

FOR INFORMATION ONLY

AmerGen

TMI - Unit 1
Emergency Plan
Implementing Procedure

Number

EPIP-TMI-.29

Title

Revision No.

OSC Operations

18

Applicability/Scope

USAGE LEVEL

Effective Date

TMI Division

2

03/01/01

This document is within QA plan scope
Safety Reviews Required

<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No

List of Effective Pages

<u>Page</u>	<u>Revision</u>	<u>Page</u>	<u>Revision</u>	<u>Page</u>	<u>Revision</u>	<u>Page</u>	<u>Revision</u>
1	18	21	18				
2	18	22	18				
3	18	23	18				
4	18	24	18				
5	18	25	18				
6	18	26	18				
7	18	27	18				
8	18	28	18				
9	18	29	18				
10	18	30	18				
11	18						
12	18						
13	18						
14	18						
15	18						
16	18						
17	18						
18	18						
19	18						
20	18						

	Signature	Date
Procedure Owner	/s/ S. R. Finicle	02/07/01
Approver	/s/ N. Brown	02/07/01

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-.29
Title OSC Operations		Revision No. 18

1.0 **PURPOSE**

The purpose of this procedure is to provide guidance for activation and operation of the Operations Support Center (OSC). Guidance is also provided for Search and Rescue Operations, Emergency Repair/Operations and In-Plant Radiological Controls.

2.0 **APPLICABILITY/SCOPE**

- This procedure is applicable to all Operations Support Center personnel.
- The OSC is activated during an Alert, Site Area, or General Emergency or when directed by the Emergency Director.

3.0 **DEFINITIONS**

IRESO - Initial Response Emergency Organization

4.0 **RESPONSIBILITIES**

- The Operations Support Center Coordinator (OSCC) is responsible for coordinating OSC activities.
- The security representative is responsible, except during security related emergencies, for coordinating Protected Area Access Control and for coordinating the location and movement of security personnel with the OSCC and the Radiological Controls personnel in the OSC.
- The Radiological Assessment Coordinator (RAC) is responsible for in-plant Radiological Controls coverage, habitability surveys of the OSC, and Radiological Controls support for the site evacuation until the Rad Con Coordinator (RCC) position is filled. Thereafter, the RCC is responsible for these actions.
- The Chemistry Coordinator is responsible for coordinating all chemistry samples and analyses.
- The Emergency Maintenance Coordinator (EMC) is responsible for carrying out emergency maintenance, repair, damage control, and corrective actions as deemed necessary by the OSC Coordinator.

5.0 **PROCEDURE**

- 5.1 The OSC Coordinator (Maintenance Team Leader/IRESO OSC Coordinator) will perform the applicable steps of Exhibit 1.
- 5.2 A Rad Con Technician/IRESO Rad Con Coordinator will perform the applicable steps of Exhibit 2.

NOTE

The Radiological Controls Coordinator (RCC) and Emergency Maintenance Coordinator (EMC) are not on-shift emergency organization positions.

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-29
Title OSC Operations		Revision No. 18

5.3 The Senior Chem Tech/Chemistry Coordinator will perform the applicable steps of Exhibit 3.

5.4 The Emergency Maintenance Coordinator will perform the applicable steps of Exhibit 4.

6.0 **REFERENCES**

- TMI Emergency Plan
- TMI Emergency Plan Implementing Procedure EPIP-TMI-.05, Communications and Record Keeping
- TMI Emergency Plan Implementing Procedure EPIP-TMI-.16, Contaminated Injuries
- TMI-1 Security Procedure TSEC-IMP-1530.01, Personnel Accountability During Site Area/General Emergencies

7.0 **EXHIBITS**

- Exhibit 1 - OSC Coordinator Checklist
- Exhibit 2 - In-Plant Rad Controls Checklist
- Exhibit 3 - Chemistry Coordinator Checklist
- Exhibit 4 - Emergency Maintenance Coordinator Checklist
- Exhibit 5 - Emergency Team Dispatch Checklist
- Exhibit 6 - Search and Rescue Checklist
- Exhibit 7 - Dose Limits for Emergency Personnel
- Exhibit 8 - Heat Stress Control
- Exhibit 9 - Protected Area Accountability
- Exhibit 10 - OSC Intercom System Operation
- Exhibit 11 - OSC Emergency Team Status Form
- Exhibit 12 - OSC Personnel Roster
- Exhibit 13 - OSC Utilization

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-.29
Title OSC Operations	Revision No. 18	

EXHIBIT 1

Page 1 of 4

OSC Coordinator Checklist

- 1.0 Activate the OSC and coordinate the in-plant support of emergency operations by completing the following steps (initial the space provided for actions taken):

NOTE

Steps not currently applicable or not required should be left blank in case those steps become applicable as the emergency evolves.

