch with the County EOC via telephone with the Police and Fire nets as backup.

The RACES net was operational within the County EOC and surrounding communities. The RACES operators had portable units available in case of a power failure at the EOC.

The Police are used to notify the school and are directed from the EOC on the Police net.

V. Dose Assessment and Protective Action

Not Applicable.

VI. Public Alerting and Instruction

The Borough relies on sirens, and route alert teams, (fire company) to alert and instruct the public. There are no known citizens who require special assistance.

At the time of the General Emergency the EMC sent out traffic control teams to monitor traffic. The county activated the siren and the EBS. Route alerting was completed at 1851.

VII. Protective Action

Fire and police were on hand immediately to monitor traffic control points if needed. The Borough has fuel resources and two trucks available if needed.

EOC staff have checked through town-there are no known impaired citizens requiring special help. Quarryville contacts LEMA for 2 school buses and drivers if needed.

VIII. Radiological Exposure Control

The EMC distributed dosimeters to police and fire staff people and traffic control staff people. All the equipment is high range, pencil type. The EOC has a charger and record forms on hand. The EMC gave out instructions for using the dosimeters. The use of KI was not demonstrated.

The EMC learned about decontamination location by calling LEMA. LEMA confirmed the Willow Street Fire Company as the decontamination center for Quarryville.

IX. Media Relations

Not Applicable.

X. Recovery and Reentry

Not demonstrated during this exercise in the EOC.

York County

Airville Monitoring and Decontamination Center

The monitoring personnel at the Airville (Lower Chanceford Township) EOC appeared to be capable of determining if an individual is or is not contaminated. However, the monitoring flow in the EOC was such that individuals and the EOC itself could become contaminated. Two of the three individuals doing monitoring used probes that were not protected from potential contaminated individuals which could lead to the contamination of the monitoring equipment.

This decontamination center is set up in such a way that the contamination of EOC workers and the EOC itself is possible. Also, the monitors should be given a refresher course in monitoring procedures to insure they fully understand potential contamination of equipment and areas.

York County Mass Care

The York County Red Cross Chapter simulated opening of the Mass Care facilities. Personnel reported to the Red Cross Chapter in York, Pennsylvania rather than the designated locations. Sufficient personnel reported and a roster for second and third shifts was presented. The simulation did not include monitoring or decontamination activities. The staff present were familiar with their assigned duties (Registration, Housing, Medical, etc.).

Monitoring and Decontamination Deficiencies/Recommendation

1. The design of the decontamination center should be reevaluated and revised as necessary to prevent possible contamination of decontamination center and EOC staff.
2. Supplemental training should be provided to monitors to ensure full understanding of contamination prevention procedures.

Delta Borough/Peach Bottom Township Joint EOC

I. Activation and Staffing

The EOC, with the support of four (4) key persons from Peach Bottom Township and Delta Borough, was completely staffed for mobilization purposes by 1604. Through the use of a written call list, the Emergency Coordinator of Delta Borough supervised the entire mobilization process in an efficient manner. A total complement of approximately 30 employees were available for EOC response operations. Requirements for round-the-clock staffing were demonstrated via double-staffing.

II. Emergency Operations Management

The operations of the EOC were handled by the EMC (Delta Borough) in a highly professional manner. Periodic briefings were held with the EOC staff for the purpose of instructing them on procedures to be followed with each scheduled event. For example, the route alert team members were briefed in detail on their assignments and dosimetry equipment was tested and issued to members of the EOC. The messages were received and written on the status board; however, messages were not reproduced and distributed to the EOC staff. Calls were made to activate fire, police, and ambulance response staffs promptly upon notification of the General Emergency and recommended protective action to evacuate. Access to the EOC was controlled by security personnel.

III. Facilities

The EOC facilities located at the Delta Fire Station were adequate with sufficient furniture, space and lighting to support emergency operations. The facility had a status board clearly visible and was kept up-to-date on significant events. Maps detailing the EPZ and evacuation routes were prominently displayed. Information detailing relocation centers, access control points, and area population was available but not posted. One phone was available for EOC use during the exercise which acted to limit communication via the commercial telephone system at the EOC.

IV. Communications

Notification of hospitals, nursing homes and school districts is not applicable at the municipal level but would be coordinated by the York County EOC. The primary system of communications utilized by Peach Bottom for contact with Ambulance Services, Police and Fire personnel is fire radio and police radio. The RACES network was employed as a very effective primary means of receiving incoming messages from York County. One commercial telephone line was available at the EOC, supplemented by the use of additional lines in the Township Building.

V. Dose Assessment and Protective Action Recommendation

This activity is not applicable at municipal level.

VI. Public Alerting and Instruction

The EOC was notified at 1701 hours of a Site Emergency status. The EOC immediately dispatched 2 route alerting teams composed of firemen in fire vehicles. Team #1 notified the Delta sector and took

approximately 15 minutes to complete this task. Team #2 notified the Peach Bottom sector and took approximately 50 minutes to complete this area. The teams used pre-drafted messages which were adequately clear. At 1705 the EOC received notification to route alert from the County EOC therefore, the EOC had actually begun their route alerting prematurely without prompting from the County EOC.

At 1830 hours the route alert teams were dispatched again to notify the 2 sectors of the evacuation instructions. At this point, a public instruction message was drafted by EOC personnel to include instruction to commence evacuation, the route to be used, and the location as to where to evacuate. This procedure took approximately 15 minutes. At 1737 hours a message was received from the Department of Agriculture to shelter livestock. The joint EOC handles this situation by positioning a Township Supervisor at the Township Building who is familiar with the farmers; it is his assignment to call the farmers and to provide instructions. (It is noted that this procedure is not in harmony with traffic control points.

The York County RERP, Annex O). The Township Building is not at the EOC location but due to the EOC presently having only 1 commercial phone line, it was determined that the use of the Township Building telephone lines would keep the EOC telephone line open for incoming calls. Therefore, the Township Building telephones were used for the purposes of notifying farmers (simulated) and establishing a rumor control response line.

VII. Protective Actions

The Delta-Peach Bottom area is very rural, consequently traffic flow was not a major consideration. Neither the Borough nor the Township have a police Department; therefore, they would depend on State Police and Fire Police to man the traffic control points.

The EOC had available complete lists and actual maps of identified structures where mobility-impaired individuals resided. In regard to area schools within the Delta Borough, arrangements have been made to use the local school bus company to transport school children out of the EPZ in support to school officials and as coordinated through the County. Due to the timing of the exercise this capability was not demonstrated.

The farmers located in the Township and their locations are reportedly well known to the Township Supervisors. Upon receiving instructions to shelter livestock from the County at 1737, the Township Supervisors simulated contact and instruction to the farmers to shelter livestock. No activities with regard to issuance of dosimetry or KI to farmers was demonstrated.

At approximately 1905 hours the EOC was instructed by the York County EOC to move (relocate) the EOC to the Fawn Township EOC; this activity was briefly simulated. However, Fawn Township is also located within the 10-mile EPZ. An alternate location should be considered for the relocation point of this EOC.

VIII. Radiological Exposure Control

The dosimetry equipment available to the EOC consisted of approximately three dozen 742's, three dozen 730's, two 700's, and one 715. The Radiological Officer was an employee of PECO, and was very familiar with the use of the equipment. The supply of dosimeters was adequate and is stored on site. Instructions for use and complete record keeping was maintained by the Radiological Officer.

There was no supply of KI available and no indication of how it would be obtained if needed. The EOC staff was familiar with decontamination procedures and the location of decontamination centers.

A training official from PECO, who lives in Delta, was present at the EOC as a volunteer. This person had obtained from PECO, on loan, radiological measures devices which could measure actual rates of exposure and actual contamination measurements. While not officially participating in the drill, it was determined by the EOC Coordinator that they would try to include this capability into the EOC plans for future use. The capability to store this equipment on site will be investigated by the EMC.

IX. Media Relations

No space was set aside for the media at the EOC. However, Township officials were headquartered at the Township Building, and would respond to questions from the public from this location.

X. Recovery and Reentry

This activity was not demonstrated during this exercise.

XI. Scenario

The scenario did accomplish the demonstration by the Delta-Peach Bottom EOC of a full range of actions called for in response to a radiological emergency at Peach Bottom. The scenario of events precipitating the emergency was not completely clear to the EOC staff; however, the concepts and the transition from Unusual Event to General Emergency was quite clear and understood.

Delta Borough/Peach Bottom Township Deficiencies/Recommendations

1. The EOC should consider the installation of an additional commercial telephone line to support response communications, and to focus response activities within the EOC.

2. Clarification is needed with regard to the timing of the dispatching of route alert teams. Also, it is recommended that a standard message content for use by the route alert teams be developed and incorporated into the plan.
3. Procedures for the provision of protective action instructions to farmers, and the distribution of dosimetry and KI to farmers should be reviewed, in coordination with the York County RERP, and the municipal plan revised as appropriate.
4. The EMC should confer with the county in order to establish an appropriate location outside of the 10-mile EPZ for the relocation of evacuated EOC personnel.
5. Clarification and training is needed with regard to the procedures for obtaining KI in the municipality.

Fawn Grove Borough/Fawn Township Joint EOC

I. Activation and Staffing

The call initiating activation of the EOC was received by the EMC, at his home, at 1525 hours from the York County EOC. Verification of this call was not observed. Staffing of the EOC never became complete, although the Fire Chief did report to the EOC and a Philadelphia Electric Company volunteer was present. Notification calls were made by the EMC. The majority of the telephone numbers appeared accurate, but achieving actual contact with the designated staff persons and local authorities proved slow and incomplete.

The staff displayed a degree of emergency response training and knowledge, but additional training should be provided with regard to the provisions of the RERP. The availability of round the clock staffing was evidenced by presentation of a roster with the exception of the EMC and Communications Coordinator positions.

II. Emergency Operations Management

The Emergency Management Coordinator as designated in the Fawn Grove Borough/Fawn Township Radiological Emergency Response Plan was in charge of EOC operations. However, active operations in this exercise were essentially located at the Fawn Grove Volunteer Fire Company. As such, the EMC was the sole local participant present at the EOC for the majority of the exercise, and was not intimately involved in actual response operations.

A revised plan, not hitherto available to FEMA, was utilized during the exercise. Messages as relayed via commercial landline from the RACES operators at the Fawn Grove Fire Company were transposed onto appropriate message forms.

