



FEDERAL EMERGENCY MANAGEMENT AGENCY

Washington D.C. 20472

JUN 16 1981

MEMORANDUM FOR: Brian Grimes
U.S. Nuclear Regulatory Commission

FROM: Robert T. Jaske *Robert T. Jaske*
Acting Director, Radiological Emergency
Preparedness Division

SUBJECT: Interim Findings and Determination Relating to the
Status of State and Local Emergency Preparedness
Around Three Mile Island (TMI) Fixed Nuclear Facility

This responds to your requests of March 23 and May 22, 1981, for the above information. On May 15, 1981, we furnished FEMA Region III's RAC evaluation of State and local plans as of that time. On May 27, 1981, we provided additional details on this evaluation.

The State plan "Fixed Nuclear Facility Incidents," Annex E of the State Disaster Operations Plan, was extensively re-written in September 1979 following the TMI incident. It was revised in accordance with the criteria of NUREG-0654/FEMA-REP-1, Revision 1 and submitted to the RAC on February 23, 1981. As indicated above, the RAC reviewed the off-site plans in May of 1981 and found that the intensive efforts of the Pennsylvania Emergency Management Agency had upgraded and significantly improved both the State and local plans. The RAC review identified certain deficiencies in the plans and indicated that the impact on preparedness of some of the deficiencies would have to be determined after a joint exercise had been held.

The Commonwealth of Pennsylvania has not formally submitted their plans, nor have they had a public meeting as outlined in 44 CFR 350. They did, however, conduct a joint exercise on June 2, 1981, to evaluate the off-site capabilities of the State and local jurisdictions to respond to a nuclear emergency at the TMI site. A copy of the detailed exercise observations and recommendations developed by the Region is included as Attachment 1.

The participants in the exercise included the State, four of the five plume exposure zone counties (Dauphin, Lebanon, Lancaster and Cumberland), three municipalities, and several voluntary support organizations. York County, one of the principle plume exposure zone counties, did not participate. The stated objectives of the exercise were to test the adequacy of the State and local governments' plans and the capability to implement them. Although there were circumscribed limits to the scope of the exercise listed in the Regional evaluation, the RAC concluded that the objectives were generally achieved, and more important, that the overall capability of the participating governments was shown to exceed the minimum standards.

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A number of major conclusions can be drawn as a result of the evaluation. The first is that the State agencies, especially the PEMA and the Bureau of Radiological Protection (BRP), the two lead agencies, demonstrated a knowledge and capability to carry out their agency functions. The same conclusion can also be made for the other State agencies in the exercise, such as the State Police and the Departments of Transportation, Agriculture and Environmental Resources. The latter two actually did food and water sampling in the ingestion zone, one of the areas often overlooked in exercises. Certain procedural errors were encountered in the control of access to potentially contaminated areas. This, however, was due to lack of drilling in this specific operation, rather than any lack of basic agency capability. A second major conclusion is that State agencies possess an adequate capability to coordinate their own programs. There was, however, uneven coordination among State agencies, especially between the State and the counties, among the counties and within the counties. This weakness in coordination was demonstrated in several areas such as notification and alerting, emergency communications, and especially public information. Another major conclusion is that local governments as yet are not completely familiar with their management roles in this area. This is due to the newness of their plans and the need for further training through drills and exercises. It is pertinent to note that the county plans were completely rewritten over the last six months. Much of the information had not filtered down through the ranks of county and municipal staffs. A final observation is that the alerting and notification system does not meet the criteria of NUREG-0654/FEMA-REP-1, Revision 1.

The Region's exercise evaluation cited 72 specific recommendations for corrective action. While many of the recommendations are peculiar to this particular exercise, most of them refer to generic deficiencies which must be remedied by further development of SOPs, training programs and resources.

As a result of the TMI exercise, the Region was also able to update the May 14, 1981, FEMA review comments on State and local plans. These are contained in Attachment 2. The May 14 report had indicated certain areas of deficiencies such as lack of SOPs, local agreements, and problems in the timely distribution of dosimeters and potassium iodide, and weaknesses in plans to conduct decontamination. The overall effect of the exercise on these concerns was to demonstrate that although the SOPs and agreements must still be accomplished, there was a demonstration of capability to carry out these functions.

In summary, our interim finding is that Pennsylvania State and local government radiological emergency response plans site specific to TMI are adequate. The exercise demonstrated that certain changes are needed in the plans and that the recommendations based on the May 14 RAC review must still be accomplished. The exercise provided a demonstration of an adequate State/local preparedness capability. It did, however, reveal deficiencies which can be regarded as relatively minor and correctable with a program of training, drills and exercises. As previously noted, however, York County did not participate in the exercise, and, therefore, did not demonstrate its capability to respond to a nuclear incident.

FEMA Region III has been directed to work with PEMA to arrange for early participation by York County and PEMA in an exercise so that the capability of York County can actually be evaluated.

Since it relates to the TMI matter, we are also attaching as a part of this package, a series of statements prepared by Region III which are supplemental to the testimony of witnesses Adler and Bath.

Attachments
as stated

ATTACHMENT 1

TO FEMA'S INTERIM
FINDINGS AND DETERMINATIONS
OF JUNE 16, 1981

PENNSYLVANIA REP EXERCISE
SITE-SPECIFIC TO TMI
OBSERVATIONS AND RECOMMENDATIONS
JUNE 11, 1981

PENNSYLVANIA REP EXERCISE
SITE-SPECIFIC TO TMI
OBSERVATIONS AND RECOMMENDATIONS
June 11, 1981

Introduction

Following are the observations and recommendations of the Region III Regional Assistance Committee (RAC) on Pennsylvania's participation in the June 2, 1981 radiological emergency preparedness exercise, site-specific to the Three Mile Island Nuclear Station. A preview of these observations, in the form of an "Interim Critique of Exercise," was discussed with the Pennsylvania Emergency Management Agency (PEMA) and the Nuclear Regulatory Commission (NRC) on-site team leader, and presented in an open meeting at the William Penn Museum in Harrisburg. A copy of the complete exercise report will be provided to PEMA.

The off-site observers provided by the RAC consisted of federal personnel from the Federal Emergency Management Agency, The Environmental Protection Agency, the Department of Energy, the Nuclear Regulatory Commission, the Food and Drug Administration, the Public Health Service, the United States Department of Agriculture, and the Department of Transportation. In addition, personnel from the Center for Planning and Research support the RAC. There were 38 observers located at the State EOC, Bureau of Radiation Protection Assessment Center, the EOF, the media center, four of the five plume zone counties, three municipalities, the Central Area EOC, one support county and various field positions to observe radiological monitoring, food and water sampling, access control, public alerting and exposure control.

York County did not participate in the exercise and no evaluation of York's response capability can be made from this exercise.

The observations have been divided into the following categories:

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| I. Notification and Alerting | VI. Communications |
| II. Direction and Control | VII. Public Information |
| III. Accident Assessment | VIII. Reentry and Recovery |
| IV. Exposure Control | IX. Scenario |
| V. Protective Action | |

A total of 72 recommendations are cited. The following items represent a consolidation of some recommendations into issues that should be addressed first. The overall response capability of Pennsylvania was shown to exceed minimum standards on the whole, notwithstanding the improvements recommended.

1. Notification of all changes in incident classification levels by the utility to the Pennsylvania Emergency Management Agency rather than the Bureau of Radiation Protection.

2. Improved coordination on operational matters among state, county, and municipal levels to insure tighter direction and control.

3. Improved coordination on public information between state and county to provide a continually current picture of information disseminated to the public.
4. Inclusion in the plan's concept of operations of Pennsylvania's policy to evacuate either the entire 10-mile EPZ or none of the EPZ.
5. Distribution of potassium iodide and dosimetry equipment to the lowest organizational level.
6. A lack of demonstrated capability for a complete access control system.
7. Additional table-top exercises and drills by each organizational level to discover and work out internal problem areas prior to full scale exercising.

I. NOTIFICATION AND ALERTING

State Level

Overall notification of key personnel, PEMA staff and state agency emergency response teams, as well as the mobilization of the staff and activation of the PEMA EOC was accomplished in accordance with plans and in a timely fashion, with some minor problems.

Initial notification following receipt of Unusual Event of 0547 took 13 minutes, including notification of risk counties and prescribed state level personnel.

The initial notification of Unusual Event went from TMI to the PEMA duty officer and the parent county (Dauphin). Subsequent notifications of incident classification levels at state level were from TMI to BRP. BRP then passed the change in classification to the state EOC. This is not in concert with established plans and resulted in the state/PEMA and the counties not receiving the Licensee's prediction of incident consequences to include population at risk. The initial message format was developed for state and county decision processes with follow-up messages to provide BRP with technical information. Because this took place, PEMA's notification messages of emergency classifications to other state agencies and counties were not as informative as they might have been.

Following receipt of Alert notification at 0647, notifications were again made to risk counties, PEMA staff, et al, and the state EOC was partially activated at 0715. Two staff members made the necessary calls to the state response teams to standby except for State Police and National Guard teams which were directed to report to the state EOC. All calls were completed by 0800.

At 0803, PEMA received authority to fully activate the EOC and assume control of the response teams from the Governor's office. Calls were made to activate the response teams and for them to report to the EOC. Most of the state agency response teams' staffs reported during the period of about 0830 to 0915; the last team, Agriculture, reported about 0945.

A State of Emergency was declared and the counties were notified at 1204. This caused a significant level of confusion since it was interpreted by some to be a General Emergency classification level without protective action guidance. At least one county was prompted to recommend sheltering. (See Direction and Control.)

Notification of the public is largely a local responsibility, but the state did utilize the EBS and NOAA systems to advise the public that the Governor had authorized a general evacuation of the TMI EPZ at 1230.

PEMA assumed, but did not attempt to verify, that locals had initiated public alerting and notification actions (sounding sirens, route alerting, use of EBS, etc.) according to plans.

Local Level

Notification, alerting and mobilization activities were generally successfully demonstrated, although some variation occurred among the localities. Notifica-

tion of the public was demonstrated in a limited fashion, since all municipalities were not scheduled to participate in the exercise. Also, local notification systems are interim, pending completion of an EPZ wide siren system to be installed by TMI.

Cumberland County: Notification of the county by the state regarding site conditions occurred smoothly. Messages appeared timely and concise, however, there was a time lag in alerting the municipalities by the county (30 to 50 minutes) in all status changes except the General Emergency, which was promptly transmitted. Alerting of county officials and state agencies was in accordance with the plan and conducted expeditiously, resulting in the county EOC being fully staffed and operational by 0805, including the state agency personnel.

Alerting of the public and county schools was partially actual and also simulated. Sounding of sirens was simulated, but school superintendents were called after Site and General Emergency classes were announced. There was a discrepancy between the county and the municipality (New Cumberland Borough) regarding the evacuation routing of the children to Big Spring High School as the county dispatcher did not have a revised copy of that portion of the plan.

Municipal notification of staff and emergency personnel was accomplished by telephone in a prompt manner. Two people and the route alerting team were alerted by use of pagers. Contact of all schools was made from the EOC by telephone. Notification of churches and ministers was made in order to assess the number of individuals that would require transportation and special assistance. Total assessment was made within 1½ hours. In the event of evacuation, church buses and ambulances would be used to transport individuals to the mass care center in Newville.

Public alerting was simulated, although according to the director, the route alerting team actually manned their designated stations but this was not observed. The route alerting scheme was shown on a borough map and included in the municipal plan.

Dauphin County: Incident class notification notifications were provided direct from the utility, and followed up by the state EOC. Appropriate county staff notifications and mobilization activities apparently occurred in timely fashion according to logs reviewed by the observers which were not permitted access to the EOC due to the strict security measures until about 0730. The 15 municipalities were notified by telephone of the alert status taking about 35 minutes.

Upon receipt of the Site Emergency notification from PEMA at 0905, the EOC was activated, including activation of extra phones. Ambulance services in municipalities were called and put on standby. EBS was activated. Verification was made that the host counties were notified. Between 0945 and 1012, the schools were notified of the Site Emergency and instructed to get in touch with bus drivers in case early dismissal became necessary. The State Police station was notified to activate control points.

Receipt of the Governor's declaration of State of Emergency occurred at 1204 from PEMA. A "canned" EBS "take shelter" message was broadcast. The announcement to take shelter was apparently done on the coordinator's own initiative. Schools were notified via radio which was then backed up by phone calls.

At 1228, PEMA informed DEMA of General Emergency status, and then at 1235, of the Governor's order to evacuate. Siren soundings were simulated followed by EBS school and general evacuation messages which were broadcast repeatedly at 5-minute intervals. Police, fire, ambulances, and reception centers were notified by DEMA of the evacuation order.

Dauphin County, Londonderry: Alerting of the Londonderry emergency staff took 21 minutes. For alerting the public, route alerting by vehicle with a PA system was used. The public alerting process was demonstrated first during the Site Emergency period, and then later was reported to have been done during the General Emergency phase, but this was not confirmed. The town was divided into four sectors, and only one sector demonstrated alerting, probably because of the unavailability of the private sound truck and a fire department utility truck was substituted. (See Protective Action.) The driver was not familiar with the alerting scheme, but was briefed before he departed. The fire department vehicle did not complete the task since it responded to an on-site call at 1121. (See Protective Action.) Each vehicle has radio contact to the EOC to report progress of the alerting which is maintained on a display board.

Lancaster County: When the initial message from PEMA declaring an Unusual Event at TMI arrived, no classification level was given to the dispatcher on duty. Although this did not affect the county's performance in taking appropriate protective actions, the county emergency management coordinator did not begin an official response until receiving the Alert Notification at 0709. Because the county's reaction to an Unusual Event is minimal, this was not considered to be a serious problem.

Notification of the county for Alert, Site Emergency and General Emergency levels went smoothly. For the most part, notification of officials and staff went well. Several minor difficulties occurred during notification of the various municipalities, but were resolved fairly quickly.

There were some significant problems in notification and alerting of the public. At 0930 the county commissioners made the decision for residents to take shelter. An EBS message giving instructions was issued. Unfortunately, neither PEMA nor Elizabethtown Borough was consulted or informed of the take shelter decision and no orders were relayed to the municipalities for route alerting. Thus, anyone not listening to the radio or TV would not have been aware of the instructions. At the time of the General Emergency and General Evacuation order, the EBS message was issued by the county before the order for route alerting went out to the municipalities. However, this may not be a major problem in that the EBS message is scheduled to be repeated every 5 minutes.

Lancaster County, Elizabethtown Borough: The Borough was notified of classification levels promptly and the coordinator notified staff according to plan at all emergency levels with the exception of the health officer who was not included in the exercise. He is shown on the call list but the call was simulated because they did not want to bother him except under an actual emergency condition.

The Borough was never notified of the county decision to recommend sheltering, which occurred during the Site Emergency. The evacuation order was received at the EOC (also the fire station) at 1248. The Fire Chief immediately assembled three crews which had been on standby. The four predesignated alert sectors

and sector assignments were reviewed with the crews and they were dispatched about 1300. Although the actual routes were not prearranged, the small size of the town and the relatively simple grid system of streets made the routes fairly obvious. Since there are four sectors but only three vehicles available, the first vehicle back to the station was sent to do the fourth sector. Route alerting took about 1 hour and 15 minutes. However, it appeared that the trucks were travelling somewhat faster than they would if actually broadcasting a message. Therefore, it is estimated that an actual alert could take 30 minutes longer. The fire chief indicated that the trucks would broadcast a message for residents to evacuate, not to tune to the EBS radio station.

Lebanon County: Notification by PEMA to the county went well. PEMA was precise in informing county officials with respect to any changes in condition of TMI. At the General Emergency level, the county was notified by TMI. This information was confirmed by the county coordinator by calling PEMA.

County officials were notified by telephone according to the plan. During this process, several wrong telephone numbers were found. Another minor confusion occurred when two callers at the county EOC attempted to reach the same officials. All schools were notified over the phone and their back-up radio notification system was tested by using their emergency monitoring network. All schools confirmed the activation of the system.

Notification of emergency workers was done by each service unit according to the plan and responsibilities, and following a telephone organization chart located in the EOC. As appropriate, crews were placed on standby, bus companies were notified, and local citizen readiness groups were notified and confirmed, all according to plan.

Public alerting was accomplished by actually testing the route alerting system. Fire trucks responsible for notifying farmers in the area completed the routes, taking about 30 minutes. Alternate notification plans were also referred to had the fire trucks not been available (responding to fire calls).