NOTE

The following steps are provided in an order likely to result in the most efficient response. However, due to the dynamic and unpredictable nature of emergencies associated with a nuclear power facility, the order of performing the steps may be modified to cope with existing conditions. Modifying the specific order of performance of these steps will have no adverse consequences.

INITIALS

- ___ 1.1 Print your name on the OSC status board under the OSC Coordinator position.
- ___ 1.2 Pin on the position tag for the OSC Coordinator.
- ___ 1.3 Announce to the personnel in the OSC that you are assuming the duties of the OSC Coordinator.
- ___ 1.4 Establish a roster of OSC personnel using Exhibit 12.
- ___ 1.5 Distribute the appropriate checklist to the lead OSC staff members.
 - ___ a. Exhibit 2 to the Rad Con Coordinator if available, or to a Rad Con Technician if available.
 - ___ b. Exhibit 3 to the Chemistry Coordinator (Chemistry Technician or duty roster Chemistry Coordinator).
 - ___ c. Exhibit 4 to the Emergency Maintenance Coordinator (Maintenance Team Leader or duty roster Emergency Maintenance Coordinator).
- ___ 1.6 Begin tracking emergency teams/individuals as they are dispatched from the OSC. Use the Emergency Team Status Form (Exhibit 11). When the duty roster OSC Coordinator Assistant arrives, assign team tracking to him/her and using Exhibit 11 and the Team Tracking Status Board.
- ___ 1.7 Contact the Operations Coordinator in the Control Room and request that he/she direct all Auxiliary Operators to report their location to you by radio or page phone. Also request that the Control Room coordinate the movement of Auxiliary Operators in the plant through the OSC.
- ___ 1.8 Assign a person to man the Operations Line and start a log.

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-.29
Title OSC Operations		Revision No. 18

EXHIBIT 1

Page 2 of 4

- _____ 1.9 Determine the in-plant priorities from the Emergency Director and assign available personnel to address these priorities. List the priorities on the status board.
 - _____ 1.10 Consider the need to call out additional personnel.
 - _____ 1.11 Set up the ED intercom as follows:
 - a. Energize the amplifier by sliding the power switch to the "ON" position and verifying that the red power L.E.D. is lit.
 - b. Adjust the "Volume" knob to at least half way (i.e., 12 o'clock).
 - _____ 1.12 If relieved by an OSC Coordinator, provide a briefing on the current plant status and turn the duties over to him/her.
 - _____ 1.13 If anyone reporting for duty is suspected of NOT being Fit For Duty, (as reported by the individual or by others) contact Security to perform Fitness For Duty testing.
 - _____ 1.14 When the OSC is fully staffed with personnel from the duty roster, notify the Emergency Director Assistant in the Control Room (extension 8070, [2070 during drills]). Provide the names of the personnel in each position to the Emergency Director Assistant.
 - _____ 1.15 Establish an OSC Watch Bill if operations have the potential to exceed twelve hours. Refer to Communications and Record Keeping Procedure EPIP-TMI-.05 for guidance.
 - _____ 1.16 If Protected Area Accountability is required (i.e., at the Site Area Emergency or General Emergency declaration or earlier if ordered by the Emergency Director), refer to Exhibit 10 for instructions.
- 2.0 The following is a list of additional duties that the OSC Coordinator should oversee. They are not necessarily listed in the order they are to be performed or in order of priority. The OSC Coordinator must periodically review the list to ensure that they are adequately covered.
- Pursue the following activities as directed by the Emergency Director:
 - a. Emergency Team Dispatch Checklist (see Exhibit 5)
 - b. Search and Rescue (see Exhibit 6)

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-.29
Title OSC Operations		Revision No. 18

EXHIBIT 1

Page 3 of 4

NOTE

If keys are needed to perform any repair/operation, they can be obtained from the key locker at the remote shutdown (RSD) control panel area located on the second floor of the control tower on the south wall of the backup Tech Support Center.

- Coordinate in-plant repairs with the Tech Support Center, if the facility is operational.
- If personnel are injured and/or contaminated, inform the Emergency Director and ensure that medically trained and/or Rad Controls personnel are responding.
- Utilize the OSC Security Representative to coordinate access control to the Protected Area and to coordinate the movements of Site Protection personnel in the plant.

NOTE

For security events, the Security Representative will not report to the OSC. In such events, coordinate with security in the CAS at ext. 8039.