The EOC was notified of Alert at 1517, of Site Area Emergency at 1805, and of General Emergency at 1827; no direct notifications as to updates in plant status were received at the EOC from York County; all messages were relayed through the Fawn Grove Fire Company as received over RACES. However, relay of the information was very belated, with messages dispatched from York County (1) at 1715 regarding the Declaration of State of Emergency by the Governor, (2) at 1718 regarding preparedness of monitoring teams, (3) at 1732 regarding the message to be used by route alerting teams, and (4) at 1740 regarding sheltering of livestock, all received at the EOC at 1805. As such, notification of Site Area Emergency to the EOC was belated by one and one half hours.

Two elected officials arrived at the EOC following notification of General Emergency, and were not actively involved in EOC operations.

III. Facilities

Most equipment and phones at the EOC had just recently been received and installed; EOC staff was still adjusting to their operation. A county map was unwrapped and posted during the exercise. A status board was clearly visible and posted with significant events. Information regarding Plume EPZ evacuation routes, relocation center, access control points, and population by evacuation area was available but not posted.

IV. Communications

EOC communications were minimally available. Two recently installed telephones were the only means of communicating out of the EOC. No calls were received from the York County EOC, and after much searching by the Fawn Grove Borough EMC for a working after hours County EOC number, very few calls were placed to the County. Most communication was through RACES stationed at the Fawn Grove Fire House, who after long delays, started to relay messages over the phone to the Fawn Grove EOC. It is recommended that the RACES operation be co-located with the EOC. A scanner was temporarily installed the day of the exercise at the EOC and was turned on, but staff members were unfamiliar with its' purpose or use and therefore paid little or no attention to it. The EBS station, WSBA, was being listened to conscientiously by the EMC for the first several hours, but at time of the EBS evacuation message the radio had been turned off.

V. Public Alerting and Instruction

Route Alerting was undertaken twice by Fire personnel to alert the public. The initial route Alerting took place at 1535 hours when the sirens from Maryland, which can be heard very easily in this locality, were sounded. A second route alert team was dispatched at 1735 hours when a message was received over RACES at the Fire House regarding the message to be used by route alert teams. This second route was reported as being completed at 1923 hours, approximately two hours later. As reported by the EMC, route alert teams are dispatched when the sirens are sounded or whenever an "emergency" is declared at the Peach Bottom Station. It is noted that Pennsylvania sirens cannot be heard at this EOC.

Also, according to Ambulance and Fire Representatives, a sub-unit of the Fawn Grove Fire Station is responsible for route alerting and ambulance activities in 10 areas within Harford, Maryland. No reference with regard to this responsibility is contained within the local RERP, although it was reported that these activities would be coordinated from the Fawn Grove Fire Station.

No other Public Instruction actions were either observed or applicable to this EOC.

VI. Protection Action

A. Evacuation and Access Control

Following an 1831 telephone call from the Fire House regarding an 1822 RACES transmission from the County directing the implementation of evacuation plans for the 10-mile EPZ, the EMC re-contacted the Fire House to ensure that the Traffic Control Points were being established. Although a list of individuals requiring ambulance transportation was not available, some discussion ensued regarding persons known who may need this assistance. However, the ambulance was not available due to a response to a real-world situation. According to the EMC, mutual aid agreements would be utilized to augment this resource, although the Borough-Township plan references no support agreements. The EOC staff indicated that appropriate resources are available to keep evacuation routes clear; these resources were not activated for the exercise.

According to the most recently revised copy of the plan, the designation and manning of access control points is the responsibility of the Pennsylvania State Police; county resources will be used to cover those points not covered by State Police. However, the County plan lists no access control points for Fawn Grove Borough or Fawn Township.

B. Special Evacuation Problems

The EMC reported that evacuation and relocation of the EOC would be initiated following a recommendation to do so by York County, and would relocate to the Eureka Fire Hall. The Ambulance Coordinator indicated that ambulance services would relocate to Susqueshannock. However, the local plan calls for the EOC to be relocated to the Stewartstown Borough Building and ambulance services to relocate to the Eureka Fire Hall. No activities, simulated or demonstrated, occurred with regard to relocation of emergency operations. According to the EMC, all activities regarding protective actions for schools will be coordinated by York County; no plan for school protective actions was available at the local EOC.

C. Implementation of Ingestion Pathway Protective Actions

According to the EMC, this activity is not applicable at the municipal level.

VIII. Radiological Exposure Control

Due to the early termination of the off-site exercise activities, the observer assigned to in-depth review of radiological exposure control capabilities which were demonstrated at the Fawn Grove Fire House was unable to attend this location. However, an observer assigned to the Fawn Grove Borough/Fawn Township EOC did briefly visit the decontamination operation, and observed a well-trained staff with regard to monitoring procedures. The staff was not aware of the procedures for receiving or the proper use of KI; KI would reportedly be forwarded to the municipality by the County. Also, it was reported that Delta Borough would report to the Fawn Decontamination Center for monitoring and decontamination when required although the Fawn Center is also within the 10-mile EPZ.

No recommendation to administer KI was received at the local EOC, although a transmission from York County was apparently issued at 1846, recommending that KI be taken by emergency workers.

IX. Media Relations

Media Relations activities are not applicable at this EOC. The EMC was fully aware of the importance of media activities, but would refer all media and rumor control inquiries to the York County EOC.

X. Recovery and Reentry

This activity was not demonstrated in the exercise.

XI. Scenario

The scenario was adequate to demonstrate major elements of the local Radiological Emergency Response Plan tested during this exercise.

Fawn Grove Borough/Fawn Grove Township EOC Deficiencies/Recommendations

1. Fawn Grove Borough/Fawn Grove Township did not demonstrate an overall level of emergency preparedness sufficient to provide reasonable assurance that appropriate protective measures can be taken to protect the health and safety of Borough and Township residents. While not one of the following deficiencies, in itself, warrants such a conclusion, considered together such a conclusion is inescapable.
2. Future exercises should demonstrate complete staffing of the Emergency Operations Center, to include active involvement by elected officials during critical periods of activity and greater control and direction of emergency response activities demonstrated by the EMC.
3. Twenty-four hour staffing of all EOC positions should be established, and the RERP updated accordingly.
4. Additional training should be provided to response personnel with regard to the provisions of the RERP, especially concerning evacuation and relocation of EOC activities and use of KI.
5. The communications systems used at the EOC should be critically reviewed and reorganized. The revised system should enable timely notification to the EMC and EOC staff regarding changes in plant status and protective action recommendations. Specifically, RACES network operators should be co-located with EOC operations, and training with regard to the recently provided scanner should be provided.
6. The EMC is encouraged to monitor the EBS station in future exercises to ensure the coordinated response of protective activities.
7. The Borough and Township's plan for the utilization of route alerting is unclear; route alerting was conducted at inappropriate times. Clarification is needed with regard to the timing of the dispatching of route alerting teams. Initiating route alerting with the sounding of Maryland's sirens is not indicated in the RERP, and could cause coordination difficulties with Pennsylvania EBS announcements. Responsibility for completing route alerting in Maryland (as alluded to by the Fire Personnel) should be clarified and incorporated in the RERP, if appropriate.
8. Route alerting took an excessive amount of time. Route alert sectors should be reviewed and restructured as necessary in order to provide for a more timely completion of routes.

9. Lists of mobility-impaired individuals should be developed and maintained at the EOC.
10. The RERP should be revised to reference all mutual support agreements.
11. The Fawn Grove Borough/Fawn Township EMC should confer with the County in order to establish an appropriate location outside of the 10-mile EPZ for the monitoring and decontamination of Delta Borough evacuated emergency workers.
12. The municipal EMC should investigate the cause for the apparent lack of notification to administer KI, and ensure the completion of corrective actions as necessary.

Lower Chanceford Township

I. Activation and Staffing

At 1500 the York County EOC transmitted an Alert notice by radio to the Lower Chanceford Township EOC, located in the Airville Fire Hall. Telephone verification followed to acknowledge message receipt. Procedures to activate staff immediately followed, although most staff were positioned at the EOC as their normal work place. Representatives present at the EOC consisted of individuals from Fire, Police, Communications, Radiological Monitoring Team, Ambulance Service, Deputy Coordinator, and Elected Officials. Those positions not represented at the EOC consisted of Public Works and Transportation. The staff displayed generally adequate knowledge throughout the exercise. 24 hour round-the-clock staffing capability was not fully demonstrated, although EOC staff reported that around-the-clock staffing would not be a problem.

II. Emergency Operations Management

The Coordinator at the EOC was effective and knowledgeable with regard to his responsibilities. Messages were promptly displayed on the status board and logged. The EOC was notified of Alert Status at 1508, Site Area Emergency at 1640, and General Emergency and evacuation at 1824. These notifications of changes in plant status were verified with York County by telephone. Periodic briefings were held to update the EOC staff. Elected Officials were present for the duration of the exercise.

III. Facilities

The EOC facilities at the Lower Chanceford EOC were adequate to support response efforts. Status boards were clearly visible and kept updated. The EOC operated with one commercial telephone and RACES along with Fire-house radios. Consideration should be given to augment the one existing commercial telephone line with another

line. Maps displaying the Plume EPZ and evacuation routes were displayed. Information regarding relocation centers, access control points, radiological monitoring points and population was not observed.

IV. Communications

Communications, with the exception of the limited commercial telephone line capability, were adequate. The primary means of communication at this EOC was the RACES network; verification of notification of changes in plant status and protective action recommendations were accomplished with York County via telephone.

V. Dose Assessment and Protective Action

This activity is not applicable at the local level.

VI. Public Alerting and Instruction

One route alert team was dispatched to Sector 4 at 1832 following an 1824 notification of General Emergency and evacuation of the 10 mile EPZ. This activity took approximately one-hour to complete.

VII. Protective Actions

There was no discussion observed regarding estimates of expected traffic, nor were traffic control points ordered to be manned. No discussion was observed with regard to the relocation of the EOC personnel pending a recommendation to evacuate the 10-mile EPZ.

VIII. Radiological Exposure Control

Mid and high range dosimeters, chargers, and recordkeeping cards were available at the EOC and distributed to EOC staff. Briefings were held explaining the use of equipment, a demonstration was conducted, and personnel present appeared knowledgeable as to the proper procedures for their use. Although no KI was available, authorization for Emergency Workers to take KI was received at 1846.

IX. Media Relation

Media relations activities are not applicable at this location

X. Recovery and Reentry

This activity was not demonstrated during this exercise.