RECOMMENDATIONS - NOTIFICATION AND ALERTING

1. TMI should notify PEMA at each change of incident classification level with follow-up messages to BRP. All risk counties should be notified by TMI directly when General Emergency is declared with an initial message at that classification providing the licensee assessment of the incidents consequences as stated in current plans.
2. Notification of a State of Emergency should include an explanation of its meaning and that it is not one of the four classification levels. Changing the declaration terminology to State of Preparedness or some other term would help reduce confusion.
3. The state EOC should establish procedures that include steps to determine and maintain the status of local public notification activities.
4. PEMA notification messages of the emergency classification levels should be improved to be in a clear, concise manner particularly when classifications change.

5. Incident classification messages transmitted by the county EOCs to the municipalities should be handled more promptly. This may be achieved possibly by assigning additional personnel to simultaneously contact risk municipalities while others notify officials and staff.
6. Each county should notify PEMA and the municipalities of all decisions, such as independent protective actions, which would have a significant impact on them. (See Direction and Control.)
7. In future exercises all officials who have emergency responsibilities should be notified, such as the health officer in Elizabethtown (the calls should actually be made).
8. The length of time to notify the public by the current route alerting system in Elizabethtown is high, 1 hour 45 minutes. Steps should be taken to provide more vehicles and plan definite routes to speed up the route alerting process. It is recognized that route alerting will become a back-up means of alerting once a complete siren system is installed.
9. A prepared message telling residents that sheltering or evacuation has been ordered and that they should turn on their radios for more information should be developed by each county and distributed to all route alerting organizations.
10. Periodic drills of telephone alerting lists should occur to prevent the problem of incorrect or outdated telephone numbers and confusion when officials are called by two persons.

II. DIRECTION AND CONTROL

State Level:

The exercise has shown several modifications and improvements to the operation of the state EOC in Harrisburg to include: EOC management, message control, staff assignments and placement of work areas.

There appear to be four main groupings of state personnel for direction and control within the state level EOC with two additional groups at other locations that make up the state level direction and control of an incident. These groups are: The Executive/Decision Maker Section; the State Response Team Section; the Operations Section; the Situation Analysis Section with the Central Area State EOC section and BRP Headquarters sections at the separate locations.

Executive/Decision Making: The Governor and Lt. Governor participated in the exercise, visited the EOC and provided direction and understanding of problems. Their representative remained throughout the exercise.

The final decision to evacuate did not appear to consider the state of mobilization in the counties but was predicated upon the sudden change in plant status. There did not appear to be a means to provide feedback by response team leaders into the decision process except through messages to operations center or discussion with operations officer.

The operations officer who acted as the conduit of information and decisions between the Executive/Decision Makers and the other sections appeared once again to be overburdened with other operational duties. Two problems which could be directly linked to PA announcements provided by the operations officer are as follows:

One, the Governor's proclamation of a State of Emergency as announced over the PA system caused some confusion among response team members who understood that to mean a classification of the incident change to the General Emergency level and reacted accordingly.

Secondly, based upon the Governor's direction to close schools and move students which accompanied this proclamation, the State Department of Education informed school superintendents through its TELEX system. County plans reflect that this action should be coordinated and initiated at county level and in at least one case a county chose to delay school closing until general evacuation was recommended. Conflicting direction such as this causes serious confusion.

Operations Section: It is under the supervision of the Operations Officer and it dealt directly with the four risk counties on dedicated telephone lines for that purpose.

There were sufficient personnel to allow each county a separate state liaison person and shift leader to coordinate this staff. There was posting of significant actions and unmet needs of the counties. All telephone traffic was

transcribed into written messages for circulation within the EOC. The operations section provided a good conduit, of unmet needs of the counties and support provided by the state and federal level, to the counties.

The posting of significant events in the operations room provided immediate access to a variety of information as in the events posted by the situation analysis section. Some additional method of providing this information to response team members would enhance their understanding of the situation and further facilitate their support.

Situation Analysis Section: This section which has been newly expanded, now contains two BRP liaison personnel who are in addition to the DER emergency response team members. This section provided the BRP/PEMA technical liaison which resulted in hourly situation reports on the status of the plant and its environment. The liaison contact was maintained through the use of a dedicated telephone between BRP and the state EOC.

Significant events, BRP recommendations, and the latest situation report were posted in this section. Some significant information provided through the section was delayed by the written and circulated message traffic process. The situation analysis process never resulted in a clear depiction of the actual and projected effects of the incident, to include posting of the area at risk as a result of plume exposure.

The recommendations provided by this group appeared to be those generated by BRP at its headquarters. There was little feedback to the situation analysis group as to the results of these recommendations. This section, therefore, had little interface with decision makers or the operations section.

State Response Teams: There were no general problems with the State Response Team operations. As shown in other sections of this report, in the individual areas of responsibility of select state response team, there are areas for improvement.

Central Area EOC Operations: Was observed as being well manned and operationally sound. No troubles were exhibited.

Bureau of Radiation Protection: (See Accident Assessment.)

Dauphin County:

The Dauphin County EOC, as a physical facility, is too small to comfortably support a major nuclear incident response. There is only enough space for the EOC's regular occupants. Telephones and working areas are needed to support the planned additional personnel.

The staffing roster showed sufficient back-up for dispatchers, the medical officer, and a communications officer, but no back-up in transportation officer, police representative and fire representative.

Security was present, but uncoordinated. Throughout the exercise, permission of the EM Coordinator was necessary to gain access to the EOC. Once inside the EOC, the press had free access to all points in the EOC. The media center was not established.

Internal information exchange was inadequate with each EOC worker keeping his own log. Staff meetings called by the EM Coordinator (in his office) were required for the exchange of information. These meetings interrupted on-going processes. There was no central display board, or its equivalent for keeping staff informed of the situation.

There was no support or participation by the county commissioners in Dauphin County. Two commissioners were in the Court House Building all day, neither participated in the exercise. This also adversely affected the PIO function which is planned to be filled by a county commissioner.

The EM Coordinator provided almost all of the coordination at the county level. He did a good job; however, he was overextended. Likewise, the EM Coordinator exercised complete control over management and decision making. He did a decent job in these areas. Part of his problem resulted from the shortage of staff. However, even among the staff present, it seemed that the system required everything to flow through the coordinator, whether it be big or small.

In general, the EOC staff had the most current state and Dauphin County plans at their disposal. By and large, they used them and followed them.

Dauphin County, Londonderry Township: Observers considered direction and control to be one of the strengths of Londonderry Township's operations. The coordinator was dedicated and decisive and was able to coordinate the activities of all staff members. The township supervisor was present to lend the support of public officials. The coordinator was clearly familiar with the Londonderry municipal plans, others of the staff were not. In addition, the EOC facility needs improvement.

Phones were on an upper floor, and calls had to be relayed downstairs to the EOC proper. This introduced delays and some communications problems. There was no clock and no status board was used. Security was not as strict as it should have been. Press and cameras were allowed free access to the EOC.

Lancaster County:

The county EOC, located in the basement of the county court house, is an excellent facility for managing emergencies. The operations room is large enough to handle the entire staff, including elected officials in a comfortable manner. The press can also be accommodated in this area. However, should it become necessary, a separate room has been set aside for press briefings. Staffing has been set up on the basis of two 12-hour shifts; thus there appears to be no problem in handling an emergency over an extended period. Security was excellent. A guard was stationed at the entrance to the EOC who required anyone entering to sign in and show some form of identification.

Internal information exchange could be improved. There was a good display of maps (10-mile EPZ, ingestion pathway zone, evacuation routes) that were subdivided by compass points. Some maps had a mylar overlay that could be used to plot various information, however, this was not done by the county during

the exercise. The message board was not kept up-to-date to include all important messages. Only the change in classification levels were listed. Some messages were read out loud while others were given in written form to the individual dealing in the particular subject area of the message. The message center was understaffed and overworked.

Public official support and participation was excellent. All three county commissioners took part in the exercise and at least one commissioner remained in the EOC at all times.

Coordination appeared to be the weak link in the exercise. Coordination between the various levels of government was very poor. PEMA was not as responsive to county requests to update the county on radiation levels, weather conditions or plant status as the county wanted. There was no consultation between the state and county on public information. The decision to shelter by the Lancaster County commissioners was not relayed to the state, other counties or even municipalities in their own county. There were some minor problems in coordination among the staff in terms of carrying out a particular responsibility. These internal problems were rectified and did not appear to hinder the county's response in any way.

The county commissioners and the Emergency Management Coordinator (EMC) exercised timely decision-making and control. Hopefully with better communications in the operations room, in the future, the EMC will work alongside his staff and not work out of his office. The EMC coordinated the county operations, letting the staff handle their particular areas of expertise. For the most part, this appeared to work well.

All staff members seemed to have a good understanding of the county plan and had a copy to consult as needed.

Lancaster County, Elizabethtown Borough: The EOC is located in a fire department facility and is satisfactory for direction and control of emergency operations. The facility is large and has necessary equipment to provide for the comfort of staff members. It has adequate communications capability.

EOC security was generally very good, but became somewhat relaxed during the extensive activity which resulted from the decision to evacuate.

Internal information exchange was almost exclusively verbal, with little or no attempt to post current data on boards or maps. Because the EOC staff is small, this did not impede operations during the exercise. Sector maps and lists of invalids which had been previously prepared were available and in use.

Public official support of emergency operations in Elizabethtown is excellent. The mayor of the borough was either in the EOC or in constant communication throughout the exercise. A county commissioner also visited the EOC during the exercise. The mayor was consulted by the coordinator on pertinent decisions. Coordination and management decision-making within the borough's structure was very good. The EOC staff are well versed in their responsibilities and carried them out.

EOC staff members were familiar with the Emergency Operations Plan and followed it closely during the exercise. There is concern on the part of the borough officials that the county plan does not specify adequate coordination with the municipalities in matters such as school and institutional evacuation which have direct effect on the municipalities in which they are located.

Lebanon County:

The EOC facility was quite adequate. The operations room was comfortable, and as set up, allowed for face to face discussion of all information. The walls of the operations area did provide necessary charts, local, county and state maps, and other display information. Even though the communications room was separated from the operational area, a provision was made to allow for direct verbal communications from the coordinator to the control center. Satisfactory support areas were designated.

Though the county did not simulate a rotation in staff, two 12-hour shifts were explained and displayed in the EOC by the coordinator. Security at the installation was strict, as identification and registration with a police officer at the entrance to the EOC was required and also, entrance into the communications room was allowed only with prior consent of the coordinator. The door to this room was locked as well.

The EOC was equipped with proper display facilities, but no plotting of information took place.

Internal information exchange within the EOC was basically verbal. The coordinator provided information in a concise manner, but with a limited exchange of written messages. Some members of the EOC required repetition of direction.

Public officials were notified and located above the EOC, however, they did not directly participate in the exercise. The coordinator showed good knowledge of his county plans. Coordination of decisions from the EOC were handled in a timely manner. Coordination between the county EOC and local coordinators was adequate and not limited to notification or status changes. On occasion local coordinators exercised free play to test alternate responses to the county plan. The state notified the county EOC regularly as to changes in the status of the incident. Upon request of the county coordinator, the state also responded to his calls concerning any changes or (no changes) in wind-speed or radiation levels. Copies of the plan and adjacent county plans were available in the operations room.

Cumberland County:

The EOC has excellent accommodations. Staffing rotation for 24 hour operation is every 12 hours. The 2nd shift was activated for this exercise as the 1st shift has been involved in previous exercises. Strict security measures were enforced by the State Police at the EOC.

Internal information and displays were very good. All messages were timely logged and distributed to appropriate personnel. Maps and charts were updated frequently. The PIO briefed staff regularly on status of events, incoming messages, outgoing releases, etc. Coordination, on the whole, appeared quite

good; however, coordination between state and Cumberland County was low. Public officials' support of the exercise was good, as either of two county commissioners was present at one time or another.

The emergency plan was referred to frequently and various personnel utilized checklists. Staff appeared competent and performed well under minimal supervision. The Emergency Preparedness Coordinator appeared extremely knowledgeable and in control of the activities during the entire period of the exercise.

Cumberland County, New Cumberland Borough: The EOC is located on the 2nd floor of the municipal building and is large enough to accommodate all activity. Key personnel are assigned to designated work areas. The communications room is adjacent to the EOC in which two base stations and a 16 station scanner were hooked up and operating. The borough does not normally rely on the RACES operators but has well trained operators to run their own equipment. However, a RACES operator was present and was used for communications between the county and the municipality. Internal information exchange was done verbally from the coordinator to key personnel. Maps and charts showing the EPZ and evacuation routes were hung on the wall and a blackboard was available to announce pertinent information. All activities appeared to be coordinated well with no management problems. A copy of the emergency plan was available in the EOC and operations were in accordance with the plan. Public official response was good with the mayor participating in and observing the activities in the EOC during the exercise.

RECOMMENDATIONS - DIRECTION AND CONTROL

State Level:

11. Protective action recommendations must be coordinated with all counties in advance of a decision to execute, to ascertain the mobilization capabilities of each county. A short delay (except in an extreme circumstance) may allow all governmental levels to be ready to implement protective action in an organized manner and reduce chaos.
12. Although the state does not have command over county government, certain key events must be coordinated to be effective. These key events include primary notification/warning of the general public, specific subsequent releases of information. State coordination and timing of county responses to these events must be improved. Action levels stated in the plans should be reenforced and timed by the state when communicating with the counties. Feedback from counties should be required to include time actions were initiated.
13. The concept of operations concerning local school districts should be reviewed with the object being to enhance the coordination between the State Department of Education, the various school systems and the counties (including locals).
14. It is recognized that the compression of time artificially inserted into a full scale exercise causes certain problems and does not permit the completion of some processes which might be called upon in a real incident. The state should now conduct table top exercises and drills of specific elements such as: Operations and Situation Analysis interface; the use of mobilization status and evacuation time estimates in protective action decisions; the message center,

EOC information flow; and the interface of several state agencies in problem solving where responsibilities interrelate. (Traffic Control, Mass Care Support, etc.)

Dauphin County

15. Enlarge EOC, increase number of telephones, accommodate press in a separate area within the EOC.
16. List back-up staff for some areas to provide full staff rotation.
17. Additional training on latest plans appeared necessary.
18. Provide security procedures and staff assignment for the EOC to include a current access list.
19. Develop a system for internal information exchange. Use a large central display area to break down status of all important on-going operations, and use a staff operations officer, not the coordinator to run this function.
20. Delegate more of the present responsibilities and authority of the EOC coordinator to allow him the time to perform his coordination responsibility.

Dauphin County, Londonderry Township

21. Conduct drills for staff to better familiarize them with their plans.
22. Phones need to be installed within the EOC proper, and a wall clock should also be installed. (Londonderry recognizes this need.)
23. A status board needs to be used to show emergency classification conditions and other information in such a way that they are easily visible and available to all EOC staff members.
24. Security should be tightened. Members of the press should be briefed in a separate room and not allowed to detract from the EOC operations.

Lancaster County

25. The message board should reflect all important notices so that all staff members will have the opportunity to be kept informed of the latest information.
26. Coordination among the various levels of government is crucial to an efficient emergency response. Drills should be conducted to improve coordination. The various plans call for good coordination, however, the commitment of the individuals involved must be established for such coordination to work.
27. To improve communications in the operations room, it would be beneficial to have the emergency management coordinator operate in that area. Better staff coordination would result.

Lancaster County, Elizabethtown Borough

28. Major events, such as current emergency status and locations of emergency teams, should be posted in the EOC.
29. Table-top exercises and drills (on their own) would improve the smoothness of Elizabethtown's operation and allow the staff to work out coordination and other problems before a full scale exercise. This is true for every organization at state, county, and local level.
30. Plotting of information in the operations room is a necessity. Implementing this capability would keep all personnel informed and up to date with respect to timely decisions and commitment of resources.
31. Future exercises should include the presence of public officials.

Cumberland County, New Cumberland Borough

32. A clock should be available in the EOC to time and note changes in events.
33. A checklist should be issued in order to make sure all items are covered.

III. ACCIDENT ASSESSMENT

Calculations and Projections: The State Bureau of Radiation Protection (BRP) has a well-developed capability for calculation of dose projections. This was obvious from the presence of the proper maps, transparent overlays, and other equipment and materials used for dose projection. The state's meteorologist was in the building and had been alerted early in the exercise that his services might be needed.