- Retransmit Emergency Director Briefings using the OSC Intercom to allow all OSC personnel to be updated simultaneously. If OSC Coordinator briefings to key OSC staff members contain significant additional information or information relevant to the standby personnel, use the OSC Intercom to transmit that information. (Instructions for the OSC Intercom are found in Exhibit 10).
- If problems are encountered with the telephone system, request resolution from the ECC Communications Coordinator.
- Ensure that the Radiological Controls personnel:
 - a. Monitor habitability in the OSC.
 - b. Consider the need for frisking stations at OSC entrances.
- If evacuation of the OSC becomes necessary:
 - a. Contact teams in the plant and advise them of the OSC evacuation and the backup location.
 - b. Gather the OSC logs, procedures, radios, emergency telephones with cords, headsets, rad instruments and emergency locker equipment for transfer to the backup location.
 - c. Relocate to the backup OSC on the 355' elev. of the Control Building.
 - d. Set up the OSC in the available space. Connect the telephones to the labeled wall jacks and establish communications.

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-.29
Title OSC Operations		Revision No. 18

EXHIBIT 1

Page 4 of 4

- e. Fill in the current information on the status boards.
 - f. Establish a frisking station at the backup OSC entrance.
- 3.0 Upon close-out of the emergency and direction from the Emergency Director to deactivate the facility, perform the following:
- a. Gather all logs, records and any procedures which were utilized during the emergency and turn them over to a member of the Emergency Preparedness Department.
 - b. Ensure that the facility is returned to its pre-emergency condition if possible and emergency equipment is re-stocked in the emergency lockers.

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-.29
Title OSC Operations	Revision No. 18	

EXHIBIT 2

Page 1 of 4

In-Plant Rad Controls Checklist

INITIALS

1.0 Perform the in-plant radiological controls function by completing the following steps (initial the space provided for action taken):

NOTE

Steps not currently applicable or not required should be left blank in case those steps become applicable as the emergency evolves.

NOTE

The following steps are provided in an order likely to result in the most efficient response. However, due to the dynamic and unpredictable nature of emergencies associated with a nuclear power facility, the order of performing the steps may be modified to cope with existing conditions. Modifying the specific order of performance of these steps will have no adverse consequences.

- ___ 1.1 Assess in-plant radiological conditions based on available information such as RMS readings, in-plant surveys, samples, etc. Keep the OSC Coordinator (OSCC) and RAC (if applicable) informed of the conditions.
- ___ 1.2 Dispatch field monitoring teams as directed by the RAC. Request drivers for the teams from the OSC but do not delay teams while waiting for drivers to be assigned. Ensure vehicles are available and ensure that current dose information is verified for techs and drivers.
- ___ 1.3 Implement habitability monitoring in the OSC.
- ___ 1.4 If the backup TSC is in use, implement habitability monitoring in the backup TSC.

NOTE

The following steps (1.5 through 1.7) are to be implemented by the Initial Response Emergency Organization Rad Controls Coordinator upon assuming the duties.

- ___ 1.5 Print your name on the OSC status board under the Rad Con Coordinator (RCC) position.
- ___ 1.6 Pin on the position tag for Rad Con Coordinator.
- ___ 1.7 Activate the In-Plant Rad Con Line or the Radiological Line and establish contact with the Radiological Assessment Coordinator (RAC) and start a log. Assign a log keeper/phone talker if someone is available.

(See EPIP-TMI-.05, Communications and Record Keeping for guidance.)

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-.29
.tle		Revision No. 18
OSC Operations		

EXHIBIT 2

Page 2 of 4

- 2.0 The following is a list of in-plant rad controls duties. They are not necessarily listed in the order they are to be performed or in order of priority. This list must be reviewed periodically to ensure that the functions are adequately covered.
- Provide radiological support for Emergency Repair, Search and Rescue, Fire Brigade, etc. as requested by the OSCC or Emergency Maintenance Coordinator (EMC).
 - Ensure radiological briefings are provided for in-plant teams.
 - Call out additional Rad Con Techs as needed.
 - Personnel Radiation Exposure Monitoring:
 - a. Ensure proper dosimetry is issued as needed. Track accumulated doses for personnel required to enter areas of high radiation dose rates. Utilize the computerized dose tracking system or manual backup to document doses and stay times.
 - b. For those situations where the computerized dose tracking system is not sufficiently updated to support processing of NRC personnel into RWP areas, the following guidelines should be used to support such entries as requested by NRC personnel:
 - > Confirm the individual has either a TMI or NRC Whole Body TLD. Baseline bioassay is not required.
 - > Discuss the radiological conditions likely to be encountered and the protective equipment/methods required to be used as specified on the RWP. If the individual does not feel sufficiently trained to enter the area due to his/her past training/experience, provide an escort. NRC personnel will make the determination relative to their qualifications to use respiratory protection equipment, if required.
 - > Obtain a verbal annual dose bank estimate from the individual and ensure that the bank is sufficient to support the proposed entry.
 - > Manually collect the RWP entry/exit data such that the information can be input into the computerized dose tracking system at a later date.
 - Coordinate Rad Con Tech actions in obtaining in-plant surveys/samples to support assessment of plant conditions and emergency response.
 - a. **Radiation Surveys:**

When high dose-rate conditions exist, Radiological Controls personnel should not be used for the sole purpose of performing dose-rate surveys. Other duties (for which he/she is qualified and has been briefed) may be performed while radiation levels are determined with all information documented for use by others requiring access.