Lower Chanceford Township EOC Deficiencies/Recommendations

1. Future exercises should demonstrate full staffing of the EOC.
2. Twenty-four hour staffing should be established and incorporated into the municipal RERP.

3. The EOC should consider the installation of an additional commercial telephone line to support response communications.
4. Future exercises should exhibit the simulation or demonstration of activities associated with the relocation of EOC operations.

Maryland State EOC

I. Activation and Staffing

The State EOC received the Alert notification call from the Peach Bottom Atomic Power Station (PBAPS) at 1510. As this call was received via commercial telephone (rather than the direct line which links PBAPS with the risk EOC's), the message was verified by call-back. This call was received during normal working hours, so the Maryland Emergency Management and Civil Defense Agency (MEM&CDA) personnel were on duty at the EOC. Notification of the remainder of the EOC staff occurred promptly, using written call lists. Staff notification was completed by the time that the Site Area Emergency notification was received at 1642. In addition to the MEM&CDA staff, the following organizations were represented at the EOC: Maryland State Police, State PIO, National Guard, Red Cross, Maryland Institute for Emergency Medical Services Systems, and the State Departments of Agriculture, Economic and Community Development, Education, Health and Mental Hygiene, Human Resources, Natural Resources, and Transportation. One position designated in the plan was not staffed-the State Fire Marshall's office did not send a representative.

In general, the staff demonstrated adequate training and knowledge. Capability for two shifts to provide for 24-hour staffing was demonstrated by presentation of a roster.

State EOC liaisons were sent to both risk counties and the EOF. The liaisons were dispatched earlier than specified in the plans (prior to the Alert declaration) to compensate for the compressed exercise time-line.

II. Emergency Operations Management

Operations at the State EOC were under the direct control of the MEM&CDA assistant director, who demonstrated capable leadership. The agency director was present and participated, concurring on major decisions. Staff briefings were held, as appropriate, and staff were involved in decisionmaking. Copies of plans, SOP's and checklists were available.

Message logs were maintained, and messages were recorded and distributed according to procedure, but the processing of some notification messages was delayed. For example, the Alert notification message was received from PBAPS at 1510, but it was not until 1527 that the message was delivered to the Operations Officer, and announced to the staff. Upon receipt of the Site Area Emergency notification, there was a similar delay of about 10 minutes. These delays were partly due to the fact that the utility was using commercial telephone to make notification calls, rather than the direct line intended for that purpose. As a result, the notifications had to be verified by call-back, which generally

required several minutes to complete. Another factor in the delays was that the utility reported information in a different format than used by the State. Messages were initially recorded on one form, then the information was transferred to another form before the messages were logged and entered into the routing procedure. The state should investigate the possibility of establishing a reporting format which is mutually agreeable to Maryland, Pennsylvania and the utility. The notification times for the significant events are as follows: Alert declared 1500, received at EOC 1510; Site Area Emergency declared 1630, received at EOC 1642; General Emergency declared 1803; received at EOC 1806, evacuation recommendation declared 1803, received at EOC 1837.

As can be seen, there was a delay of about 30 minutes between the time the Accident Assessment Center staff reached their decision to recommend evacuation and the time that the EOC received the recommendation from the Secretary of Health. In the meantime, at about 1615, the EOC Operations staff learned that PBAPS was recommending evacuation for the Maryland counties and that PEMA was proceeding with evacuation in Pennsylvania. However, MEM&CDA delayed the protective actions in Maryland until the Secretary of Health's recommendation was received. This delay is discussed further in the Accident Assessment section of the report.

The State EOC staff demonstrated good coordination of emergency activities with the risk and support counties EOC's, the Pennsylvania EOC, the EOF and other response organizations, as appropriate. However, regarding the kinds of activities that the State EOC would be called upon to perform in implementing an evacuation, such as providing unmet resources to the counties, there was little opportunity for demonstration due to early termination of the exercise.

III. Facilities

The State EOC in Pikesville is a very good facility, providing fully sufficient space, furnishing, lighting and telephones to support the size of the staff assigned there. The EOC is also capable of providing continuous operations over a protracted period, as it includes a kitchen, showers, sleeping accommodations and two backup power generators. The EOC is located well beyond the 10-mile EPZ.

The operations room is well-arranged, with very good information displays. In addition to a status board, coordination and resources boards were maintained with up-to-date information. Excellent maps were posted depicting all appropriate information. There are separate rooms for the message center, communications and the public information staff.

IV. Communications

The Maryland State EOC is well equipped with communications equipment, in most cases considerably more than were actually used during the exercise. Communications links between the State EOC and

the FEMA Region (or FRC) included NAWAS, FNARS, FNATS (teletype), FNARS (radio), FAX, and both FTS and commercial telephone. Additionally, the FRC has a radio link with the Maryland State Direction and Control Net, used by Maryland to communicate with all County EOCs. Each County is also equipped with both voice and teletype radio links back to the Pikesville EOC, and is included on the state NAWAS Circuit.

Communications with PBAPS are provided by two dedicated telephone systems which link the utility with the various State and County risk EOCs. One (the blue phone) is to be used by utility for notifications; the other (the yellow phone) is to be used for conferencing. Problems were experienced during the exercise with both lines. The utility did not use the blue phone for notification calls, presumably due to malfunction; the yellow phone worked only intermittently. Commercial telephone, the most readily available backup, was substituted for both dedicated lines. Although no problems were experienced during the exercise, this cannot be considered an especially reliable backup during an actual emergency. There is a method of establishing radio communications with PBAPS using a mobile repeater and Department of Natural Resources facilities, but this is a cumbersome and time consuming process. In order to provide a reliable and immediately-available back-up to the dedicated phone system, it is recommended that a dedicated radio system be installed, linking PBAPS with the two state EOCs.

V. Dose Assessment and Protective Action Recommendations

Dose assessment was performed at the Accident Assessment Center (AAC). The AAC activities are described elsewhere in this report.

As noted previously, there was a 30 minute delay in receiving the Secretary of Health's evacuation recommendation at the EOC, resulting in a corresponding delay in implementing protective action in the Counties. Once the recommendation was received at the EOC (at about 1835, officials quickly concurred on the evacuation and notified the counties accordingly.

VI. Public Alerting and Instruction

Although coordinated by the State EOC, the primary responsibility for public alerting and instruction resides with the two risk counties of Harford and Cecil. Recommendations regarding activation of the primary alert and notification system were relayed by the State to the counties, which reportedly sounded their sirens at 1530 and activated their EBS stations at 1537. This occurred during the Alert phase, as provided for in the plans. The sirens were not sounded again at General Emergency or at the time of evacuation.

Maryland and Pennsylvania were advised by each other prior to the exercise that sirens would be sounded during Alert in Maryland and during General Emergency in Pennsylvania.

The State EOC's role in public instruction is discussed under the Public Information section of this report.

VII. Protection Action

The Counties have primary responsibility for implementing an evacuation, such as establishing access and traffic control points, activating mass care centers, and providing transportation for those with special needs. The State's role is to provide resources which are beyond the Counties' capability, and to coordinate State and/or Federal activities in support of County operations. In this regard, the early termination of the exercise allowed only limited opportunity for the State to demonstrate capability. Three requests for unmet needs were received from Harford County: for busses, radiological equipment, and temporary housing. The State EOC personnel responded appropriately in arranging to fulfill the first two requests; the third was not addressed prior to the end of the exercise.

VIII. Radiological Exposure Control

The operations of the State-level field teams and other emergency field workers, including their radiological exposure control, are the responsibility of the Department of Health and Mental Hygiene staff at the Accident Assessment Center in Baltimore. The State EOC staff is not responsible for overseeing radiological exposure control of field workers. Only one emergency worker operating within the EPZ was dispatched from the EOC--the EOF liaison. Although not observed, the liaison was reportedly provided with dosimetry and a record form prior to her departure from the EOC.

The State EOC does maintain a supply of self-reading and thermoluminescent dosimeters and record forms, which can be used to augment the risk counties' supplies, should shortages occur.

KI is not stocked at the State EOC, as the DHMH is responsible for providing it to emergency workers. The State EOC staff was aware that its use by emergency workers must be authorized by the Secretary of Health.

IX. Public Information

The Public Information Office, located within the State EOC, was the central coordinating point for all public affairs information passed to the EOC by the affected Counties. Here information was processed and disseminated.

There is no permanent Public Information Officer (PIO) for Emergency Management. All staff are drawn from supporting agencies and when alerted report to the EOC. Activation is by phone using a call-down list. Personnel designated for this exercise were alerted and activated by the MEM&CDA Acting Director during the Unusual Event. They consisted of three trained PIO people and a clerk, plus two

trainees. This was intended to represent two shifts (double staffing), but as events unfolded it became obvious that this was an insufficient staff size to respond to the problems and the workload generated by the exercise. However, the PIO staff reported that in the event of a real emergency, the Governor would authorize the MEM&CDA to call upon the professional PIO staff from other State agencies and departments which would provide the EOC PIO with a sufficient staffing level to ensure a 24 hour per day operation for an extended period of time. This procedure was not tested during this exercise.

Clerical assistance was adequate when all communications were functioning. However, the hard copy transmission equipment failed. Transmission as a result of news releases among the State EOC, County EOCs, and the Media Center, required that the text be dictated over the telephone, transcribed, and typed. This was a time-consuming and duplicative effort, which would have benefitted from more clerical assistance.

Operating within the EOC, the PIO personnel had immediate access to the Operations Center. The space designated for use by the PIO staff was adequate in all respects. Space was not set aside for briefing media representatives, as the EOC is not intended to be a contact point for the news media. That function is to occur at the Media Center at Muddy Run.

The primary means of communication was commercial telephone, with a telecopier to transmit hard-copy of news items. Because of the physical separation of the State PIO office, the County PIOs, and the Media Center, effective operations depended upon effective communications, especially the capability to efficiently transmit hard copy of news references. Neither commercial telephone, nor the secondary voice communications system, State Police Radio, provided a satisfactory substitute for the malfunctioning telefax equipment. Effective public information operations would be greatly benefitted by a dependable electronic means of communication which interfaces with county terminals, has a portable mode, and on which hard copy can be created, transmitted and printed out at receiving terminals.

Primary responsibility for preparing news releases and EBS messages relative to local events resides with the County. This includes providing detailed instructions to the public regarding protective actions. The State PIO staff, during the exercise, performed a coordinating role. Such coordination was continuous, with one PIO person dedicated to maintaining constant liaison with the counties. News items prepared for release by the Counties were first forwarded to the State PIO staff, which would incorporate this information in its press release procedure. The State staff, upon preparing information would likewise clear the releases with the counties before disseminating them.