During the exercise, the BRP staff demonstrated an excellent working knowledge of the TMI generating station and its safety systems. As the scenario progressed, all of the proper questions were asked, which would allow BRP to evaluate the information provided by the utility. The coordination with the utility was particularly good, and the flow of information was smooth throughout the exercise. Because of the way the scenario developed, BRP did not go through the mechanics of repeating the utility's dose projections. This was a result of the scenario, which called for a simulated release which went very suddenly from a very small value to one which would clearly require protective action. During the early part of the exercise when the simulated release seemed to be under control, both the estimated release rate and the ambient monitors indicated that there was clearly no projected threat to the public. Then when the loss of the cooling water pumps was simulated, the projected release rate was clearly high enough that protective action was needed. and this was again confirmed by the ambient monitoring. There was, therefore, no need to repeat the dose calculations supplied by the utility for the purpose of verifying that protective action was needed.

The other primary use for dose projections is as a decision-making tool to determine what part or parts of the 10-mile zone should be evacuated. In the case of Pennsylvania, this is not applicable because the state has adopted a policy of all-or-nothing evacuation. Thus, as soon as it is determined that any part of the 10-mile zone is to be evacuated, the entire zone is evacuated. This combination of circumstances made it unnecessary for the state to do detailed dose projection calculations, though their ability to do so when needed is not in doubt.

Coordination, Liaison: The state's representative at the EOF was BRP's nuclear engineer who is extremely well qualified to assume this role. The licensee kept the state constantly updated on events and sought the state's input on those decisions which would have offsite impact, i.e., protective actions. The state's nuclear engineer was in constant communication with BRP headquarters via an open commercial telephone line. The communications set-up was most effective. When the decision was made to recommend evacuation, a four way conversation was set up between the BRP nuclear engineer, the licensee, and the director of BRP and his evaluation assistant via this open phone circuit. The entire process of accident assessment and protective action recommendations was most professional and very effective.

There is one potential discrepancy concerning licensee-state operations at the EOF. The BRP plan states that the state monitoring team captain will report to the EOF and direct the state's monitoring teams from that location. However, the BRP plan also states that in the case of TMI, the teams will be directed from BRP Headquarters via radio, but does not relieve the monitoring team captain of the responsibility of reporting to the EOF in order to also participate in the overall evaluation of all field monitoring data. In this particular exercise, this did not present a problem since there was not an overwhelming amount of field monitoring data. The state's data was received in the EOF and posted on the status board along with the licensee's data. There was general agreement; therefore, no problems arose which required resolution.

BRP was able to communicate with the site and the EOF via a dedicated telephone line. They also spoke to the state nuclear engineer at the EOF on a regular commercial telephone line. In the event of a problem with the telephone lines, the state nuclear engineer could communicate with BRP via two-way radio.

No problems in communication between BRP and EOF were observed. Technical data was supplied to BRP and field monitoring data was supplied to the site.

The technical data would be interpreted, if necessary, by the site. Questions were readily answered. At no time during the exercise did there appear to be a problem with information flow in either direction.

The four basic elements of readiness: facility and systems; organization, staff and field; plans and SOPs; and training were met or exceeded at the EOF. The utility representative in charge at the EOF demonstrated exceptional leadership and coordination abilities.

Monitoring: The radiological monitoring teams dispatched by the Bureau of Radiological Protection performed in a professional and competent manner. Problems that developed during the course of the exercise were due primarily to plan and exercise deficiencies.

The health physicist leading the two monitoring teams were notified at home shortly after 0700, that an "accident" at TMI had escalated to the Alert stage. At 0807, BRP Headquarters called the health physicists at their regional office and ordered them to get their teams and equipment and deploy to the field. Information provided at the time included wind speed and direction and the initial locations from which to take readings. This early deployment caused confusion on the part of the monitoring teams because a Site Emergency was not yet declared and the teams were not informed of other reasons for their deployment. (The site had stated that an escalation to Site Emergency appeared imminent.)

Although the collection of the required monitoring equipment appeared a bit haphazard due to the lack of an equipment checklist, all prescribed equipment was available, operational, and had been calibrated within the past 12 months. Dated items, such as filters and cartridges, were also within time limits. However, Barium 133 calibration source was not available as a source for field calibration of equipment.

After loading the vehicles which belonged to other state agencies and were borrowed for the exercise, the teams radioed BRP HQ that they were in-route to the designated monitoring locations. (According to the plan, however, field teams are not to be mobilized until the declaration of a site emergency.) The teams arrived at their locations at 0900 and 0903, respectively. As it turned out, both teams remained at these same locations for the duration of the exercise.

All instruments were properly set up and used. The monitors are regular state employees, fully trained in equipment operation and health physics, and extremely competent. (Back-up 24-hour staffing is to be provided by BRP Area offices, though observers were unable to evaluate how changes in shifts would be accomplished.) Operating procedures were committed to memory, though SOPs and checklists were available in the vehicles for reference. Readings were radioed into BRP HQ in a timely manner, although the exercise identifier was frequently omitted. Readings by only one team were maintained in a log book noting time and measurement, while the other team did not.

Team dosimeter readings were not reported to BRP HQ, although observers were advised that the plan does not require reports unless requested by BRP or field levels reach certain levels. This level is unclear, as neither team reported their dosage levels, and only one team maintained a log of personal dosimetry readings.

Personal dosimetry used included two self-reading types in two ranges, 0-20mR and 0-200mR, and two types of thermo-luminescent dosimeters, monthly and an annual TLD card. Overall, exposure control for these particular emergency workers was considered inadequate, as a thyroid-blocking agent (potassium iodide), protective clothing, and specialized breathing apparatus were not available.

Radio communications used by the teams was generally effective, though problems with the BRP intercom forced the teams to use another state agency's frequency on a repeater system.

Information flow between BRP HQ and the field teams was inconsistent. There was no notification to the teams regarding the escalation of the "accident" to a site area emergency, nor were there explanations as to why an emergency action level had been escalated (i.e., no updates on plant status). This deficiency was particularly important when the order came from BRP HQ at 1225, to evacuate the area. The lack of information on the track of the plume led the teams to drive through the high concentration readings on their way back to the office.

At the conclusion of the exercise, decontamination of clothing, skin and equipment was simulated at the office.

Recommendations - Shelter, Evaluation: The recommended evacuation of the entire 10-mile zone is appropriate given the exercise scenario. In the case of Pennsylvania, though, all evacuations will cover the entire 10-mile zone. This is a

policy decision which is known to the BRP staff, has been discussed in hearings, but is not contained in the written BRP standard operating procedures.

The decision to evacuate on an all-or-nothing bases has been carefully considered by the state, and it is not the intent of this statement to dispute that decision. However, if this is in fact a standard operating procedure in Pennsylvania, it should be clearly stated in the plan.

Early in the exercise, sheltering was considered in the low-population zone and it was promptly recommended by BRP that cattle be placed on stored feed (there was a long delay in concurring in this recommendation by the Pennsylvania Department of Agriculture). After the evacuation was recommended, BRP recommended milk monitoring beginning with the afternoon milking. It is therefore the opinion of the observers that the protective actions were well considered and properly recommended.

Sampling Teams, Laboratory Capabilities, Response Time: Two sampling teams participated in the TMI exercise. One team was from the Pennsylvania Department of Agriculture and obtained samples of milk, forage, feed and farm water. The second team was from the Pennsylvania Department of Environmental Resources and obtained municipal water samples.

The first team from the Pennsylvania Department of Agriculture was notified by the EOC at 0950, 2 June 81 and immediately proceeded to three representative farms within the 1 to $\frac{1}{2}$ mile radius of TMI. They obtained necessary samples in plastic sample bags and labeled each sample accurately. This two man team was wearing two dosimeters each and were familiar with their operation. All samples were promptly delivered at 1135 to the Pennsylvania Radiological Laboratory for analysis. Members of this team were experienced, dedicated Sanatarians familiar with their assigned roles and accomplished the mission efficiently and in a timely manner. The Pennsylvania Department of Agriculture appeared well organized with considerable emphasis placed on emergency operations. They had area maps, detailing AAP information, location of milk processors, and other agribusinesses.

The second sampling team from the Department of Environmental Resources was notified by the EOC at 1022 and immediately proceeded to obtain municipal water samples from the surrounding area of TMI. The last field sample was taken at 1109 and promptly delivered to the Pennsylvania Radiological laboratory for analysis at 1130.

In an actual emergency both of these teams would have contributed to the accident assessment by providing near site, real time samples for laboratory analysis. While laboratory capabilities are properly evaluated at the time of plan review and by quality assurance checks, all observations at the time of the exercise indicated an excellent capability for laboratory analysis. Overall, the sampling and laboratory capabilities appear to be very good.

RECOMMENDATIONS - ACCIDENT ASSESSMENT

34. The role of the monitoring team captain in the special case of TMI should be clarified in BRP's procedures because it differs from that used for other fixed nuclear facilities in the state.
35. Improve communications/information flow between BRP HQ and the field monitoring teams, particularly as regards decisions overriding established SOPs and changes in emergency action levels and updates on plant status.
36. A checklist for all prescribed equipment and supplies should be utilized each time the field monitoring teams are deployed.
37. A barium 133 calibration source should be included in emergency kits as the source for field calibration of air samplers and related equipment.
38. Field monitoring teams should be deployed to several areas so as to evaluate response times and the ability to set-up and care for equipment, as well as to verify the geographic area and concentration of the plume.
39. BRP should develop (in advance) 24-hour shifts for field monitoring teams to be drawn from all BRP area offices.
40. A log book should be maintained by field monitoring teams which includes information on the time that a reading was taken, measurements taken, and an indication that readings were communicated to BRP HQ.
41. Exposure control for emergency workers must be improved by the provision of protective clothing, specialized breathing apparatus and potassium iodide, preferably as part of regular emergency kits. This would also allow the teams to remain in the field for a longer period of time.
42. BRP should seek to acquire their own vehicles and radio links to assure control and availability in any situation.
43. Field monitoring teams must be kept apprised of the direction and status of the plume, particularly when the decision to evacuate teams is made.
44. The state's policy to evacuate the entire 10-mile EPZ should be stated in the concept of operations section of the state plan and the BRP plan.

IV. EXPOSURE CONTROL

Dosimetry and Records

Dauphin County: A RADEF officer was present at the EOC. He reported receiving 600 CDV-742s and 600 CDV-730s from PEMA shortly before the exercise. Additional instruments (type and quantity not revealed) are stored at the county. The RADEF officer apparently did not consider the problem of distributing dosimetry equipment to Londonderry Township. Rather late into the Site Emergency phase (1045), the township was requested by the county to pick up the necessary equipment at the county EOC since the county had no means of distribution. This would have been a major problem had there been an actual incident at TMI. In fact, it was never determined whether Londonderry Township did, indeed, pick up the equipment. At 1115 equipment was picked up by the Red Cross for distribution to Halifax High School (mass care center).

No dosimetry equipment was issued to the members of the Londonderry Fire Company. The Londonderry Fire Company responded to the on-site fire and did not receive dosimetry upon entering the Island. The local Deputy Fire Chief, Mel Hershey, who has previous experience in responding to TMI, maintained they usually are issued dosimetry at the gate. This was not done for the exercise.

There was dosimetry issued to the personnel operating the Mass Care Center located at the Halifax School. This was done at 1210, after the evacuation had begun. There is some indication that there was a need for training in their use. The instructions to the Mass Care Center personnel were to take readings every thirty minutes and report to the Mass Care Red Cross Coordinator every two hours.

Lancaster County: Lancaster County had previously distributed the dosimetry and trained the emergency workers in its use. The dosimetry consisted of high level and low level instruments along with TLDs (it was apparent that additional TLDs were needed) and record forms. The users were instructed to take readings at 15 minute intervals and report to the county coordinator any change in the readings.

Elisabethtown Borough had previously distributed dosimetry and had people trained in its use. Their record keeping was good but they were not issued TLDs.

State Police: All state police personnel operating in the field had high and low range dosimeters as well as TLDs. However, it appears that they had not been instructed to read the dosimeters periodically or to keep any records of readings.

Decontamination: A sample decontamination center for emergency workers was established at the Lancaster City Fire Station Number 6. Also decontamination centers were set up at mass care centers in Lancaster, Dauphin and Union Counties. The individuals staffing the centers appeared to be well trained on the procedures for monitoring people (both whole body and thyroid) and for decontamination. Extra clothing was not on hand, but had it been an actual emergency a request would have been made to Red Cross. Also, plastic trash bags would be needed for depositing contaminated materials. These could have been provided had they been needed.

Access Control: Access control, as demonstrated in the exercise consisted of two sets of points with different and distinct functions:

Six posts on Pennsylvania route 441 in the vicinity of the TMI plant. These posts are intended to control traffic near the plant in the earliest stages of the accident.

A series of posts on routes near the EPZ boundary. These are intended to restrict public entry into the EPZ after evacuation is complete, for both security and exposure control purposes. These posts will be manned by Pennsylvania State Police officers and local police, although only the state police participated in the exercise. Thirteen access control points have been identified in Dauphin County and six in Lancaster County. (Note that these points are not adequate to insure 100% exclusion of the public to the EPZ hazard area, but this is a plan rather than an exercise matter.) In the exercise, two points were actually established in each county.

Access control near the TMI plant site was promptly and effectively established by PSP personnel. Federal observers visited the six locations between Middletown and Falmouth designated as Access Control Points for the plant area and found all of them manned by properly equipped and knowledgeable Pennsylvania State Police members, who had been assigned to the posts at the start of their shifts (0715) and instructed to remain in place until relieved or otherwise ordered to return to patrol duty. Equipment on hand, in addition to standard police issue, included properly calibrated dosimeters, TLDs and geiger counters. The officers were maintaining a radio watch and communicating between their respective posts thereby enhancing the effectiveness of their control mission. It was noted, however, that there were no provisions for barricades and other traffic control devices, which would be needed should total closure of Route 441 be required.

EPZ Boundary: As noted in the introduction, two access control points were set up in Dauphin County and two in Lancaster County.

The two points in Dauphin County were observed by the federal team. The Pennsylvania State Police officers manning these posts were knowledgeable about their function. They had been ordered into place at about 0800, long before the general emergency stage when access control would be required. It does not appear, however, that the officers were told to control access immediately, so their early arrival, while unrealistic, would not cause any problem. PENNDOT was supposed to provide a truck with barricades and other traffic control devices to each post. However, the trucks never arrived, a serious exercise deficiency probably indicating poor coordination between PSP, PENNDOT, and Dauphin County.

The two Lancaster County Pennsylvania State Police access control posts were inadvertently disbanded at 1400, before the federal observers arrived. However, the federal team did interview the officers involved at the troop headquarters in Lancaster later. It appears that they had been in place at the proper locations. A PENNDOT truck was also at each post. Apparently, the deployment of the PENNDOT crews was done by the county PENNDOT yard based on a request from the Lancaster County Emergency Coordinator, Paul Leese. This

action was not coordinated with the PENNDOT staff at the state EOC so they were unaware of the situation - another example of the poor coordination between the various agencies involved. Unfortunately, it appears that the posts were told to establish simulated control of access on the assigned routes upon arrival (about 1000). This is obviously long before such access control would be established in an actual emergency. Again, this indicates a serious lack of coordination between the county EOC, the Pennsylvania State Police liaison officer in the county, the PENNDOT county yard, and the PENNDOT and Pennsylvania State Police staffs at the state EOC. (This lack of coordination is perhaps best evidenced by the fact that at about 1100, the PENNDOT staff at the state EOC received a routine notice from their headquarters radio command post in Harrisburg that routes 441 at Marietta and 283 at Mount Joy were closed. This created considerable confusion since no closure had been ordered, nor would any be ordered for several hours.) Given the mistakes made in establishing just four of the access control posts, the exercise did not satisfactorily demonstrate the implementability of the state/county access control plan.

Potassium Iodide (KI): The state plan indicates that KI would be prepositioned throughout the five county area. The locations and number of units at each location were identified according to the emergency personnel who would respond in this type of accident situation. Further, the state plan identifies the Health Department as responsible for the decision to utilize the KI.