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-.29
Title OSC Operations		Revision No. 18

EXHIBIT 2

Page 3 of 4

b. Airborne Surveys:

- > When emergency access is required to areas where known or suspected airborne radioactivity exists, the need for respiratory protection shall be evaluated.
 - > Life saving activities may take precedence.
 - > Air samples should be taken unless authorized otherwise by the RAC.
 - > Where practical, in order to minimize exposure, air samples should be obtained by personnel making entries for other purposes.
 - > Whole Body Counts of personnel should be used to evaluate the effectiveness of the respiratory protection program, and the need for additional concern for personnel who have made entries.
 - > Unless continuous air monitoring is available, air samples should be used as guidance in determining respiratory requirements during emergency conditions.
- If in-plant conditions warrant, set up friskers and step-off pads at the entrance(s) to the OSC.
 - Ensure that areas which are radiologically affected by the emergency are properly controlled (e.g., Turbine Bldg. postings for a primary to secondary leak).
 - Ensure that inadvertent entry into areas of high dose rate does not occur by implementation of one or more of the following controls.
 - a. Request the Ops. Support Center Coordinator to have the Control Room make an announcement over the public address system identifying the locations of those areas that are off limits due to radiological hazards.
 - b. Lock doors at all possible entry points.
 - c. Post signs at all possible entry points.
 - d. Post personnel in low background areas at all possible entry points that cannot be secured by other means.
 - e. Personnel access should be restricted and logged appropriately.
 - If site evacuation of non-essential personnel is required, provide Rad Con support by completing Exhibit 2 of EPIP-TMI-.36, Emergency Assembly and Site Evacuation.
 - Periodically provide updated status to the following positions , as applicable: RAC, OSCC, and Rad Con Techs.

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-.29
OSC Operations		Revision No. 18

EXHIBIT 2

Page 4 of 4

- If an RCS Post Accident Sample has been requested, coordinate Rad Controls support with the Chemistry Coordinator.
- Consider evacuation of the OSC if actual or projected dose exceeds 1 REM Total Whole Body Dose (TEDE). Consult with the RAC and OSCC regarding this determination. If evacuation is necessary:
 - a. Contact Rad Con Techs in the plant and advise them that the OSC is being evacuated to the backup location in the Group Operations Supervisor Office.
 - b. Gather the logs, procedures, radios, telephones with cords, headsets, rad instruments, portable counting equipment, emergency locker equipment and locked high rad keys/inventory sheets for transfer to the backup OSC.
 - c. Minimize personnel doses and the spread of contamination during the evacuation.
 - d. Establish access control, habitability monitoring, communications, etc. at the backup OSC.
- When needed, access the Reuter-Stokes data via the Emergency Information Network (i.e., RAC Code).
- As soon as necessary, the Radiological Controls Coordinator should assign an individual(s) to maintain radiological controls supplies and equipment. Segregation of contaminated materials for eventual decontamination or discarding should occur.
- Assign a specific individual to ensure contaminated personnel are properly evaluated and decontaminated. Control Point personnel must be aware of the location of decontamination facilities, and ensure contaminated personnel are directed to the facility.
- If requested by the RAC, administer stable iodine (KI) in accordance with EPIP-TMI-.44.
- Upon close-out of the emergency and direction from the OSCC to deactivate the facility, perform the following:
 - a. Gather all logs, records, surveys, sample results and any procedures which were utilized during the emergency and turn them over to the Radiological Controls Field Operations Manager.
 - b. Ensure that the facility is returned to its pre-emergency condition if possible and emergency equipment is re-stocked in the emergency lockers.
 - c. An inventory of the OSC facility is required to be performed by the end of the working day following the end of the event/drill. The inventory is the responsibility of Rad Con Field Ops. Notify the Manager of Rad Con Field Ops of the need to perform the inventory in accordance with procedure TEP-ADM-1300.01, Maintaining Emergency Preparedness.

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-.29
title	OSC Operations	Revision No. 18

EXHIBIT 3

Page 1 of 1

Chemistry Coordinator Checklist

- 1.0 Assist in the activation of the OSC and provide chemistry support by completing the following steps (initial the space provided for actions taken):

NOTE

Steps not currently applicable or not required should be left blank in case those steps become applicable as the emergency evolves.