Although the Counties used prescribed messages, the State EOC PIO did not. All information was created in the original by PIO

personnel in the PIO office. Regarding public instruction, there were no prepared press releases which provided the public with detailed instructions on how to proceed with the evacuation. Although, as noted, the Counties are primarily responsible for this, the State PIO office, as the clearinghouse for all releases, must also share the responsibility for preparing detailed instructions for the public which identify the affected area, and advise people where they should go, when they should leave, what they should take, what routes they should use, what they should do if they need transportation or special assistance, etc. In future exercises, such information should be prepared as both news releases and EBS messages. Rumor control was handled primarily by County PIO's. Dissemination of rumor control telephone numbers was widespread. In an actual event, the PIO reported that rumor calls directed to the EOC would be handled by State PIO personnel.

X. Recovery and Reentry

Recovery and Reentry activities were not demonstrated due to early termination of the exercise.

Accident Assessment Center

The exercise began during normal working hours, so full staffing was already present at the time of the Alert. By means of a roster, the state demonstrated its 24-hour capability. New staff have been added since the previous exercise. Notification of Alert status was received at 1534, approximately 34 minutes after it was declared. The reason for this delay is not apparent. The Chief of the Division of Radiation Control, which is within the Maryland Department of Health and Mental Hygiene (DHMH), was the individual in charge, as designated in the plan. Periodic briefings were held to explain the situation. Message handling was efficient and the status of the exercise was kept posted on a board. This was updated as new information arrived. Notification of Alert status was received at 1534, Site Area Emergency at 1636 and General Emergency at 1805. Appropriate and timely actions within DHMH were taken. Monitoring teams were dispatched to the field immediately after receipt of the Alert status.

The facility available was adequate for the purpose. Maps of the EPZ were posted and all information required for the accident assessment function was included on the maps.

Communication was by land lines (with back-up land lines) to all other stationary facilities. Radio was used to communicate with the monitoring teams. One vehicle's radio failed during the exercise, so the back-up system (a pay phone) was demonstrated. Communications over the "yellow phone" (the primary link to the EOC) also failed during the exercise, so a back-up land line was also demonstrated. Overall, adequate communications facilities and appropriate back-ups were available.

Protective action recommendations were made based on plant release data, field readings, utility recommendations, and calculations performed by the State. Recommendations made by the utility were checked by the state by

attempting to repeat the utility dose calculation. The state staff were unable to reproduce the utility dose calculations using the procedure supplied to them by the utility. It was obvious that the utility was using a different procedure since the procedure available to the state produced dose projections while the utility provided dose rate projections. The state was therefore unable to reproduce the utility calculations, and the state dose estimates differed from those provided by the utility by as much as a factor of two. If the state is to be able to reproduce utility dose estimates, it will be necessary for the utility to provide the state with complete and up-to-date documentation on its procedures (Accident Assessment officials reported later that the utility's revised dose projection procedure was received the day after the exercise. They recalculated the dose projections using the exercise data and revised procedure, and arrived at the same figures as reported by the utility during the exercise). Monitoring teams were promptly dispatched to the correct locations and data was received in a timely manner. The plume was correctly defined and total population exposures were estimated. The protective action recommendations were proper based on the available data and the P.A.G.'s. Consideration was given to doses calculated by the state which indicated the problem may be more severe than the utility's projection and this was called to the utility's attention. All appropriate factors (plant status, etc) were considered in making the protective action recommendation. KI was authorized for the monitoring teams but was not ordered since they were pulled out of the affected area instead.

The decision to recommend evacuation was made at 1803 hours. However, the DHMH recommendation to the EOC was not transmitted until 1835. This delay of thirty minutes was due to the need to call the Secretary of the Department to the response room, brief her on the situation, and then forward her decision to the EOC. (A few minutes were also lost due to a non-working telephone line). This procedure of having the Department Secretary make the recommendation to the EOC is quite cumbersome since she must be briefed on the problem. A half hour to transmit an evacuation recommendation within the state bureaucracy is excessive if the delay is not occasioned by deliberations of substantive issues as this one was not. In order to avoid this delay in future exercises, it is recommended that the Secretary of Health be involved throughout, or at a point that provides enough time for her to be brought up to date on the situation prior to the time for decision making. Otherwise, the authority to make the recommendation should be delegated to an official who has been continuously involved as the situation develops. The Secretary neglected to transmit a staff recommendation that the EOC coordinate evacuation with Pennsylvania.

After the recommendation was made to the EOC, a request for "field monitoring data" was received from the EOC. The EOC staff, it turned out, wanted to know the plume location, and identify areas that should be avoided by evacuees. However, the request for "field monitoring data" has a different meaning to the accident assessment staff. Such data would include only information collected by the field monitoring teams and would be inadequate to answer the EOC's question. In the future, such requests for information should avoid such terms and should be phrased to indicate exactly what is desired and why. The phrasing of this request for data significantly slowed down the ability to respond to the request.

Radiation Monitoring Team

I. Mobilization

The monitoring team was mobilized at the offices of the Maryland Department of Radiation Control (DRC) in Baltimore, Maryland. The team members were notified while at work in the DRC offices. They received the call from the Field Team Director and Communications Officer at the Accident Assessment Center. The Alert classification was received at the Accident Assessment Center at 1530. The team departed Baltimore at 1545, arrived at the staging area at 1645, and headed toward their first location at 1730. The team was not briefed on current plant conditions or meteorological conditions. There were adequate staff to have one field team on duty 24-hours a day. This was demonstrated through double staffing.

II. Equipment

The equipment the team carried was consistent with the list in the plan. The van which was used was suitable for all expected terrain and weather conditions. The team had primary and back-up high and low range detectors. They also had an appropriate detector to measure cartridges and filters in the correct geometry, and an air pump to draw air samples through the filter and cartridge. Forms were available for recording field data on whole body and iodine calculations.

III. Technical Operations

The use of a Geiger Mueller tube to detect low levels of radiation was demonstrated at this exercise. No iodine samples were requested by the Field Team Director at the Accident Assessment Center. Monitoring points and other locations in the EPZ were found easily. Ingestion pathway sampling was not a required function of the DRC field team.

IV. Communications

Communications with the Field Team Director were maintained throughout the exercise, using radio communication. Backup was available through a radio telephone but was not demonstrated.

V. Radiological Exposure Control

The field teams were equipped with proper protective equipment and film badges and mid-range (0-200R) pocket dosimeters. The teams had KI in their kits and were familiar with the authorization procedure for its use. The team knew how often to read their dosimeters and the maximum allowed dose rate to enter. They knew what to do in case they became contaminated. They would receive information from the Field Team Director concerning cumulative dose allowed.

Agricultural Sampling Team

I. Field Team Mobilization

The activation of the Agricultural Sampling Team occurred out of sequence with the scenario. Therefore, the mobilization procedure demonstrated during the exercise was not in accordance with the plan. For the exercise, a call was placed from the Office of Civil Defense to the Deputy Coordinator of the Ingestion Pathway Coordinating Center in Baltimore, Maryland giving field data taken by the utility's radiation monitoring teams. This information was passed on to the Accident Assessment staff in Baltimore which analyzed it and made recommendations to the Deputy Coordinator. In a real event the Accident Assessment staff would make its own determination of the need to dispatch ingestion pathway teams.

One field team was deployed from the Department of Health and Mental Hygiene's Community Health Management Program located in the O'Conner Building in Baltimore, Maryland. This team left for the field at 1330, and arrived at the first sampling point at 1445. Equipment was packed for rapid deployment and the team was briefed on procedures and responsibilities before leaving.

The Ingestion Pathway Coordinating Center (IPCC) serves in a support role to the Accident Assessment Center (AAC). Operations are directed and coordinated from the Community Health Management group in the O'Conner Building in Baltimore. The IPCC is responsible for arranging collection and transportation to laboratories of food, water, milk and soil samples from the 50-mile ingestion EPZ, and disseminating laboratory results and recommending protective actions. The IPCC is staffed with personnel from the Division of Food Control, Milk Control and Community Services. The administrator of the Community Health Management Program directs the IPCC and is assisted by the chiefs from the respective divisions.

II. Field Team Equipment

The team had all required equipment in accordance with the plan. Checklists were utilized by the team members to verify their equipment and supplies. The team had appropriate equipment to take soil, vegetation, water and milk samples. The vehicle used by the team was large enough and suitable for the expected terrain. A total of five teams could be equipped and staffed for field activities.

III. Field Team Technical Operations

The ingestion pathway monitoring team visited four monitoring points, collecting samples of apples and corn fodder. They also exhibited the ability, through discussion, to use proper sampling techniques for soil, milk, water and additional vegetation types. The team was familiar with the region to which they were dispatched and were able to find their sampling points without any difficulty. Written SOP's

were available for equipment setup and operations, however the sampling team did not need to use them. G-M meters were outfitted with fresh batteries and calibrated prior to the team's departure.

Samples taken in the field were transported by the team to the laboratory in Baltimore for analysis. A mobile field laboratory van was also available to accept samples from the ingestion pathway teams.

IV. Field Team Communications

Primary communications between the ingestion pathway monitoring teams and the Accident Assessment Center in Baltimore was via radio. Each vehicle is equipped with a mobile multi-band radio capable of maintaining communications throughout the entire ingestion pathway EPZ without any "dead spots." The radio used by the monitoring team malfunctioned during the exercise. The mobile unit was unable to transmit; it could, however, receive messages originating from the base station in Baltimore (the radio had reportedly been checked prior to the exercise and performed flawlessly.) The field team was able to function in spite of the radio problems by finding telephones when required to report in to the Accident Assessment Center.

V. Field Team Exposure Control

The Sampling Team demonstrated the procedures and knowledge needed for exposure control. Each member of the team was issued two self-reading dosimeters (low and high range) plus a simulated TLD. (TLD's are available at the dispatch area in Baltimore). Dosimeters were properly zeroed before being issued and readings were recorded every half hour on the record cards provided. Team personnel were aware of the maximum allowable dose as well as procedures to follow if there is a need for decontamination. Appropriate protective equipment was available for the field workers (i.e. clothing).

A recommendation to take potassium iodide was given before the team moved into the field. A briefing was given on the use and procedures for KI, so that all team members were aware of why and how KI was being used.