The Health Department EOC personnel were confronted with the fact that KI was not prepositioned at the sites identified and there was no KI in the area. They took the following actions:

Identification of Source of KI: They contacted a manufacturer in Illinois and requested 15,000 units of KI. The representative stated that they had it available. (However, the person stated there are times when no KI is available.)

Transportation: State Health representatives discussed the problem of transport with the National Guard personnel. The National Guard representatives contacted the Illinois National Guard and they stated they could fly the KI shipment to Harrisburg. It was finally decided that they should land in Fort Indiantown Gap because they could anticipate the closing and/or traffic problems associated with the Harrisburg Airports. From Fort Indiantown Gap, the Pennsylvania National Guard via helicopters would transport the KI to three hospitals. Arrangements were made for a health department representative to be at Fort Indiantown Gap to divide the units of KI for each hospital and the area of distribution to the counties.

Distribution to Counties: All county representatives were contacted and agreed to pick up the KI at the hospitals for distribution to the emergency personnel as indicated in the plan. Distribution from county to emergency workers was not planned and would have been ad hoc.

Decision on Use of KI: The decision to use KI is determined by the Secretary of Health and the factor to be considered is the level of exposure. Because of a lack of readings from the field, it was impossible to obtain accurate readings. Therefore, the decision was based on the fact that emergency personnel would be exposed and the advantages of use outweighed the potential disadvantages.

Under the circumstances, the Health Department EOC personnel did an excellent job. In a period of approximately five hours, they had identified a source of KI, coordinated with other departments, arranged for transportation, contacted counties for distribution and made the decision for use of KI. They had to improvise and proceed through a process of decision making which will enable them to prepare for unexpected needs that may arise.

Ingestion Pathway: The Department of Agriculture ably demonstrated their capabilities of taking milk, feed and water samples from the dairy farms in the 5 mile EPZ and northeast of TMI. Three (3) farms were sampled. In actual accident, a randomly selected sampling procedure based on up-to-date herd lists in the area would be more meaningful. This list as called for in the state plan was not available at the state EOC. In addition to this list the state plans also call for maintaining a site-specific, current list of food and food stuff processors, wholesalers, or retailers handling agricultural, dairy or other food products grown or raised within the ingestion exposure pathway EPZ. None was available at the state EOC.

The state plan also states that the Bureau of Food and Chemistry will issue guidance on evaluating and preventing radioactive contamination of foods and animal foods and on the control and use of contaminated products. However, no official standard or recommended limits of radioactivity has been established by the state or FDA from which to make a decision. The FDA recommendation as prescribed in the Federal Register of December 18, 1978 (Volume 43, Number 242) does not constitute regulation.

The ability of the state to make an assessment of crop and livestock losses resulting from an incident was not demonstrated. Specific procedures may be needed to be in place for this purpose.

Three (3) advisory press releases were issued after full evacuation. One for food processors in the ingestion pathway, one for the general handling of contaminated food products and one for extension workers on the whereabouts of the farmers from the area. The "canned" or pre-prepared press releases seem to be appropriate. Finalized copies of the advisories were not given to the Department of Agriculture.

RECOMMENDATIONS - EXPOSURE CONTROL

45. All personnel assigned to field operations in the EPZ must have:

- a. The proper dosimetry issued at an early stage of the emergency. The best means is through predistribution to lowest organizational level.
- b. Training in how to read the dosimeters.
- c. Specific instructions for regular, periodic reading of their dosimeters and recording of doses, if any.
- d. Specific instructions for reporting doses and obtaining advice on hazardous conditions.

Further, all jurisdictions must have appropriate procedures for maintaining the dose records of their workers and retaining those records for an appropriate period.

46. The coordination among all personnel involved in access control must be improved. In particular, the responsibilities and authorities of each level in activating, manning, and equipping access control points must be clearly defined.
47. A Department of Health SOP should be included in the state plan that utilizes a process for obtaining and distributing KI similar to what was done in the exercise in the event additional KI is needed beyond what is to be pre-positioned in the counties. At least two sources of KI should be identified and drop points for distribution should be identified.
48. The Pennsylvania Department of Agriculture's procedures should include provisions for up-to-date herd lists, agriculture growers and processors, etc. to be available at the state EOC during an incident, as required in the plan.
49. Copies of press releases containing agriculture and ingestion pathway information should be provided to the Department of Agriculture.

V. PROTECTIVE ACTION

State Level:

Beyond decision-making, the state's only protective action demonstration consisted of the establishment of four traffic control points - two in Lancaster County and two in Dauphin. These points were manned by Pennsylvania State Police personnel. The function of the traffic control points is to monitor and if necessary, facilitate the outward bound flow of evacuation traffic.

The Lancaster County points were inadvertently closed down prior to being visited by federal observers. However, the officers who manned them were interviewed later by the observers at the troop headquarters in Lancaster County and demonstrated the high level of competence found in other Pennsylvania State Police exercise participation.

In Dauphin County, the two traffic control posts were visited by the federal observer. These were manned at about 1000, and the officers remained until 1430. The officers appeared to know their function. However, since there was no actual evacuation traffic, it is impossible to observe and evaluate their performance. It was noted that one officer assigned to the very complex I-81-US 22/322 Interchange north of Harrisburg placed his vehicle in the median of I-81 just west of the interchange. In an actual evacuation, the probable heaviest flow of traffic would be northbound on US 22/322, so the officer was not in the best position to perform his monitoring function.

In evaluating traffic control in the exercise, it should be noted that the plans identify some 60 or more posts throughout the five counties on routes leading to shelter areas. These posts will require several hundred officers. The exercise demonstration consisted of only four points. Further, the Pennsylvania State Police command ordered the officers in place at the "site emergency" level, so the four posts were manned and operational long before the evacuation order. Given these artificialities, it is impossible to evaluate whether the entire Pennsylvania State Police traffic control plan could be implemented promptly.

Local Level:

Dauphin County: Dauphin County EOC, through its Medical Officer, adequately coordinated with Londonderry Township, the assessing of transportation and ambulance needs for its population with impaired mobility. This was done by requesting the assemblage of necessary vehicles at the City Island staging area.

The school evacuation plan at Londonderry Elementary School seemed to go well. Buses were assembled in time, and the county reported to PEMA the need for 13 additional school buses in time. However, by 1200, the additional buses were not obtained yet through PEMA.

Londonderry Township did not implement route alerting, as planned in the exercise. The fire companies knew nothing of this; however, the municipal EM Coordinator said that a private contractor has been hired to do this. The use of the contractor was not demonstrated and the plan does not state a contractor will do the route alerting.

In general, Dauphin County's ability to implement a full scale evacuation properly was severely hampered due to the absence of many key staff. The police, fire, transportation, PIO, and Agricultural Extension agent coordinators were not in the EOC since the county did not intend for volunteers to participate.

Lancaster County: Although problems developed during the course of the exercise, Lancaster County demonstrated a basic ability to implement protective actions during an emergency at TMI.

When the evacuation order was received, the county did establish transportation needs and simulated obtaining transportation for those people without private vehicles. Ambulances were called and sent to all municipal EOCs within the 10-mile EPZ for invalids living at home. Although this was simulated, the precise number of invalids was determined. Bus companies were actually called, asked to provide a certain number of buses and asked to provide the county with the present estimate of gasoline stock. Confusion was apparent as to whose responsibility it was to evacuate people in hospitals and nursing homes. After a long delay, it was determined that it is the responsibility of the institutions themselves. This decision was not in accord with the county plans.

When the evacuation decision was relayed from the county, the Elizabethtown Borough plan was put into affect. This included evaluating the need for buses for residents without transportation and extra ambulances for invalids. These needs were relayed to the county and responded to with only one problem, which was that a few of the buses were directed to a local school rather than to the EOC as requested. This is an example of the unsatisfactory municipality/county coordination which existed throughout the exercise. School evacuation is a county responsibility but was not coordinated with the municipality. Evacuation information could have been better coordinated by the Borough PIO in terms of county-released EBS messages and route alerting, but borough residents were provided with information brochures in a March 81 mailing which they were instructed to save.

Mass Care: The Mass Care activity was coordinated by the state EOC; but most of the functioning and support was accomplished at the local level. The state provided support to the county operations upon request. In general, the communications links were satisfactory. The Red Cross provided the bulk of the on site services and were supported by RACES, and the county government. The Red Cross has its own system and organizational structure that was superimposed on the governmental structure. As this system can also work independently of the government, close liaison and establishment of procedures are mandatory.

The state was asked how they would provide food and bedding. The state could not provide the necessary cots and blankets for the mass care centers. They had no plan for obtaining additional food but felt it would present no problem as they could obtain it via the school feeding programs and be supplemented by volunteer agencies. Although this system could work, some preliminary planning as to how to obtain USDA food, obtaining volume figures for shipping, resource lists for food and food preparation and serving and clean up items is indicated.

The Red Cross served as county mass care coordinators in most counties. Alternate staffing should be considered.

The situations vary from county to county and not all the remarks indicated above apply. One notable exception is in Union County, a host county, where the Red Cross is a support role. The host area mass care performance was reputed as excellent.

Dauphin County: The Red Cross Director (Daniel Wagener) from Harrisburg acted as the Mass Care Coordinator at the Dauphin County EOC. He did say that they were in the process of hiring and training a mass care coordinator. The Red Cross Director should remain in his office and not operate from the county EOC. However, this is a problem that they are aware of and are trying to correct.

The Red Cross's main responsibility in Dauphin County is to care for and provide food, clothing, etc., to evacuees once they arrive at reception/mass care centers; which they are also responsible for setting up and properly stocking. The setting up of reception centers is done by a Red Cross Shelter Manager. They presently have 66 trained shelter managers which allows 2 for each shelter. There is also a Registered Nurse present at every mass care center. The Red Cross Director said that they are constantly giving training courses and are soon putting on a shelter manager course for the school principals so that in a real emergency they would be qualified to set up a mass care center. They would run two 12-hour shifts. A lot of the volunteers are school employees and could start managing the reception center almost immediately. The Halifax School owns its own buses. They also have their own police, therefore, security measures could be put into effect almost immediately.

There is currently enough food stored at the Halifax School for 3 days care. There are enough paper plates, plastic ware, etc., for one entire day that could be readily replenished. The Red Cross County Mass Care Coordinator said that local arrangements have been made with the local grocery stores outside of the 10-mile EPZ to supply them with perishables, milk, etc., things that are not supplied by USDA. Stocks are maintained in Halifax School during summer vacation since they have a summer program.

The Halifax School gym is equipped with showers for the decontamination process. The Red Cross has also made arrangements with the Seven-Day Adventist Church which is located 5 miles from Halifax School to deliver prepackaged containers of used clothing to replace contaminated clothing. The school also has dumpsters located outside of the gym doors which they plan to use for decontaminated clothing.

Red Cross has available only 10% of the cots needed so they would be distributed to the elderly first. They said they could request 1,000 from the Philadelphia Red Cross and 2,000 from National Headquarters. There are 120 cots stored in the county (station No. 9) and there are 400 stored at the State Hospital.

The Halifax School, according to their county plan, is designated to be the pickup point for school children, as well as the main distribution point and warehouse. They are presently working on plans to develop a distribution center instead of having to rely upon the Halifax School as their main distribution point and warehouse, which the Red Cross feels is unrealistic.

Lancaster County: The county, using Red Cross as a lead organization, provided mass care in accordance with the county plan. The Red Cross Disaster Director has experience in many actual disasters and has the knowledge and leadership to perform in an outstanding manner. The EOC operation controlled the mass care operation.

Although there was not a full complement of support (police, medical, etc,) at the reception center, the leadership was able to demonstrate that the plan is workable. Problems were anticipated and the leadership has an excellent understanding of the overall plan.

At the mass care center, the key staff had knowledge of their assignments and felt confident they could do the job if necessary. The county has a plan to feed the people for up to 10 days and felt additional resources could be obtained during the 10 day period to meet any long range needs.

The plan for the school evacuation to a point distinct from the mass care is good. Mass care will be provided at the pick up point.

Lebanon County: The designated mass care center serves also as a decontamination area. There is a separate entrance, shower room, and clothing provided by churches, local distributors and the Red Cross "voucher" plan.

People are to remain informed via the shelter manager via the Red Cross officer in the EOC. Registration will be handled by individuals predesignated in the Lebanon County plan, Annex B (Volunteers). While evacuation time is being determined, Red Cross is using this time to run a food inventory on the center. A 3-day menu has already been established. The Red Cross has written agreements with all schools in the county concerning evacuation. There are many mass care centers identifiable for evacuation purposes outside the 10-mile area and more than enough spaces available should they have to evacuate.

Cumberland County: Red Cross Representative and Mass Care Officer are one in the same. Communications between EOC and mass care centers were through RACES as during 1979 incident. There was no telephone capability. Sufficient stacks of cots and blankets were available at Fort Indiantown Gap and transportation was simulated by Halls Motor Freight Inc. Volunteers were alerted to await parents for children not picked up in anticipated time frames. Plan for re-supply of food arranged by Red Cross.

*The observer was advised that 24-hour call activation list does not contain home telephone numbers.

Evacuation Support: In summary, the directors provided strong leadership in both the Central Area EOC and Union County. Both EOCs had at least five to nine group specialists, each being supported by two to four supportive people or representatives.

There was concern by host county officials that evacuees would not have sufficient information on host county facilities and the type of support to be provided them. Adequate plans and procedures were used by the central area EOC, in the central area and Union County. The Red Cross was assigned as a resource/response member of the team. Decontamination procedures were acted out/role playing.

Medical/Public Health: Two area hospitals agreed to participate in the exercise; Harrisburg Hospital played the entire drill (although simulating certain aspects) and Hershey Medical Center agreed to play only the reception and treatment of a contaminated worker.

Harrisburg Hospital, alerted by Dauphin EO/ at 0809, did adequately implement its disaster response plan. The plan was well developed and consistent with the county plan. The Harrisburg Hospital exhibited a capability, through simulation, to respond to the tested situation and properly evacuate its facility, if ordered. In summary, the Harrisburg Hospital did respond outstandingly, with key staff demonstrating a capability and efficiency in implementing their response.

Hershey Medical Center, due to the on-again-off-again nature of this exercise, was not able to participate in the full exercise when the exercise was finally firmed up opting instead to only play the reception of a radiologically contaminated and injured utility worker. The Hershey Medical Center's response was also observed and video-taped in toto by the operator and Radiation Management Corporation, Inc., a private organization that provides emergency medical response to accidents for Three Mile Island.

Hershey Medical Center did respond appropriately to the planned situation, handling coordination with the utility, notification of hospital staff, security and protection of staff/non-contaminated patients, shifting of medical control from the utility's health physicists to emergency room staff when the injured worker arrived, and proper medical treatment to the contaminated worker. The hospital demonstrated a capability to handle its responsibilities. It did not test its capability to evacuate the hospital, if so ordered, but interviews with key hospital executives suggested such an action could be accomplished. The hospital's emergency plan was reviewed in detail and it appears adequate.

Emergency Services Response to Site: At 0926, Londonderry Fire Department was alerted and the Chief was directed to the Township Building. Deputy Chief, Mel Hersey, was left in charge.

The Deputy Chief informed me that they had distributed questionnaires requesting information on invalids and other handicapped persons and had a knowledge of their locations. The Deputy Chief and the members of the fire company displayed very little knowledge of the local emergency plan. They were efficient fire fighters and so proved it at the on-site fire.

At 1111, the Londonderry Fire Department Ambulance responded to the North Gate of TMI to transport a contaminated victim to the Hershey Hospital. At 1121, a radio message dispatched the Londonderry Fire Company to a simulated incident at TMI. Four pieces of equipment including an ambulance responded from Londonderry designated # 54 and three pieces of apparatus responded from the Union Fire Company of Middletown. (The Middletown people were not informed it was an exercise.) The apparatus was met at the gate and escorted to the simulated fire scene. Only the Londonderry and the Plant Fire Brigade attacked the fire. An Air National Guard foam truck arrived and put down a blanket of foam while large diameter hoses protected the cooling towers and a storage tank of diesel fuel. The fire was declared out at 1211. The whole operation went smoothly and except for a misunderstood order about a hydrant it was a successful job. Londonderry Fire Company left TMI at approximately 1320.