NOTE

The following steps are provided in an order likely to result in the most efficient response. However, due to the dynamic and unpredictable nature of emergencies associated with a nuclear power facility, the order of performing the steps may be modified to cope with existing conditions. Modifying the specific order of performance of these steps will have no adverse consequences.

INITIALS

- ___ 1.1 Print your name on the OSC status board under the Chemistry Coordinator position.
 - ___ 1.2 Pin on the position tag for Chemistry Coordinator.
 - ___ 1.3 Establish a Chemistry Coordinator log.

(See EPIP-TMI-.05, Communications and Record Keeping for guidance).
 - ___ 1.4 Assess the current status of plant chemistry control and brief the OSC Coordinator (OSCC).
 - ___ 1.5 Brief on-shift Chemistry Techs on the current status and advise them to be aware of possible elevated activity in any plant samples.
 - ___ 1.6 Consider the need to call out additional chemistry assistance (e.g., duty chemist, etc.).
- 2.0 The following is a list of the duties of the Chemistry Coordinator. They are not necessarily listed in the order they are to be performed or in order of priority. The Chemistry Coordinator must periodically review the list to ensure that they are adequately covered.
- Coordinate all plant chemistry sample taking and analysis. Prioritize samples in cooperation with the RAC and the OSCC.
 - Coordinate RCS PAS, MAP-5, and/or CAT PASS sampling and analysis as directed. Coordinate with the Rad Assessment Coordinator (RAC)/Rad Con Coordinator (RCC) for radiological coverage of these samples.
 - Provide sample results to both the OSCC and the Radiological Assessment Coordinator (RAC).

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-.29
.tle OSC Operations		Revision No. 18

EXHIBIT 4

Page 1 of 2

Emergency Maintenance Coordinator Checklist

- 1.0 Assist in the activation of the OSC and provide support in emergency maintenance, repairs, damage control, search and rescue, and corrective actions by completing the following steps (initial the space provided for actions taken):

NOTE

Steps not currently applicable or not required should be left blank in case those steps become applicable as the emergency evolves.

NOTE

The following steps are provided in an order likely to result in the most efficient response. However, due to the dynamic and unpredictable nature of emergencies associated with a nuclear power facility, the order of performing the steps may be modified to cope with existing conditions. Modifying the specific order of performance of these steps will have no adverse consequences.

INITIALS

- _____ 1.1 Print your name on the OSC status board under the Emergency Maintenance Coordinator (EMC) position.
- _____ 1.2 Pin on the position tag for Emergency Maintenance Coordinator.
- _____ 1.3 Establish an Emergency Maintenance Coordinator Log.
(See EPIP-TMI-.05, Communications and Record Keeping for guidance).
- _____ 1.4 Determine from the OSC Coordinator (OSCC) the priorities for in-plant repairs, damage control, etc.
- _____ 1.5 Establish a standby area for Operations and Maintenance personnel awaiting assignment.

2.0 The following is a list of the duties of the Emergency Maintenance Coordinator. They are not necessarily listed in the order they are to be performed or in order of priority. The Emergency Maintenance Coordinator must periodically review the list to ensure that they are adequately covered.

- Consider establishing a "Ready Team" for immediate response into the plant. The team should be briefed on known plant conditions and hazards and should be prepared to respond in full PC's and SCBA.
- If Search and Rescue is needed, refer to Exhibit 6 for instructions. Exhibit 5 is for briefing and debriefing the team.
- If Emergency Repair/Operations is needed, refer to Exhibit 5 for instructions. Provide technical briefings, as needed, to teams.

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-29
OSC Operations		Revision No. 18

EXHIBIT 4

Page 2 of 2

- Coordinate with the Radiological Controls Coordinator (RCC)/RAC to ensure in-plant teams are provided radiological briefings prior to dispatch, if needed.
 - Keep the OSCC informed of the status of in-plant emergency teams, their work progress and findings.
- 3.0 Upon close-out of the emergency and direction from the OSCC to deactivate the facility, perform the following:
- a. Gather all logs, records, and any procedures which were utilized during the emergency and turn them over to the OSCC.
 - b. Ensure that the facility is returned to its pre-emergency condition if possible.

EXHIBIT 5

Emergency Team Dispatch Checklist

NOTE

Make copies of this exhibit before initial use to ensure sheets are available for subsequent team briefings.

NOTE

This exhibit should be used for trouble shooting, repairs, operations, or damage control. For search and rescue assignments, utilize Exhibit 6.

NOTE

Initial the steps as covered. Steps not applicable or not required should be left blank in case those steps become applicable as the emergency evolves.