Maryland State Deficiencies/Recommendations

1. The State EOC was not fully staffed in accordance with the plans and exercise objectives-the Fire Marshall's office was not represented. The MEM&CDA Director should assure that, upon activation of the EOC, all agencies and organizations are represented in accordance with the plans.
2. The processing of some notification messages received from the utility was delayed. A contributing factor was the need for the message taker to initially record the information on one form, then transfer the data to another form before logging-in and routing the message. The State should investigate the possibility of establishing

a reporting format which is mutually agreeable to Maryland, Pennsylvania and the utility.

3. Both direct telephone lines which provide the primary communications link between the PBAPS and the State EOC (and other risk EOCs) malfunctioned. Commercial telephone was successfully used as a backup during the exercise, but this cannot be considered a reliable communications medium during an actual emergency. It is recommended that a dedicated radio system be installed to provide backup to the direct phone lines between the utility and the State EOC.
4. The public information staff failed to prepare detailed evacuation instructions for the public. In future exercises, news releases and EBS messages should be prepared which identify the affected area, and advise the public as to where they should go, when they should leave, what they should take, what routes they should use, what they should do if they need transportation or special assistance, etc.
5. The telecopier used by the Public Information staff to transmit and receive hard copy of news releases malfunctioned, and there was not efficient backup. It is recommended that a secondary system for hard copy transmission be established.
6. In the absence of a coordinated siren-sounding policy between Maryland and Pennsylvania, Maryland should advise Pennsylvania, as early as practical, of its plans to activate sirens in order to allow Pennsylvania to advise its risk jurisdictions and thereby minimize the possibility of confusion.
7. There was a thirty minute delay between the time that the Accident Assessment staff reached their decision to recommend evacuation, until the Secretary of Health concurred, and the recommendation was forwarded to the EOC. This delay was not caused by the need for extended deliberation. It is recommended that the Secretary of Health become involved in further exercises at a point early enough to allow a briefing prior to the time at which decision making regarding protective actions is required.
8. A high priority should be placed in future exercises on playing as many activities as possible in actual sequence with other scenario events.

Maryland Counties

Cecil and Harford County Communication

While there are considerable differences in the age and types of communications equipment of Cecil and Harford Counties, the actual capabilities are virtually identical from an operations standpoint. From the State EOC to the Maryland plume zone counties all information relative to plant status is passed over the hot-line ring-down circuit. Other traffic between the State and County EOC is passed over the Maryland State Direction and Control radius circuit. This is a VHF-FM net with both a voice and radio teletype capability. NAWAS is also available as a back-up. Within the County, police radio is used to direct the activities of those personnel responsible for medical support, monitoring or access control. Department of Highways radio is used for coordinating transportation and Mutual Aid radio frequencies are available as required to coordinate with other Counties. The full range of assets available in addition to the above include: State Police, Sheriff, Fire, Forestry, etc. Local Amateur radio operators were used to establish a RACES net linking the county EOC to the decontamination and Mass Care Centers. This was demonstrated and worked effectively.

Each plume zone County is responsible for activation of the alert sirens located within its jurisdiction. These sirens are radio controlled from the various County EOC's and were actually tested during the drill.

Cecil County EOC

I. Activation and Staffing

The initial notification of an Unusual Event was received in the EOC Communications Center at 1229 from the Director of Maryland Emergency Management and Civil Defense Agency (MEM & CDA). At 1337, a second message was received from the MEM & CDA informing Cecil County of the continued "Unusual Event" status; all calls were verified. According to the message log, notification of the key staff members began at 1410. This notification also instructed the staff members to report to the EOC. When the FEMA team leader arrived at the EOC, the center was fully staffed with the exception of the Director of Public Works who arrived at the EOC at 1645.

The EMC explained to the FEMA observer that in a real situation, he would not instruct his staff member to report to the EOC until after an Alert status was declared. However, because the EBS message was to be given at Alert status, he wanted his EOC to be in full operations prior to the message to the public.

For this exercise, staff members for the Treasury, Planning and Zoning and the Job Corps were not present. The organizations that were represented at the EOC were; County Health, Agricultural Extension, Fire and Rescue, State Police, Sheriff, Red Cross, Transportation, Superintendent of Schools, Social Services, Department of Public Works and Maintenance. The staff appeared to be well organized and displayed adequate training and knowledge of their individual responsibilities.

Around-the-clock staffing was not demonstrated in this exercise.

II. Emergency Operations Management

As designated in the plan, the County's Emergency Management Coordinator was effectively in charge of EOC operations. As conditions changed at Peach Bottom, periodic briefings were held to update the staff.

Two messengers were located in the EOC at a separate table in the middle of the room. The purpose of these messengers was to direct all internal messages between organizations and the EMC. This effectively controlled the handling of messages and reduced traffic within the EOC.

Access to the EOC was controlled by a security guard at the entrance of the EOC. Only authorized personnel were permitted in the EOC. Although access appeared to be adequately controlled, it is suggested that the security guard be equipped with a sign-in log sheet.

The EOC was notified of the escalating events at the following times: Alert 1520, Site Area Emergency 1638, and plant General Emergency at 1817. Although general emergency and protective action were not declared until 1817, the Cecil County EMC declared General Emergency and evacuation at 1813. The reason behind this was the fact that the volunteer evacuees have a 1930 curfew and the EMC felt in order to test the decontamination center and mass care center, he could not wait for the official notification. At 1820 the mass care center was activated. At 1817, calls were placed to activate the access control points and route alerting teams.

For this exercise, all three county commissioners were present at the EOC. These officials were kept updated on the status of the exercise but did not appear to be involved in decisionmaking.

Although it is understandable why the evacuees were instructed to begin their route out of play, it was unnecessary for the EMC to declare General Emergency and evacuation on his own.

III. Facilities

Facilities at the EOC in Cecil County were excellent. There were sufficient desks, chairs, and telephones for all EOC personnel. The facility possesses sanitary facilities, with showers, that could be

used not only for long-term operations but for decontamination of personnel of personnel if necessary.

A backup emergency generator was in the EOC as well as cots, extra blankets, a kitchen, and limited medical supplies. A supply of radiation monitors were available. An excellent communications facility serves the EOC and a large status board (about 6' x 12') kept all personnel informed as to the situation, with route and plume maps posted as additional aid.

IV. Dose Assessment

Not Applicable.

V. Public Alerting and Instruction

The EOC alerted the public upon notification from the utility of Alert status at 1520 hours. This notification was received over a dedicated phone line and was confirmed by the EOC. Additional notification was received by telephone and emergency radio. Upon confirmation the sirens were activated at 1530 and the EBS at 1536 hours. One of the three designated radio stations did not activate its EBS and the PIO was told by the station that this was because it was an exercise and not an actual emergency.

At General Emergency when evacuation was ordered, a prescribed message in the Cecil County plan was used by the Route Alert teams to instruct the public of the assembly points and areas. All public instructions used are included in the County plan. The dissemination of these messages is the responsibility of the PIO who coordinates with the EOC Director.

The last instructional message that was distributed to the news media occurred at 1820 informing the public of the need to evacuate within a 5 mile radius. It is unclear why the 5 mile radius was ordered instead of the 10 mile radius. This was in conflict with the route alert teams who were instructed to Alert all sectors within the 10 mile EPZ.

VI. Protective Actions

A. Evacuation and Access Control

Activation of access control points occurred at 1825 hours (plant at General Emergency status occurred at 1813 hours). Access control teams left the team assembly point without their KI pills, although they did have their personal dosimetry.

B. Special Evacuation Problems

The EOC staff had a written list of mobility impaired individuals in the area but, the list did not indicate special needs of any

individuals. While there were arrangements to transport these persons, there seemed to be some confusion between the sheriff's office and the fire department as to who had the primary responsibility for the mobility-impaired individuals.

Evacuation of school children was not demonstrated but the observer was informed that this would be accomplished via the bus company with which the school district has a contract. Drivers are contacted by the bus company. This call-up system has worked in the past when severe weather has forced the early closing of schools.

C. Ingestion Pathway Actions

The County Agricultural Office possesses a computer list of all farms (over 500) in the County. Detailed maps showing crop information are not available due to the large number of farms and the fact (from the County Agricultural Officer) that many of these farms may have 3-4 different crops growing at the same time. Training for farmers and dairymen has occurred at winter meetings. There, a speaker from Peach Bottom is reported to have discussed emergency procedures for protection of cattle, silage, water, etc. in case of an emergency release.

VII. Radiological Exposure Control

A full set of dosimetry equipment and potassium iodide was available at the EOC although no distribution was made directly from the EOC during the exercise. Distribution of low range dosimeters and recordkeeping cards were made at the access control and route alerting assembly point. State Police, upon reporting into the assembly point, had already been allocated their dosimeters, instruction cards, and KI tablets. Although the order had not gone out, the State Police personnel had already simulated ingesting KI tablets at the time of the Alert, and had indicated the time on their recordkeeping cards. Access control personnel were dispatched to their control points without issue of KI. A nurse was present at the assembly point (Rising Sun Fire Station) who was aware of the proper procedures for use of KI, and sheriff's personnel and state police were aware of proper decontamination procedures.

VIII. Media Relations

The County Commissioners meeting room would be used for press briefings during an emergency. No briefings were held during the exercise. The County PIO, who would give the actual briefings, was in contact with his counterpart at the State EOC to assure consistency of information. Rumor control was demonstrated through a "dedicated" telephone number at the EOC.

IX. Scenario

The scenario was adequate to test the County's implementation of REP plans.

Cecil County Relocation Center

I. Activation and Staffing

The staff at the Perryville High School Mass Care Center appeared to be quite capable of caring for evacuees from the plume zone. Representatives of the Red Cross, County Social Service Department, two nurses from the County Health Department, a RACES volunteer, and the High School's Assistant Principal were present; presumably, a sheriff's Deputy would have been there as well had a real accident not demanded the full attention of the Sheriff's office.

The staff was notified by telephone by the agencies to whom each is responsible to report to the High School. Some of the staff apparently were told to report prior to when the scenario should have called for this action; the staff consensus was that this facility could be opened within about 45 minutes to one hour after they were told to open it. It is recommended that these notifications be made in accordance with the scenario at the next exercise.

This staff appeared to be well-qualified for its job. Those who were present knew their responsibilities well, and the staff was large enough to handle a 24-hour operation either by themselves or with backup that was available through the Red Cross and other agencies. Indeed, when a serious hazardous material accident actually occurred during the exercise, this Mass Care Center was kept open late into the night in case it became necessary to evacuate Port Deposit as a precaution against chlorine gas.