RECOMMENDATIONS - PROTECTIVE ACTIONS

50. Where a traffic control post is set up on a grade-separated interchange, the instructions to the officers should probably include the specific location within the interchange complex where the units should be placed.
51. Dauphin County should conduct a county level drill of its EOC staff to train those staff members who did not participate in this exercise on the latest edition of the plan.
52. Municipal plans, especially Londonderry, should be reviewed to insure it is clear who is responsible for route alerting. Also, once assigned to route alerting, a unit cannot change its assignment until alerting is completed.
53. Lancaster County must determine if evacuations of hospitals and nursing homes will be a county or institution responsibility. The county plan must reflect that decision.
54. State and local plans and public information releases should be changed to reflect that evacuees should bring bedding with them. Cots and blankets would still be available at the mass care centers; but the number needed would be greatly reduced. Also the number requested from outside resources may be eliminated.
55. The county EOC mass care coordinator should not be the Red Cross Representative. Although the functions are similar each person has a distinct mission. The Red Cross should be in support of the mass care operation not coordinate it.
56. PEMA should develop implementing instructions for obtaining food and other supplies from USDA and other resources to include contracts, quantities, delivery plans, special needs, and to anticipate county needs.
57. Implementing instructions and SOPs for Red Cross, RACES, School Districts are needed since they have responsibilities in the plans. The Red Cross has already determined it needs local SOPs.
58. In Dauphin County the Halifax operations should be separated. There is not sufficient space for supply point, mass care center, reception center, and student pick up point. There is too much activity in one location.
59. Plans should indicate School pick up points will need tie in with county EOC. Also the mass care coordination for pick up points should be covered.
60. Mass care emergency worker lists (and other emergency worker lists) should contain home phone numbers.
61. Emergency public information, pertaining to health and comfort items to be taken to mass care centers, the type of support to be provided at centers, and the locations of centers, which is in draft form, should be provided to host counties as well as evacuees.

VI. COMMUNICATIONS

State Level:

The alerting and notification of PEMA officials and key staff went pretty much according to the plan. No problems were identified with regard to this phase. The state EOC utilizes an automatic call forwarding device which is programmable to automatically route after duty calls to the staff duty officer. This negates the need to constantly update a duty officer roster for the utility and other response agencies. Key officials are also furnished with voice message pagers which allow for receipt of emergency messages.

The state EOC enjoys a multiplicity of radio and land-line communications systems to the utility, counties and other response agencies. These will be covered briefly on an individual basis.

National Warning System (NAWAS): Two terminals are currently installed at TMI, in each of the operating consoles. This provides a direct link into the state EOC and the state police communications center. As best as I could determine, NAWAS was never utilized at any point in the exercise (this does not imply a problem area, just that other means were utilized in lieu of NAWAS).

Hotline to BRP: A dedicated land-line circuit utilized throughout the exercise as the primary means of communications between the TMI EOF (via the BRP) to the state EOC. This circuit was manned continually at all locations, performing trouble free for the duration.

Hotline to Risk Counties: These circuits are again dedicated, automatic ring-down hotlines, allowing for instant contact between state and county EOCs. At the state EOC, these instruments are not normally active on a day-to-day basis, but instead kept on "suspended service" as a cost saving measure, with the understanding that the telephone company can have them operational within 2 hours of notification. In view of the costs involved, this cannot be faulted, especially since regular commercial telephone service and RACES would be available in the interim.

Radio Amateur Civil Emergency Service, (RACES): RACES is a volunteer group of radio amateurs operating on the "HAM" bands. At the state EOC the RACES network was operational in the early stages of the exercise and manned throughout the day by volunteers. This system provides backup communications to all county EOCs as well as the PEMA area offices. Scheduled tests were conducted several times during the exercise to demonstrate an operational capability, however, no live traffic was passed due to the effectiveness of dedicated phone lines.

State Teletype Network: This system consisting of a 60 WPM teletype is used within the state of Pennsylvania as their primary Warning System to the counties in lieu of NAWAS. It is also used on a day-to-day basis for routine administrative traffic. Throughout the exercise it was utilized to provide the counties with a hard copy of messages sent previously over the hot-line. Although considered valuable for verification, these hard copy messages frequently lagged the voice message by several hours, at times resulting in some degree of confusion at the local level.

Department of Environmental Resources(DER)/State Game Commission Radios: This radio link was up and operational at the state EOC in the event of failure of its primary hot-line to the BRP EOC. One live test was conducted to demonstrate the capability, but was not used thereafter since it would interfere with BRP traffic to the RAD Monitoring Teams also utilizing this network for reporting.

In summary, it is felt that existing communications within the state EOC are more than adequate for the mission. No breakdown in any systems were noted, nor was any activity seen to be hampered due to a lack of available communications.

BRP EOC and Near-Site EOF: The primary method of communications between the near site EOF, BRP and the state is via dedicated telephone hot-line system. These were kept open and continually manned throughout the duration of the exercise, and found to be fully effective. To preclude a breakdown in communications should a hot-line failure occur, a mobile 2-way radio unit operating on the DER net was stationed adjacent to the near-site EOF and was available to be pressed into service relaying data to the BRP should that be required. At the BRP EOC, the DER net was used to stay in constant communication with their RAD monitoring teams in the field. At approximately 1030, the remote control unit interfacing the BRP base station failed. The problem was quickly identified as a telephone line problem on the line connecting the remote unit to the base station on the roof. Until such time as the problem could be corrected, communications were maintained with the field teams by way of a portable unit through their DER repeater located in Cumberland County. At no point in time was contact lost. At 1125, the trouble with the primary radio system was corrected and normal operations restored.

Local Level:

Without exception the counties demonstrated the equipment capability for 24-hour notification to, and activation of the emergency response network. They have provisions for communications with the state EOC via dedicated hot-line, RACES and state teletype network, and with contiguous government via cross band monitors on the fire net (33.90 MHz).

For purposes of the exercise it is felt that communications were adequate, however, in several counties the full capability was unable to be tested due to lack of personnel, specifically with regard to RACES. This is thought to be due to the volunteer status of the amateur operators and the on-again-off-again nature of the exercise itself.

As a plus, the school system alert monitors were satisfactorily tested and simulated sounding of outdoor sirens made in conjunction with activation of the EBS system in their jurisdiction. The most glaring deficiency noted almost without exception, was the total lack of coordination between jurisdictions on the timing and content of EBS releases and siren activation. (See Public Information.) It is also felt that in most cases the presently installed phone system would be inadequate to handle the volume of traffic which would be generated by an actual emergency.

RECOMMENDATIONS - COMMUNICATIONS

62. It is recommended that an extension off the existing NAWAS terminal at TMI be installed in the near-site EOF to provide an additional direct link into the State EOC.

63. Additional emphasis needs to be placed on the effectiveness of the state RACES network and on the capabilities and responsiveness of the volunteers required for successful operation of the net. Routine drills involving all jurisdictions and scheduled on a regular basis would go a long way towards fulfilling this requirement.

64. The possibility of having additional telephone circuits installed on a suspended service basis at all county EOCs should be explored. These could be made operational on short notice to fulfill the need for additional capability as dictated by the nature and extent of a particular emergency.

VII. PUBLIC INFORMATION

From a public information standpoint, utility, state and county organizations are far better prepared today than they were at the time of the TMI accident. During the exercise, however, some major deficiencies in the execution of the public information system were evident. The most serious problem was the lack of coordination for ongoing information and news releases between the state and counties. The state provided news releases to the counties, but the content was not coordinated before being released. County releases were not coordinated with the state, other counties, or the municipalities. This caused problems and contradictions. The coordination between the utility and the state was very good. It was found that there was too much of a time lag on many of the PEMA releases. A General Emergency release was never issued; instead the EBS was utilized by PEMA for the evacuation notice. The state would not be able to tell, with certainty, what information (and when) had been provided to the public without polling each county.

The PEMA PIO had the assistance of PIOs supplied from other selected state agencies, which were assigned by the Governor's Press Secretary at the time of the accident. This proved to be beneficial, although the state plan does not call for this.

The exercise did not show an operating system for rumor control at the utility, state and county levels. Although separate rumor control telephone lines were designated, not all were continuously manned and the phone numbers were not given to the public, via EBS, to call for factual information to reduce the spread of rumors.

The utility media center was very adequate with good space and equipment available for both staff and media use. However, the criteria calls for the licensee to provide space for a limited number of news media at the near-site EOF. This was not provided.

While there were competent designated spokespersons for each organization, there were no scheduled media briefings during the exercise. Scheduled briefings could have helped expedite the dissemination of information to the public.

RECOMMENDATIONS - PUBLIC INFORMATION

65. The PEMA PIO should maintain much closer contact with county PIOs, and insure that all public information releases are coordinated in advance of their being released.
66. State planning should be modified to reflect the participation of state agency PIOs. These PIOs should be fully trained in REP planning and operations, along with specific PIO responsibilities.
67. Each EOC should have a designated full-time rumor control individual during an incident, and the rumor control telephone numbers should be prominently broadcast to the public.
68. The PIO should actively interface with the media and rumor control personnel, when appropriate, to dispell misleading information.

69. Separate public information drills should be conducted between the state and counties to improve the coordination difficulties identified in this exercise.

VIII. REENTRY AND RECOVERY

Recovery and reentry was not actually tested which was consistent with the scenario. At the end of the exercise, the agencies of the Pennsylvania Emergency Management Council met for a conference to discuss each agency's responsibilities and expected actions related to reentry and recovery. The discussion provided for an interchange of ideas and generated thought provoking questions related to potential problem areas.

RECOMMENDATIONS - REENTRY AND RECOVERY

70. A future exercise should demonstrate the capability of the state and county agencies to carry out reentry and recovery operations. Both the state and counties should demonstrate long-term staffing capability by alerting a second shift of personnel.

IX. SCENARIO

Generally the scenario adequately tested the state and local emergency response plans. On the county and municipal levels there were some instances of incomplete participation and previous briefings of players which detracted from the value of the exercise, but participants generally found the exercise to be a useful learning tool. Slow periods occur at different times, at different locations if action items are completed before a change in classification level.

RECOMMENDATIONS - SCENARIO

71. Additional significant events should be interjected by controllers between changes in emergency classification levels when a slow period occurs at various action locations (state, county, municipality).

72. Separation of utility and state/local scenarios in the exercises may be a consideration in order to avoid the difficulties inherent in using a scenario based on utility-driven events which are less than ideal for state/local response play.

ATTACHMENT 2

TO FEMA's INTERIM
FINDINGS AND DETERMINATIONS
OF JUNE 16, 1981

UPDATE OF MAY 14, 1981
"REVIEW OF PENNSYLVANIA PLANNING
SITE-SPECIFIC TO TMI"

UPDATE OF MAY 14, 1981
"REVIEW OF PENNSYLVANIA PLANNING SITE-SPECIFIC TO TMI"

This report is based on a review of the May 14, 1981, "Review of Pennsylvania REP Planning site-specific to Three Mile Island Fixed Nuclear Facility" against the results of the June 2, 1981 exercise as stated in the Observations and Recommendations of June 11, 1981. The following discussion indicates the change or lack of change in the status of the May 14, 1981 review.

A. ASSIGNMENT OF RESPONSIBILITY

Although the county plans still have gaps in this area, as were identified in the May 14, 1981 report, the June 2, 1981 exercise indicated that the counties are aware of their responsibilities vis-a-vis the state. The assigned roles of county, municipal, and volunteer organizations were demonstrated with varying degrees of success at the county level. The major problem demonstrated by the exercise, in this area, was that the knowledge of responsibilities at the county and municipal levels was centralized at the Emergency Management Coordinator level. Frankly, much of this is due to the newness of current county plans, and insufficient familiarization of many of the staff with them. It is felt that a combination of drills and filling in of planning gaps at the county and municipal level would alleviate much of the coordination problems observed during the exercise.

C. EMERGENCY RESPONSE SUPPORT AND RESOURCES

County plans still need to include various agreements between private response organizations and to complete municipal plans, as was stated in the May 14 report. The exercise of June 2; however, showed that the necessary support organizations could provide support in accordance with the system outlined in the planning.

E. NOTIFICATION METHODS AND PROCEDURES

The exercise did not resolve the issues raised in the May 14, 1981 report.

F. EMERGENCY COMMUNICATIONS

The May 14, 1981 report fully described the state and county communications networks between response organizations. At that time, FEMA was not able to say if, in fact, the various communications systems were adequate to support a radiological emergency incident response. The exercise of June 2 demonstrated that the communications systems at state and county level were adequate.

The May 14 report similarly deferred judgment on the adequacy of alerting procedures for emergency workers at the state, county and municipal levels. The June 2 exercise, although it tested a small representative sample of emergency worker response, did demonstrate that the alerting procedures worked, and are adequate.

The exercise did not test the back-up communications role of Dauphin County. The off-site monitoring team captain operated from BRP, not the EOF and the exercise did not resolve the communications link issue between EOF and monitoring teams. Thus, these two issues were not resolved, and remain unchanged as stated in the May 14 report.

G. PUBLIC EDUCATION AND INFORMATION

During the June 2 exercise, the state, Lancaster and Cumberland Counties established designated physical locations to interface with the news media during the exercise. However, all five counties still need to include a designated media location in their plans. Thus the exercise did not resolve the issues raised in the May 14 report.

H. EMERGENCY FACILITIES AND EQUIPMENT

The May 14 report points out the need for predistribution of KI, personnel dosimetry equipment, and other protective items, at least to the operational level of emergency worker response organizations. For the June 2 exercise, FEMA had predistributed dosimetry and decontamination equipment to the county EOCs who participated in the exercise. This was not in accordance with present state planning, and was apparently a temporary measure for the purposes of the exercise. Until such time as the state plan is modified to reflect this approach, the issues raised in the May 14 report remain unresolved.

I. ACCIDENT ASSESSMENT

The exercise demonstrated that the communications and interface between BRP and the EOF was adequate.

J. PROTECTIVE RESPONSE

The exercise did not resolve any of the issues raised in the May 14 report. However, it has come to FEMA's attention that the state has just recently adopted the upper time limits of the licensee provided time and evacuation study, and intends to incorporate the time estimates and routing analysis into county plans, where appropriate.

K. RADIOLOGICAL EXPOSURE CONTROL

The exercise did not resolve the issues raised in the May 14 report. Also see comment on planning standard H.

During the exercise, Lancaster County established a representative emergency worker decontamination center, as a result of the issue raised on the May 14 report concerning the need for emergency worker decontamination centers located closer to the duty points of emergency workers. All five county plans still need to be modified to include this capability.

N., O., P.

The exercise did not resolve the issues raised in the May 14 report.

REVIEW OF PENNSYLVANIA REP PLANNING

SITE-SPECIFIC TO THREE MILE ISLAND FIXED NUCLEAR FACILITY

MAY 14, 1981

This report is based on a Regional Assistance Committee review of the latest Pennsylvania state and county plans site-specific to Three Mile Island Fixed Nuclear Facility and provides an analysis of the current status of state and local planning prior to FEMA's formal findings in accordance with 44 CFR 350.

The February 23, 1981 edition of Annex E, "Fixed Nuclear Facility Incidents" to the Commonwealth of Pennsylvania Disaster Operations Plan was reviewed. This state plan is current, and supercedes all previous versions of Annex E. The five risk county plans which were reviewed are those of York, Dauphin, Cumberland, Lancaster, and Lebanon Counties. These plans were completed in draft form in April, 1981, and state and county plans are still in draft status at this time.

Discussion

The format of this report follows the planning standards of NUREG-0654/FEMA REP 1, Rev. 1, upon which this analysis is based. The highlights of this analysis are as follows:

A. Assignment of Responsibility: State plan covers state organizations well, including interface with counties. Federal and private agencies (e.g., Red Cross) are not mentioned in this planning standard, which is a deficiency. County plans have planning gaps to be met in this area; i.e., there are still many procedures and details not presently incorporated into the plans.

C. Emergency Response Support and Resources: State and county organizations covered well. State plan still needs to provide more details for federal support requirements at state level.

D. Emergency Classification System: Both state and county plans use a standard classification and action level system, which is adequate.

E. Notification Methods and Procedures: County plans do not provide for adequate notification and warning of the public prior to the installation and functioning of the licensee's proposed siren system.

F. Emergency Communications: The back-up communications role of Dauphin County for the state needs further development particularly in establishing procedures.

G. Public Education and Information: Closer coordination between state and counties is needed for developing handout materials, and counties need to better insure availability of information to transients.

H. Emergency Facilities and Equipment: Emergency facilities are adequate, emergency equipment kits are deficient in scope and quantity.