1.0 Assemble the team using the appropriate available disciplines.

Team Member Name	Badge Number	Authorized Dose		Team Member Signature
		Total Whole Body Dose (TEDE)	Thyroid Dose (CEDE)	

2.0 Request engineering support if appropriate.

3.0 Appoint a team leader.

4.0 Establish communications requirements.

- a. Specify communications equipment to be used by the team.
- b. Specify frequency of, or interval between status reports.
- c. Test portable communications equipment before dispatch.

EXHIBIT 5

5.0 Provide a technical briefing. The following points should be covered as a minimum.

- a. Problem and equipment involved/affected.
- b. Task/Objective of the team (troubleshoot, repair, operate, etc.).
- c. Location of the equipment.
 - 1) Best access route.
 - 2) Alternate evacuation routes.
- d. Equipment
 - 1) Tools, test equipment, parts as appropriate.
 - 2) Prints, drawings, technical manuals as appropriate.
 - 3) Keys (available from Control Room or Remote Shutdown Control Panel).
 - 4) Supplemental lighting.
- e. Safety Considerations
 - 1) Area hazards
 - 2) Cautions
 - 3) Protective equipment
 - 4) Heat stress considerations (refer to Exhibit 8). Prehydrate the team.

6.0 Provide a radiological briefing. The following points should be covered as a minimum.

- a. Dose limits (refer to Exhibit 7).
 - 1) Record dose limits in the Table under Step 1.0.

NOTE

Doses in excess of 10 CFR 20.1201 limits require volunteers, preferably over 45 years of age. Declared or potentially pregnant workers should not be used.

EXHIBIT 5

- 2) Record name of Emergency Director authorizing dose extension (if applicable) and the Radiological Assessment Coordinator.

Emergency Director _____

Radiological Assessment Coordinator _____

- _____ 3) Ensure team members understand their dose limits.

- b. Radiological conditions

- _____ 1) Along access route

- _____ 2) At job site

- _____ c. Appropriate dosimetry and monitoring instruments.

- _____ d. Protective clothing (includes respiratory protection).

- _____ 7.0 Confirm the team understands the assignment.

- _____ 8.0 Dispatch the team and inform the ECC.

- 9.0 Team Debriefing

- _____ a. Obtain a task status

- 1) Success or failure of the mission.

- 2) "As Left" condition of the equipment.

- _____ b. Notify the ECC of the status before continuing.

- c. Obtain the following information from the team.

- _____ 1) Health of the team members

- _____ 2) Doses/contamination received by the team members.

TMI - Unit 1
Emergency Plan
Implementing Procedure

Number

EPIP-TMI-.29

de

Revision No.

OSC Operations

18

EXHIBIT 5

Page 4 of 4

Team Member Name	Dose	Contamination (Yes/No)	Comments

- _____ 3) Conditions en route to, and at the work site.
- _____ 4) Difficulties encountered with the task.
- _____ 5) Suggestions
- _____ 10. Stage deactivated team members for reassignment if appropriate.

EXHIBIT 6

Search and Rescue Checklist

NOTE

Make copies of this exhibit before initial use to ensure sheets are available for subsequent search and rescue team briefings.

NOTE

Initial the steps as covered. Steps not applicable or not required should be left blank in case those steps become applicable as the emergency evolves.

- 1.0 Assign personnel to continuously attempt to establish contact with the missing individual(s) using plant page or radio.
- 2.0 Assemble the team using the appropriate available disciplines. If available, at least one member should be trained in first aid procedures.

Team Member Name	Badge Number	Authorized Dose		Team Member Signature
		Total Whole Body Dose (TEDE)	Thyroid Dose (CEDE)	

- 3.0 Appoint a team leader.
- 4.0 Establish communications requirements.
 - a. Specify communications equipment to be used by the team.
 - b. Specify frequency of, or interval between status reports.
 - c. Test portable communications equipment before dispatch.
- 5.0 Provide search subject information. If known, the following points should be covered as a minimum.
 - a. Person or persons missing by name, badge number, company, and department.

TMI - Unit 1
Emergency Plan
Implementing Procedure

Number

EPIP-TMI-.29

Revision No.

OSC Operations

18

EXHIBIT 6

Page 2 of 4

- b. Description of individual(s) if unknown by search team.
 - c. Last known location/task.
- 6.0 Search Area
- a. Building/area to be searched.
 - b. Sector assignments
 - c. Search pattern
- 7.0 Conditions if known
- a. Environmental (heat, cold, steam, normal, etc.).
 - b. Heat stress considerations (refer to Exhibit 8). Prehydrate the team.
- 8.0 Equipment
- a. Safety items
 - b. Supplemental lighting
 - c. First aid equipment
 - d. Equipment
- 9.0 Provide a radiological briefing. If applicable to conditions, the following points should be covered as a minimum.
- a. Dose limits (refer to Exhibit 7).
 - 1) Record dose limits in the table under Step 1.0.