One important inconsistency in The Cecil County Plan was discovered which should be reconciled. In several places (pages Q-3, BP-20, I-1 and I-2) the plan states that the management responsibility for Mass Care Centers at public schools is that of the School Superintendent and the school Principal. In several other places (pages Q-1, BP-G, BP-15 and AT1-4) the plan designated the Red Cross as the agency in charge of shelter management. At Perryville High School, both the Red Cross representative and the Assistant Principal agreed that the Red Cross was the designated shelter manager and should be the lead agency. If this is the intent of the planners, the plan should be revised to eliminate the inconsistency over this important responsibility.

II. Registration and Monitoring of Evacuees

Registration and monitoring of evacuees was not observed at Perryville High School, although an important ambiguity in the Cecil County Plan was discovered in the context of this exercise concerning this activity. The Mass Care Annex (Annex Q) states that monitoring and decontamination of evacuees and their possessions is to be at Mass Care Centers. Annex Q refers to the Radiological Annex (Annex H) for these procedures. Annex H states both that monitoring and

decontamination are to take place at the Assembly Areas which in the exercise would have been at the Susquehanna-Chesapeake Job Corps Center in Port Deposit (page H-3)-but also that it is to occur at the mass care center (page H-6). The Mass Care center staff understood that the evacuees they would have received in a real accident at PBAPS would already have been monitored and decontaminated at the Job Corps Center. If this is the intent of the planners, the plan should be revised to eliminate this ambiguity.

III. Congregate Care of Evacuees

Perryville High School is well-suited as a Mass Care facility. It is located more than 15 miles from PBAPS and probably could handle more evacuees than the plan requires (the staff thought they could accommodate up to 400 people, while the plan calls for only 176 to be housed and 300 to be fed there). The gymnasium has ample space for cots, and the school is equipped with wheel chair ramps, parking, lockable areas for storage, an elevator, a cafeteria, and enough rest rooms (including for the handicapped) for 640 students, cots, extra food; other necessities were available within a couple of hours from the Red Cross in Baltimore. Although the school has no nurses' office, the two County Health Department nurses present at the school for the exercise had a full complement of first aid supplies.

This Mass Care Center was in close communication with the County EOC. The RACES volunteer was aware of plant conditions and the emergency status in the County. He kept the rest of the staff informed of the situation. A public address system in the school or the school auditorium could have been used to keep the evacuees up to date on important developments.

IV. Scenario

The scenario in itself was adequate. However, the early termination of the exercise presented an actual demonstration of procedures to be employed at the Mass Care Center.

Cecil County Decontamination Center

The Decontamination Center, which was to be exercised at the Susquehanna-Chesapeake Jobs Corps Center in Port Deposit, was not observed because the exercise was terminated prematurely (due to an actual emergency) just before it was to have been activated. It should be noted that the plan is ambiguous as to where this function is to be located; this problem is discussed in detail in the evaluation of the Mass Care Center.

Evacuation

The Cecil County evacuation began from an assembly area at Connowingo Baptist Church. The assembly area was staffed by a nurse, a RACES

volunteer and a county Sheriff's deputy. The simulated evacuees consisted of ten students from the Susequehanna-Cheasapeake Jobs Corps Center. There appeared to be some confusion among the staff as to the exact purpose of the assembly area. The "evacuees", arrived earlier than the scenario would have called for because of a curfew.

The simulated evacuation of the mobility-impaired was done by a private van, not by a bus of one of the companies under contract to the county, although procedures followed by the van driven were in accordance with the county plan.

Overall, an evacuation simulation in proper scenario time and using designated transportation resources would have provided a more valuable training expeirience for county emergency personnel.

Cecil County Deficiencies/Recommendations

1. One of the county's designated radio stations did not activate its EBS because this was an exercise and not an actual emergency.
2. An instructional message informed the public of the need to evacuate within a 5 mile radius of the plant; the message should have said 10 miles.
3. Access control teams were dispatched without their KI pills.
4. There was some confusion as to whether the primary responsibility for movement of mobility-impaired individuals rested with the sheriff's office or the fire department.
5. Some State Police personnel simulated ingestion of KI prior to authorization and in circumstances not warranting its ingestion.
6. Some relocation center staff were activated prematurely. Premature activation diminishes the value of the activity as a training vehicle.
7. There is an inconsistency in the County Plan as to whether the Red Cross or School authorities are in charge of shelter management.
8. A high priority should be placed in future exercises on playing as many activities as possible in actual sequence with other scenario events.

Harford County EOC

I. Activation and Staffing

The Harford County EOC has a 24 hour warning link to the utility via the "blue phone" hotline. The call that would normally initiate activation of the EOC was received over this line at 1518. The call was confirmed at 1530. However, EOC staff had previously been

instructed by memorandum to report to the EOC at 1500. Hence, actual activation procedures were not demonstrated. The EOC was fully staffed with representatives of all agencies having response functions according to the County plan. Twenty-four hour staffing was demonstrated by exercise of a shift change. Incoming replacement staff were briefed on the current situation by staff of the preceding shift. Staff of both shifts displayed adequate training and knowledge. The County dispatched a liaison to the EOF to keep the County updated on significant information, pending confirmation through official communication channels.

II. Emergency Operations Management

Harford County emergency operations were directed, as planned, by the Director of Emergency Services Coordination. The Director kept staff informed and involved in decision making through periodic EOC-wide briefings and individual consultations. Copies of plans and procedures were available for reference. Incoming and outgoing messages were logged, reproduced as necessary, and distributed to at least the necessary parties for action. However, the Director was, at times, beset with messages that should not have needed his priority attention. At the same time, for many messages copies went only to the persons directly involved, with no copy kept at a central point for later reference should the need arise. Access to the EOC was carefully controlled by guards requiring visual identification of entrants. A delegated representative of the County Executive was present throughout the exercise to support official decisionmaking.

Emergency status notifications were received at 1518 Alert, 1640 Site Area Emergency, and 1823 General Emergency. The order to evacuate was simultaneous with the General Emergency announcement. Appropriate actions were taken during the exercise to implement an evacuation. However, in accordance with the exercise plan, these actions were generally initiated out-of-sequence, on a schedule that only approximately tracked the emergency status. Hence the initiating times of these responses do not provide a clear measure of timely management response to the hypothetical emergency conditions.

III. Facilities

The facilities were sufficient, but because they were still in the process of construction the room was not sufficiently ventilated and the smoke caused eye irritation. Lighting, phones, furniture were adequate. The noise was controlled for the most part. The facility could support extended operations. Although no sleeping accommodations were observed, there are showers and kitchen equipment. Backup power was available but not demonstrated. The emergency classification level was posted and continuously updated. The status board was large and easily seen and updated constantly with a lighted board with lighted pins showing access and control point.

A large map of the plume EPZ was posted. All evacuation routes with access control points and all relocation centers were posted. Radiological monitoring points were posted. Population by evacuation area was not posted but available.

IV. Public Alerting and Instruction

The Harford County EOC was active in both public alerting and dissemination of public instructions. The public alerting process was initiated by confirmation of the Alert status at 1530. Siren and EBS were activated at 1535 in coordination with Cecil County. An actual EBS tone and test message was broadcast over local radio stations. However, this public alerting was not coordinated with the State of Pennsylvania or the Pennsylvania counties. Neither were the sirens repeated later in the exercise, when the Pennsylvania sirens were sounded (i.e., at General Emergency). Route alerting vehicles were dispatched to their staging positions (at access control points), but did not actually run routes.

Emergency public instructions are drafted at the EOC, using prescribed messages with blanks to fill in for ad hoc conditions. Distribution of these messages via EBS was simulated after the Alert-level test. The instructional message to evacuate was officially approved for release at 1837. However, the message used the prescribed "Site Emergency" form, not the "General Emergency" form. Also the message did not clearly identify the geographical areas affected, except to say "within 10 miles" of PBAPS.

V. Protective Action

A. Evacuation and Access Control

The access control points were actually established. As with other protective action events, the initiation of the ACP's was deliberately played out of sequence, that is, before the General Emergency and evacuation order. EOC staff reported that sufficient additional resources were available to set up all needed ACP's, but were not activated for this exercise. In addition to ACP's, actions were ordered from the EOC to control air traffic access into the EPZ. Activation of the decontamination and reception centers was also played out of sequence, but was done.

B. Special Evacuation Problems

EOC staff had written information on the location of mobility-impaired individuals, but did not have a record of the particular needs of these individuals. Limited activation of fire and ambulance services to care for these people was played, with additional discussion in the EOC of further ambulance needs. Only one ambulance was sent to the Aberdeen High School which housed (in separate buildings) both the Decontamination and Mass Care facilities.

Two commercial buses were sent by the State to Harford County out of sequence, before the Alert, presumably as an evacuation resource. However, the buses did not play in the evacuation.

C. Ingestion Pathway Protective Actions

The Agriculture staff at the EOC issued appropriate precautionary information to farmers, and made a recommendation at the General Emergency to place animals on stored feed. There was discussion in the EOC of the need to consider farmers as emergency workers, and to provide for their access and exposure control. While, in the exercise, instructions were given to farmers via the public information functions, the Agriculture staff also had access at their home office to complete contact lists of farmers and related facilities in the area.

VIII. Radiological Exposure Control

The dosimetry equipment that was available consisted of low and high range direct read dosimeters. They were charged and accurate. The recordkeeping procedures were excellent. All personnel issued dosimetry and TLD's were recorded with all pertinent information. The TLD's were actual and the supply was excellent. There was also had an adequate supply of CDV 720 geiger counters that were operational. Instructions (printed) were available to all personnel for the dosimeters. An adequate supply of KI was available. The personnel present were aware of proper procedures for use but would not use it unless someone from the Board of Health was present. They were aware of maximum dose. They were also aware of the decontamination procedures and when and where to go for decontamination. The actual procedure was not observed by this observer.

The county EOC was not in the plume EPZ, so protective actions were not required for EOC staff. On the whole the Radiological Control was adequate. Even though the EOC was out of the plume the dosimetry was distributed to field workers.

IX. Media Relations

Space was set aside for press briefings in the PIO room. Though no briefings were actually given the information that was prepared for release was accurate and complete. The use of technical jargon was at a minimum.

The maps on display were readily adaptable for use to augment press briefings. The information that was available for release was consistent with other information from other spokespersons except for the error noted below. The head PIO officer was designated to give the briefings.