I. Accident Assessment: This standard has been adequately met.

J. Protective Response: The state still needs to fully analyze and incorporate, where appropriate, the licensee's evacuation route and time study into its planning. Counties still need to complete unfinished municipal coordination planning.

K. Radiological Exposure Control: State planning needs to be modified to allow for much greater predistribution of dosimetry equipment. County planning needs to be modified to allow for emergency worker decontamination monitoring closer to their work stations.

L. Medical and Public Health Support: State and county planning is adequate.

M. Recovery and Reentry Planning and Postaccident Operations: State and county planning is adequate.

N. Exercises and Drills: County plans need to develop radiological monitoring drills and improved communications drills.

O. Radiological Emergency Response Training: County plans need to include radiological monitoring training and improved emergency worker training in general concerning dosimetry considerations. There is also a need for both state and county planning to provide for an annual retraining program.

P. Development, Periodic Review, and Distribution of Emergency Plans: The state needs to update its duty officer and EOC procedures. County plans need to identify and list supporting procedures in much greater detail than is presently evident.

The current editions of state and county plans represent a significant improvement over previous versions reviewed for the December 24, 1980 Interim Report. Intensive effort on the part of the Pennsylvania Emergency Management Agency has gone into the upgrading of state and county plans.

County plans, including necessary municipal plans, however, do not reflect the degree of development and completeness found in Annex E. Additional effort in the areas of procedures and coordination with responsible municipalities is necessary.

While important issues relative to NUREG-0654 have been identified, the plans provide an adequate planning base for the exercising of response capabilities.

A. ASSIGNMENT OF RESPONSIBILITY

Planning Standard

Primary responsibilities for emergency response by the nuclear facility licensee, and by state and local organizations within the Emergency Planning Zones have been assigned, the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

State Plans

The February 23, 1981 State Plan (Annex E of the DOP) meets the assignment of responsibility requirements of NUREG-0654 for state and county organizations, from a state level perspective. Specifically, the Governor retains overall directional authority over state emergency response organizations, while the Pennsylvania Emergency Management Agency (PEMA) is charged with overall responsibility for the planning and coordination of state and county level response for fixed nuclear facility incidents. PEMA's authority is derived from the Pennsylvania Emergency Management Service Act 323 of 1978.

Regulations promulgated pursuant to Act 323 (Emergency Responsibilities of Department and Agencies, 4. PA. Code, Section 3.2 et. seq. as approved April 1980) identify 20 state agencies and departments with response and/or support roles for a radiological emergency relative to fixed nuclear facilities; 19 of which also have state Emergency Operations Center (EOC) responsibilities. This is reflected clearly in the state plan, and represents a significant improvement over previous versions of Annex E. In previous versions, Annex E referenced the much broader DOP, which did not adequately define state agency concepts of operations and responsibilities pertinent to fixed nuclear facility incidents.

Facility responsibilities and concepts of operations are dealt with adequately in the state plan.

Conspicuously absent in the concept of operations and responsibilities sections of the state plan are federal agencies (Federal Radiological Monitoring Assistance Plan (FRMAP)) and private agencies, e.g., Red Cross.

Both groups are actually intrinsic to the state's response scheme, and as such should definitely be included in these parts of the state plan. It should be noted, however, that federal and Red Cross roles are covered in other parts of the state plan which deal with the specific roles these groups are expected to perform.

The state plan assigns authority for directing emergency response to the state agency heads for their respective organizations, and at the county and municipal levels to the respective elected officials. The Governor's and PEMA's authority were mentioned previously. County level government is also given sufficient authority to act in behalf of PEMA, should communications be interrupted. This last point is a significant improvement over previous versions of Annex E.

The state plan provided for 24-hour emergency response capability of all key response organizations, on both an initial and continuing basis. Written agreements between the state, other support organizations, and other states (Maryland) are included in draft form. They are consistent with the plan's concept of operations, and will be acceptable once signed. The agreement between the state and Red Cross is signed and acceptable. This represents a positive change from the previous version of Annex E.

County Plans

All five county plans adequately identified individuals in authority, by title, to take charge of emergency response. The Governor is the official responsible for the decision to evacuate; the County Commissioners are responsible for their respective counties' decision making; and the county emergency management coordinator for all response organization coordination within their respective counties.

However, the five risk county plans are written in such a way that they do not always provide a clear understanding of assigned responsibilities and organization interrelationships (concept of operations) between all response organizations falling under county planning jurisdiction.

All five county plans recognize assignments of responsibility at the federal, state, county and municipal levels, but they are presented in a sketchy and inconsistent fashion. The only reference to the federal role in the scheme of things was found in a block diagram type interrelationships chart. No mention at all was found of the licensee's role in either the responsibilities or concept of operations sections. This is felt to be a particular problem in the case of Dauphin County, due to its unique role as being the parent county. During normal operations, Dauphin County and PEMA both receive direct notification by the licensee at all four action levels. The other four counties are notified directly only during a general emergency. Should communication channels breakdown between the licensee and PEMA, Dauphin County will assume PEMA's notification role in relation to the other four risk counties.

Also not adequately covered in the responsibilities and concept of operations sections of all five county plans was the Red Cross. The Red Cross is responsible for operating and providing services at the mass care centers. This raises questions as to the level of coordination which exists between the county governments and the responsible Red Cross chapters.

All five county plans assign significant responsibilities to the municipalities in such areas as evacuation, security, training of volunteers, reentry and in general providing for a coordinated and consistent municipal plan. However, there is no mention of municipalities in the concept of operations sections of the county plans. Furthermore, many municipal plans are still under development and are not available to FEMA for review. Many of the municipal plans which were submitted as part of the county plans were found to be lacking in important procedural details and content. There seems to have been very little progress at the county/municipal interface level of planning.

All five counties demonstrated 24-hour emergency response capability through their communications centers and EOCs. They all have adequate legal authority to fulfill their assigned responsibilities.

Letters of agreement between the risk counties and support organizations are provided; but many which are necessary are still in the process of being negotiated.

In summary, all five county plans have not shown an adequate level of planning concerning overall assignments of responsibility and the interrelationships of all emergency response organizations. It is quite possible that the levels of preparedness and response capabilities of the counties exceeds that which is indicated in the county plans. The June 2 TMI exercise should shed more light on this last issue.

C. EMERGENCY RESPONSE SUPPORT AND RESOURCES

Planning Standard

Arrangements for requesting and effectively using assistance resources have been made, arrangements to accommodate state and local staff at the licensee's near-site Emergency Operations Facility have been made, and other organizations capable of augmenting the planned response have been identified.

State and County Plans

In general, the state has indicated in its plan the ability to man the licensee's EOF with qualified BRP liaison personnel who will assist BRP Headquarters to assess any radiological accident. BRP Headquarters will make the state assessment, not the licensee, unless there is insufficient time to do so; then the licensee will provide the assessment. The state plan also provides for the NRC on-site assessment to be given equal weight with that of the state. The state will also make use of federal FRMAP capabilities in its assessment functions, when appropriate.

The state plan has made some progress in incorporating the federal response capability into its operations planning. The BRP logistician is the state official with the responsibility of calling for federal assistance through FRMAP at Brookhaven National Laboratory. The logistician will first check with the licensee before calling on FRMAP, so that the request will be coordinated. This is a positive change from the previous version of Annex E, where both parties seemed to function independently in calling IRAP.

The BRP plan identifies the federal FRMAP resources expected, describes their respective responsibilities, and includes their expected time frames for arrival at TMI in an emergency response situation. This, too, is a positive change.

The state plan identifies the State Department of General Services with having the responsibility for providing facilities and communications support for federal response organizations. This is a positive change from the previous version of Annex E, where no specific responsibility was assigned in this area. However, the state plan still does not give any indication of what specific facilities and communications are being planned for. This last area constitutes a deficiency, however, the federal response organizations themselves are partly to blame for this for not actively identifying their own needs.

The state plan clearly states that BRP will rely on its in-house laboratory capabilities as will the State Department of Agriculture for the ingestion pathway, for analysis of samples. There are no unmet needs in this area; and consequently no need for identifying other support organizations and their capabilities in this area.

The five county plans have relatively little applicability towards this planning standard, in that the state is responsible for assessment, radiological monitoring, and interfacing with federal response organizations. County plans indicate that county personnel will be made available, upon request, to assist state personnel when needed. There is also a provision for the County Extension Agent to operate from the county's EOC. This is adequate, since the state has not identified any unmet needs in this area.

Unlike the state Plan, the five county plans do rely heavily on private organizations, e.g., Red Cross, RACES, etc., municipal service personnel (some of whom are volunteers), other counties (support), and school districts. Some required agreements are still under development, making it difficult to determine the actual level of resource support available in the counties.

D. EMERGENCY CLASSIFICATION SYSTEM

Planning Standard

A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and state and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

State and County Plans

The state and county plans have adopted a standard emergency classification and action level system consistent with one another, the licensee's plan, and Appendix 1 of NUREG-0654. This scheme is incorporated throughout the planned emergency response activities.

This represents a positive change over previous planning, where particularly the county plans were inconsistent with one another and this standard is now adequately met.

E. NOTIFICATION METHODS AND PROCEDURES

Planning Standard

Procedures have been established for notification, by the licensee of state and local response organizations and for notification of emergency personnel by all response organizations; the content of initial and followup messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.

State and County Plans

Adequate initial notification procedures have been established between the licensee and the state and five risk counties. Both PEMA and the parent, i.e. Dauphin, county will be notified at all four incident classification levels. All five risk counties will be notified by PEMA at the various classification levels with direct notification by the licensee at the General Emergency level. The state and county plans also provide for Dauphin County to assume the primary role of coordination with the remaining risk counties should PEMA's communications fail.

Notification of emergency response personnel will take place, for the most part, through the use of telephone fan-out systems. This is not considered a deficiency as such personnel should be notified prior to any general public announcement and thus there should not be any unusual demand on the telephone system. However, most key personnel at the county level can be reached by alternative methods such as pagers, mobile radios and emergency services communications. In some cases, the procedures for notifying emergency response personnel at the state and municipal levels need to be expanded upon, including alternates for key personnel at the municipal level.

The present method of notifying the public calls for the use of existing siren systems, and of police and fire vehicles equipped with public address systems. This mode is considered inadequate in that many of the municipal plans do not contain predesignated routes and delineate the resources needed to insure this can be accomplished. Along with these deficiencies, it is generally assumed that the present notification system would require greater than 15 minutes to notify the populace within 5 miles of the plant and 45 minutes for the entire Plume Exposure EPZ. The licensee has proposed to complete, by July 1, 1981, an enhanced outdoor warning system adequate to meet Appendix 4, N-0654 guidelines utilizing the attention alert signal of 3 to 5 minutes steady duration. These sirens will be supplemented through the use of emergency vehicles equipped with public address systems, where necessary.

It is reasonable to assume that adequate warning will be provided when the proposed system is complete. However, a complete testing of the system from a mechanical and administrative standpoint will be essential.

E. NOTIFICATION METHODS AND PROCEDURES

State and County Plans (cont'd)

The current emergency public information messages prepared for announcement over the EBS system by the respective risk counties are deficient only in terms of a lack of provision for information as to the specific nature of the problem(s) at the facility and the consequences to the public if recommended protective actions are not followed. This is expected to be accomplished on an ad hoc basis as the information is known and the need perceived during an incident. Additional "fine-tuning" of the messages should also be accomplished in order to provide clearer more precise instructions to the public.

F. EMERGENCY COMMUNICATIONS

Planning Standard

Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.

State and County Plans

The principle means of initial contact between primary response organizations and emergency personnel is by telephone. The State EOC, BRP headquarters, and the five risk county EOCs maintain a 24-hour communication capability. BRP and the five counties provide for 24-hour notification at their EOCs, while the State EOC can be operated 24-hours-a-day but is dependent upon a duty officer for notification. An alternative method of notifying the state is through the Dauphin County EOC (operational on a 24-hour basis). This alternative means has not been sufficiently developed in that procedures would have to be established to notify all state and county agencies. Dauphin radio communications with the other risk counties needs to be formalized.

State and county communications planned for use include emergency services networks (i.e. police, fire and ambulance networks) and other emergency systems (such as teletypes and radios). These systems, utilized on a day-to-day basis will be supplemented by the respective county's Radio Amateur Civil Emergency Services (RACES), which will use their own equipment. These volunteer services will serve as a backup to commercial telephone by providing alternative communications to schools, other counties, municipalities and mass care centers. Letters of agreement and implementable plans are still being sought by FEMA for inclusion in the various county plans in order to ensure agreement and coordination among the parties involved.

The full-scale exercise, scheduled for June 2, should demonstrate whether or not the existing systems meet the requirements of Pennsylvania's Fixed Nuclear Facility Planning.

The primary communications link between FEMA, adjacent states and federal agencies will be via commercial telephone lines and Civil Defense National Teletype System (CDNATS) and Civil Defense National Voice System (CDNAVS) which interfaces with FEMA, Region III. Backup communications will be via Civil Defense National Radio System (CDNARS), which also interfaces with FEMA, Region III.

Communication between state off-site monitoring teams and the near-site EOF are to be via radio. However, it is unclear whether this radio system is capable now of direct communication with the EOF or does it have to be relayed through BRP Headquarters over dedicated telephone to the EOF. This is an important item to be exercised on June 2 since the BRP team captain is to be located at the EOC and capability of the communication system is critical to accident assessment.

As stated under planning Standard E, expanded procedures for notification of emergency response personnel at the state, county and municipal level need to be reviewed by FEMA. Also, the FEMA Duty Officer SOP for FNF must be updated to include all response organizations. Since alerting procedures were not demonstrated during the last exercise, it is crucial it be shown on June 2.

F. EMERGENCY COMMUNICATIONS

State and County Plans (cont'd)

Both the state and the five county plans call for periodic testing of the entire emergency communications system and the county plans call for testing of the public warning system once it is in place.

G. PUBLIC EDUCATION AND INFORMATION

Planning Standard

Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.

State and County Plans

Neither the current state nor the five county pre-emergency public information brochures independently provide all elements of the information sought in NUREG-0654/FEMA REP-1, element G.1.a.-d. Thus, only if the state and county material (in the case of York County, municipal instructions as well) were distributed in a coordinated manner or the pamphlets were combined would the present brochures be adequate.

Provisions need to be made to assure that emergency information is provided to transients. Motel, hotel and park managers, as well as employers, must be made aware of their responsibility to provide the necessary information to their guests and employees.

The proposed public information programs and public education programs set out in the state and county plans are still under development. If implemented they would exceed the requirements of this planning standard.

The PEMA public information officer will be the state spokesman, under the authority of the Governor's Press Secretary. This clears up some of the confusion on this point from the previous version of Annex E.

Both the state and counties have planned to establish points of contact with the news media for dissemination of information during an emergency. However, the actual physical locations have not been established at this time.

H. EMERGENCY FACILITIES AND EQUIPMENT

Planning Standard

Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

State and County Plans

The lead offsite organizations, state and county levels, all have established emergency operations centers (EOC). Staffing of these EOCs is projected to provide for 24-hour operations and timely notification. The emergency response staffs include representatives of the major response organizations and are to coordinate the activities of their respective organizations which may either be directed from the EOC's or from some other locations.

The lead EOC's planned for use are:

State Level: State EOC, Commonwealth and Forster Streets, Harrisburg, PA
State Control Area EOC, Rt. 522 School Ent., Selinsgrove, PA

Dauphin County: County EOC, Front and Market Streets, Harrisburg, PA

Cumberland County: County EOC, S. Hanover Street, Carlisle, PA

Lancaster County: County EOC, 50 North Duke Street, Lancaster, PA

Lebanon County: County EOC, 400 South Eighth Street, Lebanon, PA

York County: County EOC, East Market Street, York, PA

These EOCs were developed for use by the respective level of government during emergencies to include nuclear attack. Each have trained staff, communications, emergency generator, fuel supply, etc. to meet FEMA's EOC criteria. The EOC's are all occupied on a day-to-day basis by the Emergency Management Staff of the State or the county they serve and at county level they are all utilized as the counties central dispatching for fire, police, and ambulance emergency services. The EOCs and the respective emergency response staffs have been consistently activated to the level required to deal with the consequences of disaster emergencies and have operated for 24-hour periods over extended periods of times to include the two week period during the TMI-2 incident in 1979.