NOTE

Doses in excess of 10 CFR 20.1201 limits require volunteers, preferably over 45 years of age. Declared or potentially pregnant workers should not be used.

TMI - Unit 1
Emergency Plan
Implementing Procedure

Number

EPIP-TMI-.29

title

Revision No.

OSC Operations

18

EXHIBIT 6

Page 3 of 4

- 2) Record name of Emergency Director authorizing dose extension (if applicable) and the Radiological Assessment Coordinator.

Emergency Director _____

Radiological Assessment Coordinator _____

- 3) Ensure team members understand their dose limits.

b. Radiological conditions

- 1) Along access route

- 2) At job site

c. Appropriate dosimetry and monitoring instruments.

d. Protective clothing (includes respiratory protection).

10.0 Confirm the team understands the assignment.

1.0 Dispatch the team and inform the ECC.

12.0 Request/obtain additional resources as necessary to support the search and rescue team.

13.0 Team Debriefing

a. Obtain a task status (success or failure of the mission.

b. Notify the ECC of the status before continuing.

c. Obtain the following information from the team.

- 1) Health of the team members

- 2) Doses/contamination received by the team members.

TMI - Unit 1
Emergency Plan
Implementing Procedure

Number

EPIP-TMI-.29

le

Revision No.

OSC Operations

18

EXHIBIT 6

Page 4 of 4

Team Member Name	Dose	Contamination (Yes/No)	Comments

- 3) Conditions/status of the missing/found individual(s).
- 4) Conditions en route to, and at the search area site.
- 5) Difficulties encountered with the task
- 6) Suggestions

14.0 Stage deactivated team members for reassignment if appropriate.

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-.29
OSC Operations		Revision No. 18

EXHIBIT 7

Page 1 of 1

Dose Limits For Emergency Personnel

Emergency measures may warrant the acceptance of greater than normal radiation exposure (doses). Lifesaving, measures to prevent substantial radiation exposure to the population or preservation of vital equipment may be sufficient cause for greater than normal exposures. The following are the exposure guidelines for these emergency activities:

- Life Saving Action - No Pre-established Limit**
- Corrective Action - 10 REM Total Whole Body Dose (TEDE)
30 REM to the lenses of the eyes
100 REM total organ dose (CDE) to any organ**

The Emergency Director is the designated individual who can authorize emergency workers to receive doses as defined in excess of the 10CFR20 limits. These emergency workers **must** be volunteers and will be required to closely adhere to the guidance and instruction provided during their briefing.

Emergency personnel should consider the risks involved in accepting the dose verses the benefits of the emergency action prior to volunteering to receive such dose. The table below is provided to assist potential volunteers in deciding whether to volunteer.

HEALTH EFFECTS FROM ACUTE WHOLE BODY DOSES:
(From Rad Health Handbook)

<25 RAD	No observable effects
25-100 RAD	Range from no symptoms to nausea. Changes in white blood cells are anticipated so the individual is more susceptible to diseases.
110 RAD	10% chance of being lethal with no medical intervention.*
340 RAD	50% chance of being lethal with no medical intervention.*
585 RAD	90% chance of being lethal with no medical intervention.*

*Note that medical intervention will approximately double the chance of survival.

NOTES

- In addition to the acute health effects, the worker may have an increased long-term risk of fatal cancer. This risk is roughly estimated to be about 2% per 25 REM of exposure (based on a risk factor of 8E-4 per REM from Table 4.3, BEIR V). By comparison, natural cancer mortality is about 20%.
- For the purpose of estimating doses for use with the table on health effects (above) use the following relationships:

 1 RAD is approximately equal to 1 REM for GAMMA
 1 RAD is approximately equal to 10 REM for NEUTRON

EXHIBIT 8

**Heat Stress Control
Recommended Work Time Limits (Action Times) Using Dry Bulb Temperature**

DRY BULB TEMPERATURE RANGE (°F)	LIGHT WORK				MODERATE WORK				HEAVY WORK			
	WORK CLOTHES	SINGLE PC'S	DOUBLE PC'S (min.)	WET SUIT (min.)	WORK CLOTHES	SINGLE PC'S (min.)	DOUBLE PC'S (min.)	WET SUIT (min.)	WORK CLOTHES	SINGLE PC'S (min.)	DOUBLE PC'S (min.)	WET SUIT (min.)
65	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT
70	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	NO LIMIT	180
75	NO LIMIT	NO LIMIT	NO LIMIT	240	NO LIMIT	NO LIMIT	NO LIMIT	180	NO LIMIT	NO LIMIT	240	140
80	NO LIMIT	NO LIMIT	240	200	NO LIMIT	NO LIMIT	240	150	NO LIMIT	240	180	80
85	NO LIMIT	NO LIMIT	210	175	NO LIMIT	240	170	70	240	165	90	45
90	NO LIMIT	240	180	120	240	130	80	40	180	65	50	25
95	240	170	135	70	150	65	45	30	80	35	30	20
100	195	110	75	45	70	40	35	25	45	25	20	15
105	120	65	50	30	40	30	25	20	30	20	15	15
110	70	40	30	20	30	20	15	15	25	15	15	*
115	45	25	20	15	25	15	15	*	20	15	*	*
120	30	20	15	*	20	15	*	*	15	*	*	*
125	20	15	*	*	15	*	*	*	*	*	*	*
130	15	*	*	*	*	*	*	*	*	*	*	*
135	*	*	*	*	*	*	*	*	*	*	*	*
140	*	*	*	*	*	*	*	*	*	*	*	*