The rumor control capability was excellent. A special room was manned by personnel handling all types of calls to the EOC. The personnel appeared to know what was happening and handled all calls capably. The wrong prescribed message sheet was presented for release to the press at the time of the general emergency declaration.

IX. Scenario

The exercise scenario per se was adequate to test the response capabilities of Harford County. However, because of the County's choice to play many activities out of sequence, it was not possible to evaluate the timeliness of event-driven response actions.

Harford County Relocation Center

I. Activation and Staffing

Organizations staffing the Decontamination Center included the Harford County Health Department, the Aberdeen Board of Education and the Aberdeen Fire Department. The Mass Care Facility was manned by the Red Cross, Harford County Health Department, Harford County Social Services Department and the Maryland Emergency Management and Civil Defense Organizations.

Staffing activities were played out of sequence, scheduled at approximately 1800. However, phone calls were also made from the Health Officer at 1647 to staff the Mass Care. It was reported that the facility was sufficiently staffed at 1730 (the scheduled opening was at 1800). According to the Team Leader of the decontamination facility, a phone call was received at 1500 to arrive at 1700 and open at 1800. The Fire Department Radiological Team was alerted at 1755 by the County EOC and arrived at the decontamination center at 1820. The Health Department team arrived earlier as directed by the Team Leader.

At the Mass Care Facility the staff included one Physician, Nurses, Social Service Representatives and Civil Defense professionals. Personnel at decontamination included Sanitary Specialists, Firemen, Medical Technicians and School Administrators. Two teams were present at the decontamination centers; it was reported that at least five people manned the center with back-ups listed by County Health and available from Red Cross.

Relocation Registration and Monitoring

Procedures for registration of evacuees were demonstrated at the decontamination center and at the Mass Care Center. A three page form, including name, address, social security number and radiological data is completed at the decontamination center in duplicate. One copy is returned for the records, the second is given

to "clean" evacuees to provide admittance to Mass Care. Evacuees must also register at Mass Care.

Two radiological monitoring teams were at the decontamination center. Equipment included 2 geiger counters, 18 dosimeters, 3 chargers, 3 area radiological survey meters (CDV-715) and 6 radiological survey meters with probes for body scans. Decontamination is performed at the decontamination center prior to admittance at Mass Care.

III. Congregate Care of Evacuees

The Mass Care facility was located at least 5 miles beyond the Plume EPZ in the high school at Aberdeen. It is immediately adjacent to the decontamination center which is in a second high school building.

According to the Shelter Manager, the facility can accommodate 100 people in the 2 gyms. If necessary, the Shelter Manager estimated that the facility could accommodate 100 evacuees for a short period as cafeteria and lavatory facilities are ample. There are also 14 other schools available in the County which could be used for congregate care. Cots are available within 6 hours from Red Cross according to the Shelter Manager.

There were two means of communication, telephone lines into the school and a RACES mobile unit in the parking lot. The Shelter Manager reported that Red Cross Mobile Units could be used if necessary; these units have telephone equipment.

Shelter personnel were aware of the number of evacuees to be received. A nursing station was established and ambulance was located in the parking lot.

IV. Decontamination

The decontamination facility was located in the South Building of Aberdeen High School. It has a convenient location as it is near major roads, Interstate 95 and Route 22. It is also located within walking distance of the Mass Care facility in the North Building.

At the decontamination center, radiological monitoring of evacuees was conducted. Equipment included six survey meters with probes, three area survey meters plus 3 geiger counters, and 14 dosimeters. Capability to determine the need to decontaminate equipment/vehicles was not demonstrated. Most vehicle decontamination is to be handled at the Assembly Area. No system was set up to handle the checking of vehicles or equipment, although staff and equipment were available for doing so. The decontamination process was explained but not demonstrated. A system of stations was established to promote effective crowd handling. Contaminated people would be escorted to

the dressing rooms/showers to avoid contamination of paperwork.
Stations include:

0. Waiting room
1. RAD-SCAN-Check-In
2. Wash Station-Security
3. Showers
4. AD-SCAN (re-shower up to 3 times, if still contaminated send to hospital)
5. Clean Dressing
6. Dosimetry and Recordkeeping

Contaminated clothing would be placed in plastic bags and kept in isolated area for rapid, proper disposal. Showers will provide dilution of contaminated wash water.

The decontamination center was set up in the gymnasium with the hall and lobby as waiting area. Lockerroom showers are used for decontamination. The Health Officer and Fire Chief estimated that there are six trained monitoring teams. With augmentation by volunteers this might be expanded to eight. Therefore the facility should be able to handle a fairly large volume of people.

Harford County EOC Recommendations/Deficiencies

1. Message-handling procedures should be reviewed to ensure that the Director is not distracted with superfluous messages, but has ready access to copies of all messages at a central location for reference if he needs it.
2. Care should be exercised in the use of prescribed public information messages to ensure that the correct form is used and that sufficient information is given.
3. Information should be developed to show the particular needs of mobility-impaired persons.
4. A high priority should be placed in future exercises on playing as many activities as possible in actual sequence with other scenario events.
5. Future exercises should consider testing the response time of the relocation center staff.
6. Better signage of directions might be considered to ensure that the self-directed public know which building to visit first.
7. A system should be considered for handling vehicles-whether they have been checked, which vehicles belong to people with radiological contamination, etc. In the next exercise consideration should be given to testing the ability to obtain clean clothing, soap, and other items needed at the decontamination center.

SUMMARY OF CATEGORY "A" DEFICIENCIES

Deficiency/Recommendation	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
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Drumore Township & Little Britain Townships (Lancaster)

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| <p>1. Because no federal observation was permitted, FEMA is unable to find that emergency preparedness was adequate to provide reasonable assurance that appropriate protective measures can be taken to protect the health and safety of residents in the event of a radiological emergency at Peach Bottom Atomic Power Station.</p> | <p>J.9.</p> |
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Fawn Grove Borough/Fawn Township Joint EOC (York County)

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| <p>2. Fawn Grove Borough/Fawn Grove Township did not demonstrate an overall level of emergency preparedness sufficient to provide reasonable assurance that appropriate protective measures can be taken to protect the health and safety of Borough and Township residents.</p> | <p>J.9.</p> |
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SUMMARY OF CATEGORY "B" DEFICIENCIES

Deficiency	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
<u>Pennsylvania</u>				
1. Internal communications in EOC suffered because of technical problems with the public address system.	H.3.			
2. PEMA accepted dose rates from BRP in unintelligible form (without units and with incorrect exponential format) and relayed them to the counties in such form. The PEMA Operations Chief took note of this mistake and attempted to acquire intelligible information from BRP but not until after the misinformation had been relayed to the counties.	E.5. G.4.b.			
3. Periodic updates of plant conditions and meterology were not made available to BRP on a regular basis, nor was BRP sufficiently aggressive in acquiring this information for relay to PEMA.	H.12.			

SUMMARY OF CATEGORY "B" DEFICIENCIES

Deficiency	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
<u>Chester</u>				
4. The designated EBS station could not be received at the County EOC nor is the station operational 24 hours per day.	E.5.			
5. No permanent record devices (film badges or TLD's) are in existence for emergency workers in Chester County. Attempts should be made to procure this equipment.	K.3.a.			
6. Although the reception and mass care center staff gave every indication of being prepared to perform their emergency functions, they did not so fully demonstrate. At the next exercise a fuller demonstration of plan implementation should be conducted.	J.10.h.			

SUMMARY OF CATEGORY "B" DEFICIENCIES

Deficiency	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
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West Nottingham Township

7. Some of the phone numbers on the Township's call lists were not correct. These lists should be regularly checked for accuracy.	F.l.e.			
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Lancaster County

8. Monitoring and decontamination equipment should be protected with a plastic cover where appropriate to prevent possible contamination.	K.5.			
9. A system/plan should be developed for disposal of contaminated water and clothing.	K.5			

SUMMARY OF CATEGORY "B" DEFICIENCIES

Deficiency	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
<u>East Drumore Township</u>				
10. The Township does not have the capability for 24 hour operations. Staffing for the exercise was incomplete; participants played dual roles.	A.1.e.			
11. Staff did not demonstrate complete familiarity with many aspects of the plan. Additional training is necessary.	A.1.e. 0.			
12. The Township did not request resources from the County EMC for unmet needs. The Township EMC stated that the County was aware of what the	A.4.			

SUMMARY OF CATEGORY "B" DEFICIENCIES

Deficiency	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
<p>Township's resource shortages were. Unmet needs should be explicitly made know to the County at the appropriate time.</p>				
<p><u>Fulton Township</u></p>				
<p>13. The Township did not exercise staffing requirements as per its plan. An official not so designated acted as EMC. The deisgnated EMC made no attempt to prepare the Operations Room for readiness and was not available to serve as a key staff member. The Deputy EMC went to another facility and performed the sole function of route alerting.</p>	<p>A.1.e.</p>			
<p>14. No 24 hour manning capability was demonstrated.</p>	<p>A.1.e. H.4.</p>			
<p>15. The Township never requested unmet needs, especially the need for a RACES radio and operator, from the County.</p>	<p>A.1.e.</p>			
<p>16. Additional training and familiarity with the Township plan to include responsibilities</p>	<p>O.</p>			

SUMMARY OF CATEGORY "B" DEFICIENCIES

Deficiency	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
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and communications systems available and use of those systems is needed for the EOC staff.

Providence Township

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| 17. The RACES operator could not handle all messages to the EOC. Procedures and equipment should be reviewed and modified as needed. | F.1.b. | | | |
| 18. The Radiological Officer was not knowledgeable about responsibilities and did not arrive at the EOC until 1900 when the evacuation was already underway. He should receive additional training. | K. | | | |

York County

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| 19. The design of the decontamination center at Airville should be reevaluated and revised as necessary to prevent possible contamination of center and EOC staff. | K.5. | | | |
| 20. Supplemental training should be provided to monitors to | 0.4.c | | | |

SUMMARY OF CATEGORY "B" DEFICIENCIES

Deficiency	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
ensure full understanding of contamination prevention procedures.				
<u>Delta Borough/Delta Township Joint EOC</u>				
21. Clarification is needed with regard to the timing of the dispatching of route alert teams. Also, it is recommended that a standard message content for use by the route alert teams be developed and incorporated into the plans.	E.5.,6.			
22. Procedures for the provision of protective action instructions to farmers, should be reviewed, in coordination with the York County RERP, and the municipal plans revised as appropriate.	J.9.			
23. The EMC should confer with the County in order to establish an appropriate location outside of the 10 mile EPZ for the relocation of evacuated EOC personnel.	H.3. A.1.e.			