In addition to the State EOCs at Harrisburg, which coordinates the Commonwealth's emergency response, and at Selinsgrove, which coordinates the hosting preparations, several state agencies have headquarters operation centers which either support the emergency response team at the main EOC or direct the activities of their agencies coordinating such action through their representative at there EOCs. Among these headquarters operations centers are:

Bureau of Radiation Protection/Department of Environmental Resources
14th Floor of Fulton Building, Harrisburg.

State Department of Agriculture, the Agriculture Building in Harrisburg.

H. EMERGENCY FACILITIES AND EQUIPMENT

State and County Plans (cont'd)

State Police Headquarters, 1800 Elmerton Avenue, First Floor, Harrisburg.

National Guard Headquarters, Fort Indian Town Gap.

State Department of Health, Health, Welfare Building, Harrisburg.

The Bureau of Radiation Protection has the primary role for offsite radiological monitoring for the commonwealth and shall serve both state and county level decision makers through the PEMA coordinating channels. The BRP will dispatch two monitoring teams for a TMI incident and maintains field monitoring equipment at three locations; Harrisburg, Pittsburgh, and Wernersville, Pennsylvania. Three sets of equipment are maintained at each of these locations. BRP maintains an inventory of this equipment, inspects it and keeps it calibrated in accordance with existing requirements.

The licensee's emergency operating facility (EOF) will receive all field monitoring readings and environmental sampling results generated by the state, licensee and federal agencies. BRP headquarters will be the central receiving point for state level monitoring and will interface by radio and/or dedicated telephone with the licensee EOF and the DOE FRMAP headquarters at Capital City Airport when it is established.

Activation of emergency response staffs at state and county EOCs and headquarters operations centers are generally dependent upon telephone. Cascading fan-out systems have been designed to enhance the timeliness of this process. Some procedures still need to be developed and reviewed at state agency level and at municipal government level. Notification drills of all response members should result in correcting any deficiencies to include familiarization of the procedures, maintaining currency of telephone numbers and increasing the proficiency through training. (See Planning Standard E).

Current inventories of radiological monitoring equipment to support emergency personnel monitoring and monitoring of public by the county level government shows there is insufficient quantities of needed equipment on hand to allow for predistribution where it is recommended and planned for. To meet the requirement for geiger counters (CDV-700) and self-reading dosimeters (CDV-730) an adequate number are stored at PEMA Supply Depot in Fort Indian Town Gap. There are insufficient thermoluminescence dosimeters (TLD) for permanent record dosimetry of emergency workers. PEMA is in the process of securing them. (See Planning Standard K).

Preparedness to mobilize for a fixed nuclear facility incident at TMI has not progressed to a point that emergency personnel kits for emergency workers have been established. Items that would make up such a kit are still being collected which precludes such packaging. The only respiratory protection equipment or protective clothing under present consideration is that of the National Guard. Current planning adequately describes quantities needed and predistribution points for KI and dosimetry. Equipment presently available is to be expediently distributed upon activation of emergency workers. Predistribution of KI, personnel dosimetry equipment, instruction on equipment, respiratory protection and protective clothing should be in place at least to the operational level of the emergency workers response organizations before this standard can be considered adequately met. (See Planning Standard K).

I. ACCIDENT ASSESSMENT

Planning Standard

Adequate methods, systems and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

State Plans

The Bureau of Radiation Protection which is within the State Department of Environmental Resources is specifically assigned the role of Accident Assessment for the Commonwealth of Pennsylvania. This is to include: the interface with the licensee and the federal agencies at the Licensee's Emergency Operations Facility; providing a 24-hour headquarters operating center at the Fulton Building in Harrisburg; liaison personnel at the state level EOC in Harrisburg; and off-site field monitoring within the plume exposure Emergency Planning Zone.

BRP has two mobile two-man radiological monitoring teams with sufficient equipment, vehicles and two way radio maintained in a ready to act and use status. The equipment available and planned for use is designed to adequately measure airborne radioiodine under field conditions. Locations where readings are to be made around and in the plume exposure zone of TMI have been predesignated. The familiarity of the mobile teams with the predesignated location, their ability to operate the equipment, and the radio communications to BRP headquarters operation center were adequately demonstrated during the July 16, 1980 exercise. The personnel for these monitoring teams live in the Harrisburg area and based on the July 16, 1980 exercise, their response time appeared adequate.

The BRP monitoring team captain will operate out of the near-site EOF and share the monitoring teams reading with the licensee as well as BRP headquarters in Harrisburg. When DOE is operational in the field, its representative at this EOF will share its findings with the licensee and BRP. A joint assessment will be sought through these processes. The adequacy of the communications capability and the interface planned for the near-site EOF has not been demonstrated and was not included in the July 16 exercise.

A full scale exercise is scheduled for June 2, 1981, which will test the interface between the licensee and BRP exercising the capabilities and procedures in the assessment and monitoring of actual or potential offsite consequences of a radiological condition.

BRP and the licensee will coordinate on the call for assistance from DOE for offsite radiological monitoring assistance. Based upon communications between BRP and DOE the estimate response time, size of response team and general requirement to support the federal response team. (See Standard C.)

DOE capability is planned for to provide tracking the airborne radioactive plume from the air and to operate a computer record of all known and estimated dose commitment for periodic estimation of total population exposure. (See Standard M.)

This standard has been adequately met.

J. PROTECTIVE RESPONSE

Planning Standard

A range of protective actions have been developed for the plume exposure pathway EPZ for emergency workers and the public. Guidelines for the choice of protective actions during an emergency, consistent with federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

State and Local Plans

Sheltering, evacuation, and access control are the protective actions planned for in the TMI site-specific planning.

State Plans

In general, the state planning is adequate to show the decision process and means to direct or recommend protective actions. Protective actions are to be based upon EPA Protective Action Guides (PAGs) for plume exposures and HHS/FDA Guides for food and animal feeds. Commonwealth planning takes into account consideration of protective action well in advance of the PAGs. Implementation of protective action is generally a county level function with PEMA and other state agencies in coordination with PEMA providing support requirement.

Although the Concept of Operations and the general means of providing such support are covered for the various agencies in present state planning and the more detailed procedures are provided for PEMA, the State Department of Health, and Agriculture and the Bureau of Radiation Protection, the expressed implementing procedures of the Department of Military Affairs, State Police and State Department of Transportation need to be reviewed to completely assess the state support and coordination with the primary roles. Other state agencies do not significantly impact upon the ability of the counties to carry out protective actions.

The State Department of Agriculture Plan (Appendix 7) and the BRP (Appendix 8) deal adequately with protective measures for the ingestion pathway. The maps for food, crops and dairy facilities, etc., which are necessary to support these plans will be reviewed on-site during the June exercise.

PEMA is presently studying the Parsons Brinkerhoff Quade & Douglas, Inc. Study to incorporate in the decision process for determining the best choice of protective action. A portion of the Standard is met by the present use of the study by PEMA in assessing its planning and decision process.

The location of traffic control points is being reconsidered as a result of the Parsons Brinkerhoff Study. The present traffic control locations reflect considerable coordination and based on current assessment are the best locations for such traffic control points. County and municipal plans currently available provide for manning of these predetermined locations.

Security and controlling access to evacuated areas and coordination of these functions is the responsibility of the Police Service to include State Police and Municipal Police augmented as required by the National Guard. More detailed

consideration of this matter and access control during evacuation to insure traffic does not enter the EPZ during the evacuation is necessary. These areas of concern will be specifically addressed in review of the State Police and National Guard procedures.

Provision for the use of radioprotective drugs, establishing a decision process and predistribution plan has been adequately met. A supply has not been secured. The decision to use liquid KI is under consideration. Liquid KI would drastically affect the present planning as self administration would not be as feasible and therefore additional procedures would have to be developed and a delay in administering drug would have to be recognized.

Regardless of the type of KI secured, the Commonwealth has decided not to provide KI to the general public, but plans to implement protective actions such as sheltering or evacuation to protect the general public from radioactive iodine.

County Plans

Each risk county plan recognizes that Accident Assessment and technical advice shall be the purview of the Bureau of Radiation Protection and that recommendation and direction of protective action shall come through PEMA channels. Risk county roles are to implement the protective action.

Some operational maps are still under development. PEMA is producing some of these maps for the five risk counties. The state produced area wide map is enclosed in each county plan and depicts the plume exposure EPZ and major evacuation routes with their estimated capacity and time estimates for those links. The counties have produced individual county maps as part of a public information brochure to direct and control the public to reception centers or to mass care centers.

Transient population notification is expected to be accomplished by the same means as the general population. At present no system or method has been prescribed to ensure that employers, park managers, hotel/motel managers, etc., recognize the responsibility to inform their guests and employees of what they are to do when action is called for during an incident. When this deficiency is corrected and an adequate outdoor warning system is installed and operational, notification of transients will be considered adequate.

The means for protecting those persons confined in an institution has been considered in each county plan and appears adequate. Regarding non-institutionally confined persons, some municipal plans have not been developed and some of those developed have not prepared a list of home bound persons who may need transportation assistance within their jurisdictions. There is reasonable assurance based upon county planning and municipal plans accomplished, that this special population group is under careful consideration and it is only a matter of time before such lists are compiled and ready for use.

The means of relocation of the general population is addressed in the county plans. Personal owned vehicles are assumed to carry the bulk of the evacuated population; school buses are to carry school children if circumstances dictate; persons without transportation are to be transported by mass transit bus service and returning school buses. Institutionalized persons in nursing homes, hospitals,

prisons are to be transported by vehicles specifically identified for this need; and mobility impaired persons not under institutional care are to be transported by vehicles assigned by municipal fire companies in coordination with municipal EMA coordinator. Coordination of these functions is covered at the county level. However, implementation plans such as district and individual school plans and municipal plans are still under development, and thus require ad-hoc management at this time.

Relocation centers and mass care centers have been designated and their locations are 10 miles or more beyond the plume exposure EPZ. Registration of the population using these centers will be on standard forms with the information provided to the respective county EOCs every two hours.

The means for dealing with potential impediments (e.g., seasonal impassability of routes) of evacuation routes are covered at county level by dispatchers in county EOCs who have the day-to-day responsibility to call for such service assistance for police. The counties maintain a resource manual of additional resources which may be called into service when and if service assistance is not available. Assistance then can be sought from the Department of Transportation and the National Guard through coordination with PEMA. There is no specific snow removal plan set out in the radiological emergency response planning. The Parson Brinkerhoff Study assessed additional time necessary to effect evacuation for snow conditions. County assessment, in their situation reports to PEMA during an incident, would provide progress on mobilization and clearance of impediments to evacuation routes. This information would then be taken into account in the protective action decisions.

Radiological monitoring is to be accomplished at mass care centers following procedures provided in the county level plans by linemen trained as radiological monitors. Any discovered contamination shall be reported immediately to BRP through EMA channels. This appears adequate when training is assured for the radiological monitors.

K. RADIOLOGICAL EXPOSURE CONTROL

Planning Standard

Means for controlling radiological exposures, in an emergency, are established for emergency workers. The means for controlling radiological exposure shall include exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides.

State and County Plans

The state plan sets the basic framework for providing a means of controlling radiological exposures. Each emergency worker is supposed to be issued two selfreading and 1 TLD dosimeter (total of three), which from a safety standpoint sounds good. However, since the state plan now requires PEMA to distribute thousands of dosimeters per site to affected state workers and counties, and county plans require the counties to then distribute these dosimeters (once received) to county and municipal emergency response workers, the planning is burdensome. The state plan does not yet contain detailed procedures for this site-specific distribution plan; thus it is very difficult to assess if distribution of all dosimeters to state and risk county personnel could be accomplished within three hours as called for in the state plan. It could literally take hours under this scheme for emergency workers to receive their dosimetry equipment.

County plans have dosimetry distribution plans for their emergency workers. Based on inventories of on hand equipment at county level a severe shortfall of such equipment is shown to include: CDV 742 (0-200R dosimeter), CDV 730s (0-20R dosimeter) or CDV 138 (0-200MR dosimeters) and TLDs (permanent record thermoluminescent Dosimeters). The state maintains its supply of dosimeters and Geiger counter equipment in bulk storage at Fort Indiantown Gap, Pennsylvania, for emergency distribution to TMI risk county emergency workers and state emergency workers. This bulk storage is under control of PEMA which appears to have an adequate supply for the TMI planning area of CDV 742s and CDV 730s but does not now have sufficient TLDs. Predistribution of these state stocked items is not considered because statewide, with other plants operating in the state, a much larger quantity of this equipment would be required. Regardless, FEMA feels most strongly that dosimetry equipment should be predistributed (most importantly TLDs and CDV 730s) to at least the emergency worker organization level, state and local, site-specific to each operating plant.

The counties are also reliant on PEMA for the distribution of additional CDV-700 geiger counters needed for decontamination monitoring at the county level. This distribution problem is not considered as severe as in personnel dosimetry. It is reasonable that CDV-700s can be distributed within 12-hour period, which should be sufficient.

The state/BRP expects to know if there is a possibility of contamination based on the core inventory released long before it could be reported that members of the public have been affected by mass care monitoring. All population leaving the area would then be directed to be screened and if such contamination were wide spread federal assistance will be sought through DOE and FEMA.

The timeframes for the reading of selfreading dosimeters by emergency workers, at least every 30 minutes, is adequate in both state and county plans.

State and county plans require that emergency workers seek replacement after receiving a dose of 15-20R. It is up to elected officials in their respective jurisdictions to authorize emergency workers, if needed, to exceed the 25R PAGs for emergency workers. BRP will not recommend this, just explain the consequences. A state level decision has already apparently been made to automatically permit emergency workers to exceed the general public PAGs of 5R. It is now necessary that BRP explain to all emergency workers in advance the potential for a higher cancer risk from this decision. County plans do outline good decision criteria for elected officials to use in authorizing emergency workers to exceed the 25R PAG; i.e., for lifesaving activities, etc. However, how or when the potential consequences of this will be explained to emergency workers is not provided nor are there considerations to first solicit volunteers, or workers over 45 years of age.

State and county plans have set a level of .05mR/hr above background as the trigger point for requiring decontamination. This is adequate.

Counties are responsible for providing decontamination monitoring services and facilities for the public and emergency workers under their jurisdiction. All five county plans provide for decontamination of the public, and emergency workers. This is to be done at each mass care center which is to have 1 or 2 trained personnel (primarily fireman) in decontamination monitoring. Risk counties should further modify their plans to establish separate decontamination points for emergency workers primarily to be located closer to the risk work areas, such as the county EOC or permit organizational decontamination. Pre-assignment of trained personnel for this function should be provided in the county plans.

L. MEDICAL AND PUBLIC HEALTH SUPPORT

Planning Standard

Arrangements are made for medical services for contaminated injured individuals.

State and County Plans

The state and five county plans all contain a list of the primary and support hospitals that will be relied upon to handle contaminated injured individuals in the event of a radiological emergency. The Pennsylvania DOH prepared this list for county use.

The Pennsylvania Department of Health, Division of Emergency Health Services offers a course to provide emergency medical technicians with basic instructions concerning radiation and its characteristics, initial treatment, triage and transfer of patients.

Arrangements for transportation of radiation victims has been identified.

M. RECOVERY AND REENTRY PLANNING AND POSTACCIDENT OPERATIONS

Planning Standard

General plans for recovery and reentry are developed.

State and County Plans

The Pennsylvania Department of Environmental Resources ERP, is assigned the primary responsibility for the recommendation to relax protective measures and the Governor retains authority to allow reentry. Included in the decision process is the assessment of radiological exposure through evaluating dose records and estimating total population exposure.

PEMA has the responsibility of notifying state agencies and counties to prepare for reentry; the governor will notify the public; and PEMA will coordinate the reentry operation. It is assumed that normal notification systems will be used to notify emergency workers. For recovery, PEMA will coordinate supporting operations upon recommendation from DER to relax protection actions.

DER and BRP will rely on the U.S. DOE to estimate total population exposure, based on information supplied to DOE by DER and other support state and federal agencies. The methodology for this assessment to total population exposure is not included in the state plan; however, it is assumed that DOE does have adequate methodology for providing this support.

The supporting requirement for reentry are outlined in each county plan. It is reasonable to assume that PEMA and the county EMAs can coordinate a reentry program through the agency and response organizational network developed through preparation and affecting evacuation. Therefore, the general planning presently accomplished adequately meets this standard.