SUMMARY OF CATEGORY "B" DEFICIENCIES

Deficiency	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
24. Clarification and training is needed with regard to the procedures for obtaining KI in the two municipalities.	A.2.a.			
<u>Fawn Grove Borough/Fawn Grove Township</u>				
25. Future exercises should demonstrate staffing of the EOC to include active involvement by elected officials during critical periods of activity and greater control and direction of emergency response activities demonstrated by the EMC.	A.2.a.			

SUMMARY OF CATEGORY "B" DEFICIENCIES

Deficiency	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
26. Twenty-four hour staffing of all EOC positions should be established, and the RERP updated accordingly.	A.1.e. A.2.a.			
27. Additional training should be provided to response personnel with regard to the provisions of the RERP, especially concerning evacuation and relocation of EOC activities and use of KI.	H.3. A.1.e.			
28. The communications systems used at the EOC should be critically reviewed and reorganized. The revised system should enable timely notification to the EMC and EOC staff regarding changes in plant status and protective action recommendations. Specifically, RACES network operations, and training with regard to the recently provided scanner should be provided.	F.1.a.			

SUMMARY OF CATEGORY "B" DEFICIENCIES

Deficiency	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
<p>29. The Borough and Township's plan for the utilization of route alerting is unclear; route alerting was conducted at inappropriate times. Clarification is needed with regard to the timing of the dispatching of route alerting teams. Initiating route alerting with the sounding of Maryland's sirens is not indicated in the RERP, and could cause coordination difficulties with Pennsylvania EBS announcements. Responsibility for completing route alerting in Maryland (as alluded to by the Fire personnel) should be clarified and incorporate in the RERP, if appropriate.</p>	<p>E.5. E.6.</p>			
<p>30. Route alerting took an excessive amount of time. Route alert sectors should be reviewed and restructured as necessary in order to provide for a more timely completion of routes.</p>	<p>E.5. E.6.</p>			

SUMMARY OF CATEGORY "B" DEFICIENCIES

Deficiency	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
31. Lists of mobility-impaired individuals should be developed and maintained at the EOC.	J.10.d.			
32. The RERP should be revised to reference all mutual support agreements.	A.3.			
33. The Borough/Township EMC should confer with the County in order to establish an appropriate location outside of the 10 mile EPZ for the monitoring and decontamination of Delta Borough evacuated emergency workers.	H.3. A.1.e.			
34. The EMC should investigate the cause for the apparent lack of notification to administer KI, and ensure the completion of corrective actions as necessary.	F.1.d. F.1.e.			
<u>Lower Chanceford Township</u>				
35. Future exercises should demonstrate full staffing of the EOC.	A.2.a.			

SUMMARY OF CATEGORY "B" DEFICIENCIES

Deficiency	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
36. Twenty-four hour staffing should be established and incorporated into the municipal RERP.	A.1.e.			
37. Future exercises should exhibit the simulation of decmonstration of activities associated with the relocation of EOC operations.	H.3. A.1.e.			
<u>Maryland</u>				
38. The State EOC was not fully staffed in accordance with the plans and exercise objectives-- the Fire Marshall's office was not represented. The MEM&CDA Director should assure that, upon activation of the EOC, all agencies and organizations are represented in accordance with the plans.	A.2.a.			
39. The public information staff failed to prepare detailed evacuation instructions for the public. In future	E.7.			

SUMMARY OF CATEGORY "B" DEFICIENCIES

Deficiency	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
<p>exercises, news releases and EBS messages should be prepared which identify the affected area, and advise the public as to where they should go, when they should leave, what they should take, what routes they should use, what they should leave, what they should take, what routes they should use, what they should do if they need transportation or special assistance, etc.</p>	E.6.			
<p>40. There was a thirty minute delay between the time that the Accident Assessment staff reached its decision to recommend evacuation, the Secretary of Health concurred, and the recommendation was forwarded to the EOC. This delay was not caused by the need for extended deliberation. It is recommended that the Secretary of Health become involved in future exercises</p>				

SUMMARY OF CATEGORY "B" DEFICIENCIES

Deficiency	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
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at a point early enough to allow a briefing prior to the time at which decision-making regarding protective actions is required.

Cecil County

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| 41. One of the County's designated radio stations did not activate its EBS because this was an exercise and not an actual emergency. | E.5. | | | |
| 42. An instructional message informed the public of the need to evacuate within a 5 mile radius of the plant; the messages should have said 10 miles. | E.7. | | | |
| 43. Access control teams were dispatched without their KI pills. | 0.4.d.
J.10.e. | | | |
| 44. There was some confusion as to whether the primary responsibility for movement of mobility-impaired individuals rested with the sheriff's office or fire department. | J.10.d. | | | |

SUMMARY OF CATEGORY "B" DEFICIENCIES

Deficiency	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
45. Some State Police personnel simulated ingestion of KI prior to authorization and in circumstances not warranting its ingestion.	0.4.d. J.10.e.			
46. Some relocation center staff were activated prematurely. Premature activation diminishes the value of the activity as a training vehicle.	E.2.			
47. There is an inconsistency in the County plan as to whether the Red Cross or School authorities are in charge of shelter management.	A.2.a.			

SUMMARY OF CATEGORY "B" DEFICIENCIES

Deficiency	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
<u>Harford County</u>				
48. Care should be exercised in the use of prescribed public information messages to ensure that the correct form is used and that sufficient information is given.	E.7.			
49. Information should be developed to show the particular needs to mobility-impaired persons.	J.10.d.			

SUMMARY OF CATEGORY "B" RECOMMENDATIONS

Recommendation	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
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Red Cross Field Headquarters

1. The Red Cross plans to open a field headquarters to support the Red Cross Mass Care effort in exercises and actual events; its activities should be included in the scenario and problems to test their capability injected.

2. The Red Cross state liaison officers should be advised prior to the scenario being prepared so that Red Cross exercise objectives can be included.

16

Pennsylvania

3. In the absence of a coordinated siren sounding between Maryland and Pennsylvania, Pennsylvania should notify its risk jurisdictions when Maryland is

E.5.
E.6.

SUMMARY OF CATEGORY "B" RECOMMENDATIONS

Recommendation	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
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about to activate its sirens and remind them that no actions are called for in Pennsylvania at that time.

Lancaster

4. It is recommended that various agencies represented in the EOC utilize the telephones provided for them when relaying information and instructions to their staffs. This information could then be recorded on the official message forms as already being transmitted (by telephone) and then entered into the regular message distribution system; thereby relieving the message center staff who were quite busy during the entire exercise.

SUMMARY OF CATEGORY "B" RECOMMENDATIONS

Recommendation	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
5. The utility notified the County of Site Area Emergency contrary to the State and County plans. This discrepancy between plan and practice should be reconciled.	E.1.			
6. Procedures should be established for the use of scanners and other equipment provided to municipalities by the utility.	F.1.b.			
7. Some form of coordination between the County Agent and the State Department of Agriculture representative at the State OEC should be established to facilitate implementation of protective actions for the Ingestion Pathway EPZ.	J.9. J.11.			

SUMMARY OF CATEGORY "B" RECOMMENDATIONS

Recommendation	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
8. The media center location contained in the County plan at Appendix 8, Annex 7, was not used for this exercise. In future exercises the media center should be the one relected in the plan.	G.3.a.			
9. Pre-exercise planning stages of future exercises at St. Joseph's Hospital shou'd include planning a demonstration with a contaminated injured victim to coincide with the time the federal observer is at the facility.	L.1.			
<u>Delta Borough/Delta Township</u>				
10. The EOC should consider the installation of an additional commerical telephone line to support response communications, and to focus response activities within the EOC.	F.1.a.			

SUMMARY OF CATEGORY "B" RECOMMENDATIONS

Recommendation	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
<u>Fawn Grove Borough/Fawn Grove Township</u>				
11. The EMC is encouraged to monitor the EBS station in future exercises in order to ensure the coordinated response of protective activities.	E.5. E.6.			
<u>Lower Chanceford Township</u>				
12. The Township should consider the installation of an additional commercial telephone line to support response communications.	F.1.a.			
<u>Maryland</u>				
13. The processing of some notification message received from the utility was delayed.	F.1.			

SUMMARY OF CATEGORY "B" RECOMMENDATIONS

Recommendation	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
<p>A contributing factor was the need for the message taker to initially record the information on one form, then transfer the data to another form before logging-in and routing the message. The State should investigate the possibility of establishing a reporting format which is mutually agreeable to Maryland, Pennsylvania and the utility.</p>				
<p>14. Both direct telephone line which provide the primary communications link between the PBAPS and the State EOC (and other risk EOCs) malfunctioned. Commercial telephone was successfully used as a backup during the exercise, but this cannot be considered a reliable communications medium during an actual emergency. It is recommended that a dedicated radio system</p>	F.l.a.			

SUMMARY OF CATEGORY "B" RECOMMENDATIONS

Recommendation	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
be installed to provide backup to the direct phone lines between the utility and the Stae EOC.				
15. The telecopier used by the Public Information staff to trasmit and receive hard copy of news releases malfunctioned, and there was not efficient backup. It is recommended that a secondary system for hard copy transmission be established.	F.1.a.			
16. In the absence of a coordinated siren sounding between Maryalnd and Pennsylvania, Maryland should advise Pennsylvania, as early as pratical, of its plans to activate sirens in order to allow Pennsylvania to advise its risk jurisdictions and there by minimize the possibility of confusion.	E.5. E.6.			

SUMMARY OF CATEGORY "B" RECOMMENDATIONS

Recommendation	Reference NUREG-0654 Part II	Correction	Proj'd Date	Actual Date
17. A high priority should be placed in future exercises on playing as many activities as possible in actual sequence with other secnario events.	N.l.a.			
<u>Cecil County</u>				
18. A high priority should be placed in future exercises on playing as many activities as possible in actual sequence with other scenario events.	N.l.a.			
<u>Harford County</u>				
19. A high priority should be placed in future exercises on playing as many activities as possible in actual sequence with other sceanrio events.	N.l.a.			98
20. Message handling procedures should be reviewed to ensure that the Director is not distracted with superfluous messages, but has ready access to copies of all messages at a central location of reference if he needs it.				