N. EXERCISES AND DRILLS

Planning Standard

Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills are (will be) corrected.

State and County Plans

The state plan adequately addresses the requirements for exercises and drills, as specified in NUREG-0654. This represents a positive change from the previous version, in that it is made clear that PEMA will ensure that all necessary planning modifications are made resulting from deficiencies uncovered by exercises and drills.

The five county plans are generally well tied in with the state plan in meeting the requirements of this planning standard, with one exception. The county plans attempt to address the requirement for radiological monitoring drills by stating that radiological monitoring is a state responsibility. However, decontamination monitoring teams certainly fall under the purview of radiological monitoring, and these personnel come from the counties. Therefore, these personnel should be included in radiological monitoring drills when conducted by the state, or have their own drills when the state conducts its exercises and drills at other sites. This deficiency must be rectified before county plans can be considered adequate in this area. See related comment under planning standard O, regarding the training needs required in this area.

An area that requires some clarification is the scope of the counties communications drills. A communications drill should demonstrate the sufficiency of the notification process down to emergency response personnel. At the county level, this involves a combination of radio contact and fairly extensive commercial telephone cascade listings. All these links should be routinely tested as part of a properly conducted communications drill. The county plans as written imply that the telephone contacts will not be tested. Whatever the case may be, FEMA intends to work, through PEMA, to assure that the county plans clearly reflect this approach. It should also be pointed out that this is the only way to insure that all telephone numbers and contacts remain current, and that the notification and follow-up message contents are understood by all response parties.

O. RADIOLOGICAL EMERGENCY RESPONSE TRAINING

Planning Standard

Radiological emergency response training is provided to those who may be called on to assist in an emergency.

State and County Plans

PEMA is assigned the responsibility of coordinating Radiological Emergency Response training at both the state and county levels. Some courses will be given by PEMA and the Pennsylvania Department of Health. There is a major reliance on FEMA sponsored courses, with participation at all levels (state, county, municipal). Many of the courses have not yet been initiated; however, the scope of the courses should be adequate when implemented.

Although plans call for retraining emergency response personnel, there is a need to ensure that this retraining be accomplished on an annual basis.

Currently, county level plans do not specifically include decontamination monitors in required drills (see previous comment under N), nor do they reference the need for training in this area. Another area that should be considered is a short course on low level radiation, dosimetry, and decontamination for emergency workers at local level. Some courses exist that include this; however, because of the size of the potential audience, this could be addressed separately.

A need is now apparent for a county oriented course to familiarize emergency workers and decontamination monitors with their roles and dosimetry considerations relative to their functions.

Pennsylvania has not coordinated the prioritizing and registering of state and county agency participants in FEMA sponsored courses. As a result, Pennsylvania has been slow to fill their allocations and has lost some assigned spaces this fiscal year.

P. RESPONSIBILITY FOR THE PLANNING EFFORT: DEVELOPMENT, PERIODIC REVIEW
AND DISTRIBUTION OF EMERGENCY PLANS

Planning Standard

Responsibilities for plan development and review and for distribution of emergency plans are established, and planners are properly trained.

State Plans

The state has adequately designated by organization, title and responsibility its Radiological Emergency Response planning structure. The state has addressed the training needs of its planning personnel and the method for incorporating exercise critique results into plans should be stated.

The Director of PEMA is responsible for reproducing revisions to the State Disaster Operation Plans and distributing according to the published distribution list.

Currently, a detailed listing of supporting plans and their sources are contained in the State's plan and Appendix 18 has a listing by title of implementing procedures and SOPs. This list does not appear complete, and FEMA will seek SOPs from the eleven other State Agencies and the Red Cross in its review. However, it should be noted that the predominate response roles are covered in the agencies procedures now shown in Annex E and/or listed in Appendix 18.

A schedule for update is not provided in the Plan and the staff duty officer procedures and the EOC operation center procedure are not current to Annex E as revised. Planning has been very fluid up to this point and with the extra efforts being made to modify planning at both state and county it is recognized that such other documents have fallen behind. After the June 2nd exercise FEMA will work with PEMA on a schedule where such supporting plans and Annex E may be updated or corrected based on the lessons learned from the exercise and the recently modified plans.

County Plans

County plans appear to adequately meet county responsibilities, but the supporting procedures for such organizations as Red Cross, State Police, USDA Extension Service, school plans and municipal plans, are not covered for the emergency response personnel coordinating with the county staff at county level.

Although the response individual should have such procedures, the County Plan should list them. Computability of these procedures should be determined by the county and reviewed by FEMA.

The county EMA coordinators are responsible for maintaining the currency of their response plans and distributing the changes accordingly.

ATTACHMENT 3

TO FEMA'S INTERIM
FINDINGS AND DETERMINATIONS
OF JUNE 16, 1981

CHANGES IN PREPAREDNESS ON
ISSUES BEFORE THE BOARD -
UNRESOLVED MATTER BASED ON
FILED TESTIMONY OF FEMA'S
BATH/ADLER AND FEMA'S BATH/NRC CHESTNUT

Changes in Preparedness
On Issues Before the Board
Unresolved Matter Based on Filed Testimony of
FEMA's BATH/ADLER and FEMA's BATH/NRC CHESTNUT

- #1. (BATH/ADLER, 2/23 Testimony, P. 39); The York County Plan is not consistent with the state plan with regard to the distribution of thyroid blocking agents.

The revised York County Plan, Annex R, Appendix 8 is now completely consistent with the state plan and the other four risk county plans on the distribution of KI. KI is to be predistributed to the lower organizational level in the amounts specified in the state and county plans. The decision to distribute and administer KI to emergency workers and institutionalized persons and not to the general public is unchanged.

KI has not been secured yet but the state has every intention of doing so. During the June 2, 1981 exercise, because Pennsylvania did not have a supply on hand and distributed, the state Department of Health made arrangements to have a sufficient supply flown in from Illinois. It is reasoned that such emergency distribution would require from four to six hours from Illinois to the individual who is to use it.

- #2 (BATH/ADLER, 3/16, Testimony, P. 6); The York County Plan is deficient in its failure to include transient and work force in its population calculations.

Pennsylvania Emergency Management Agency is in progress of utilizing the Parsons Brinkerhoff, Quade and Douglas Study (P,B,Q&D). York County has been provided a copy of this Study for use as resource documents and to upgrade its planning. This study does provide for York County a breakout of the estimated transient and work force population. Formal modification of York County Evacuation planning may result; however, in the interim FEMA believes the presence and use of the

P,B,Q&D Study adequately satisfies NUREG-0654 considerations for the York County Plan review.

- #3 (BATH/ADLER, 3/16 Testimony, P. 12); There are no provisions made in the York County Emergency Plan for posting emergency protection information, including evacuation routes.

York County does not plan to post information but plans to provide such information in Brochures and information sheets to all residents, motels, hotels, employers, park managers, etc. Motel, hotel, park managers and employers are to make such transient and work force within their charge aware of emergency protection information including evacuation routes at the time of need. The sole drawback to this measure is that it cannot be shown by the distribution method used or the material distributed that such managers are fully knowledgeable of their responsibility. Mr. Curry, EM Coordinator of York County was to have addressed the York County Chamber of Commerce and enlist their assistance in making this responsibility known and assuring a complete distribution to such establishments.

- #4 (BATH/ADLER, 3/16 Testimony, PP. 22, 29-30, 35-36); Letters of Agreements between York County and the Red Cross, Amateur Radio Civil Emergency Service, RACES), School Districts, the York County Chamber of Commerce, the York Area Transit Authority, and Adams County.

At present, York County Letters of Agreement have been signed with the Red Cross, School Districts, the York County Chamber of Commerce, the York Area Transit Authority. FEMA has queried Adams County and ascertained that Adams County is aware of the host responsibility as specified in the York County Plan and is willing to provide this support.

York County RACES Inc. is a bonifide organization and an operations plan is on file and has continually demonstrated its willingness to serve in an emergency as has

Mr. Curry in his testimony before the Board.

Although these last two letters of Agreement are still deficient, FEMA is reasonably assured that these organizations do have full knowledge of their roles and responsibilities as set out in the York County plan and do plan to provide such services if needed.

- #5 (BATH/ADLER, 3/16 Testimony, PP. 27-28); The York County Emergency Plan is deficient because it lacks provisions for local, hospital and medical services for persons exposed to radiation.

York County updated plan now adequately provides in Annex J, provision for local, hospitals and medical services for persons exposed to radiation. As per the state plan and testimony of Mrs. Julia Cox of the State Department of Health, this list of hospitals was prepared by the State Department of Health for use and inclusion in the risk counties plans.

- #6 (BATH/ADLER, 3/16 Testimony, PP. 30-32); The York County Emergency Plan is deficient in its failure to list homebound and invalids and provide for their care in an emergency. (BATH/ADLER, 3/16 Testimony, PP. 44, 45, 53); There is no evidence that municipalities in York County upon whom responsibility is placed for evacuation of homebound and invalids, are capable of meeting their responsibilities.

In each of the six municipal plans; Dover Township, Goldsboro Borough, Lewisberry Borough, Manchester Township and North Haven Borough clear recognition of the responsibility of such homebound and invalids is shown. These plans either have the list of such person within the plan or direction as to where the list is maintained. At present eight other municipal plans are still being developed. It can, however, be shown by present planning that municipalities are knowledgeable of this requirement and are planning to discharge this responsibility in a reasonable manner. FEMA will continue to monitor

York County planning to insure that the plans of the other eight municipalities do cover this area as adequately as do the first six. Reasonable progress has been met and there is every reason to believe that the remaining municipalities will affect similar plans.

#7 (BATH/ADLER, 3/16 Testimony, PP. 34-35); The York County Emergency Plan fails to reference and provide for monitoring equipment relied upon for fire, mass care and decontamination operations.

York County updated Plans Appendix 6, Radiological Equipment Resource Inventory now provides what equipment is on hand and what equipment is needed. Subsequent to this inventory, York County has received and distributed according to county plans 90 CD700 and 90 self reading dosimeters. Although this reduces the county shortfall of dosimeter and eliminates its shortfall in detection equipment, it does not fully comply with standards until permanent record dosimetry and more self reading dosimeters are secured and likewise distributed.

#8 BATH/ADLER, 3/16 Testimony, PP. 34-35); The York County Emergency Plan should provide a system to utilize transportation resources in an evacuation.

Procedures to provide supplementary transportation of general population without a means of self transportation appears to be the only remaining area not fully covered by the updated York County plan. The York County Letter of Agreement with the York County Area Transportation Authority clearly states that the direction and coordination of these resources will come under the control of York County Commissioner through the designated Emergency Staff Transportation Coordinator. York County also maintains a Resource Manual

with telephone listings of many other transportation resources which it can call upon if necessary. It is reasoned that the bases for transportation coordination does exist in York County and that reasonable progress has been made towards preparation to affect such coordination in a fixed nuclear facility incident. However, to be fully adequate, York County should develop a meaningful plan related to the pick up points established by the municipalities' and demonstration how-where sufficient vehicles are to be applied. It is FEMA's opinion that York County can utilize its , its Resource Manual, supporting municipal plans and the PBQ and D Study to effectively evacuate persons without transportation even with the present transportation plan, Annex K. FEMA will continue to monitor York County's progress on this matter and provide assistance where possible.

#9 (BATH/ADLER, 3/16 Testimony, PP 56-57); York County Plans should be revised to include a listing of school evacuation plans and such evacuation plans and bus re-routing plans should be completed.

Although York County did not participate, the exercise demonstrated both the Department of Education and the individual risk counties have responsibility to insure designated schools are advised of the situation during an incident. York County has developed a county master plan to evacuate schools, predetermining their relocation to insure coordination, and provide evacuation routes. These plans have been coordinated with the school district supervisor and Letters of Agreement are in the York County Plan, Annex T. Reasonable progress has been demonstrated although individual school plans are still not available. York County has met with individual school principals to assist in the preparation of their plan. FEMA feels that the lack of individual school plans is an outstanding deficiency which should be corrected eventually.

#10 (BATH/ADLER, 3/16 Testimony, PP. 60); The Dauphin County Emergency Plan should assign the responsibility to the county transportation officer for notification and activation of planned transportation resources for Dauphin County.

Dauphin County Plan as updated reflect in Annex G, Transportation, under Responsibility "The county emergency management coordinator is responsible for providing for transportation support to persons in risk areas of Dauphin County in the event of an evacuation associated with an incident at TMI. A transportation coordinator with supporting staff has been appointed to develop and coordinate transportation procedures and requirements in the event of an evacuation."

This section of the plan clearly provides that the responsibility for this task has been assigned.

#11 (BATH/ADLER, 3/16 Testimony, PP. 57-58, 60); Dauphin County school evacuation planning should provide for early notification of bus drivers by school officials and should be revised with regard to bussing students during an alert.

Dauphin County plan, Annex L - Concept of Operations, has been revised to delete any suggestion that students will be returned to home during early stages of an incident. Present plans call for the relocation of students to pre-selected host area locations on routes with prescribed evacuation route to facilitate rejoining parents and students outside of the EPZ. The June 2 exercise demonstrated the rejection of early closure of schools to return students to homes. The Governor recommended just 20 minutes prior to evacuation of the general public, the closure of schools, relocating the students to host areas. Notification of bus drivers in Dauphin County was adequately demonstrated in the exercise. Alerting procedures were demonstrated in the other four risk counties participating in the June 2, 1981 exercise and found adequate.

#12 (BATH/ADLER, 3/16 Testimony, P. 49); All county emergency plans should provide for backup or substitute emergency management coordinators.

County level plans with municipal plans attached now provide sufficient alternate methods and persons to demonstrate that municipal contact and coordination is not dependent solely upon the local emergency management coordinator. In York County contact will be made through the local Fire personnel as well as the local EMA Coordinator. This is to be done by existing plectron encoder system.

#13 (JOINT CHESTNUT/BATH Testimony, P. 6); Adequate evacuation time estimates should be factored into the state and licensee emergency plans before restart.

PEMA has provided FEMA with a letter stating that it shall use the upper limits of the Parson Brinkerhoff Study for decision making using the evacuation time estimates.

The same letter provides that future adjustments to county evacuation plans can be expected to incorporate useful and helpful material of the Parsons Brinkerhoff study. It is recognized by FEMA that the present evacuation plans of PEMA and the five counties are implementable. The Parsons Brinkerhoff study provides information that alternate routing and some different traffic control points would improve the evacuation time. The State Police are in the process of developing a traffic control plan and access control plan (part of which was demonstrated adequately in the June 2 exercise) which will notify most of the major concerns of the Parsons, Brinkerhoff study.

#14 (BATH/ADLER, 3/16 Testimony, PP. 62-62); Unique groups within the plume EPZ requiring special provisions for protective actions (e.g., Old Order Amish) should be identified and special provisions for their protection made.

Notification of the Mennonite Disaster Service was accomplished by PEMA during the exercise. Although it was simulated, in an actual emergency a representative of this service would have responded to the state EOC. One role that the Disaster Service is prepared to perform is to alert the Old Order Amish in Lancaster County.

Another role the Mennonite Disaster Service has stated it shall provide is the evacuation and care of this special group of people within the services own auspices.

All other known special groups such as institutions, business, or residents groups are to be provided alerting by an outdoor warning system and NOAA Weather Radio followed by instructions on county EBS. Schools, hospitals and prisons have a redundancy in that special provisions for alternate means of warning are provided by county and State Department of Education planning and capability.

#15 (JOINT CHESTNUT/BATH Testimony, P. 16); Development of training programs for non-licensee personnel should be completed and initial training of such persons completed before restart.

The exercise served as a training tool to inform participants of new provisions and assignments in the updated plans. Attached is a list of preparatory events leading to the exercise. It shows that considerable training was accomplished. The exercise revealed that further training on plans would enhance operations.

It was recognized that the majority of state and county plans are developed upon the strength and abilities already existing within the government structures. The June 2 exercise demonstrated this.

Unique training such as personnel monitoring and dealing with consequences of a nuclear incident is now an ongoing process. Hersey Medical Center demonstrated its ability to handle contaminated individuals as Harrisburg Hospital

demonstrated the system by which hospitals prepare to evacuate.

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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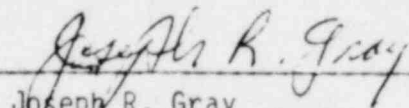
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