*These conditions present a high heat stress environment. It is required that some combination of the following countermeasures be taken, depending upon the nature of the work:

- a. Monitoring of the worker's condition by the supervisor or designee
- b. Use of personal cooling devices
- c. Stressing self-determination
- d. Drinking plenty of water prior to entering this environment
- e. Acclimating of the worker to these conditions

Guidelines for Using Personal Cooling Devices

- a. Ice Vests can double action time if properly worn. When the ice has melted the individual must leave the area and remove the ice vest.
- b. Circulating ice water garments can increase the action time by a factor of 4 or more, provided that the ice container is changed as needed; i.e., when the water temperature increases to the point that it is not providing sufficient cooling.
- c. Circulating air garments (e.g., supplied air hood/helmet and vortex tube suit) can also increase the action time by a factor of 4 or more, depending upon the temperature of the air supplied to the garment.

NOTE

These are only guidelines and do not reflect the differences in heat tolerance among the workers. Therefore, the ability of the worker to recognize the onset of symptoms of heat related illness must be stressed.

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-.29
OSC Operations		Revision No. 18

EXHIBIT 9

Page 1 of 2

Protected Area Accountability

Perform the following steps when Protected Area Accountability is required (i.e., at the declaration of a Site Area or General Emergency or when ordered by the Emergency Director).

NOTE

Steps not currently applicable or not required should be left blank in case those steps become applicable as the emergency evolves.

NOTE

The following steps are provided in an order likely to result in the most efficient response. However, due to the dynamic and unpredictable nature of emergencies associated with a nuclear power facility, the order of performing the steps may be modified to cope with existing conditions. Modifying the specific order of performance of these steps will have no adverse consequences.

INITIALS

- ___ A. Announce to all OSC personnel that Protected Area Accountability has been ordered.
- ___ B. Instruct the coordinators in the OSC to have their personnel process through the accountability key-card reader on the West wall near door #41. Assign someone to assist with this process, if needed (the OSC Security Representative may be available to provide assistance). **DO NOT** use the normal door #41 key-card reader for accountability processing.
- ___ C. The green light on the accountability key-card reader should flash after each card is read. This indicates that the person has been accounted for by the system. The right hand red light indicates a problem. Notify Site Protection of any badges which cause the red light to flash.
- ___ D. Contact all emergency teams and other personnel in the plant and obtain their key-card numbers (the key-card number is the hand-written number in on the reverse side of the key-card). It is important to obtain **KEY-CARD NUMBER** and **NOT SECURITY BADGE NUMBER**.
- ___ E. Enter the key-card numbers for personnel in the plant using the key-pad on the accountability key-card reader as follows:
 - 1 Press the "*" button.
 - 2 Enter the key-card digits in order.
 - 3 Then press the "*" button and pause for the green light to flash before entering the next key-card number.

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-.29
OSC Operations		Revision No. 18

EXHIBIT 9

Page 2 of 2

- _____ F. When all OSC personnel and emergency team personnel in the Protected Area have been processed through the accountability key-card reader, inform the Security Representative in the OSC or call the Site Protection Officer in the CAS at ext. 8039.
- _____ G. Site Protection will produce a report of any personnel in the Protected Area who did not respond to accountability. This report may be faxed to the OSC. Assist Site Protection in determining the whereabouts and status of these persons. Implement Search and Rescue per Exhibit 6, Search and Rescue Instructions, if needed.

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-.29
Title OSC Operations		Revision No. 18

EXHIBIT 10

Page 1 of 1

OSC Intercom System Operation

1.0 Pre-operational checks

- a. Verify that the power supply (gray box in the Ops/Maintenance muster area) is plugged into the nearby outlet.
- b. Verify that the 'Transmit Volume' control is at maximum. To do this, rotate the knob away from you while you are facing the unit.

2.0 Transmitting Plant Status Updates

- a. Depress all station selector buttons except for the station you are at and any blank buttons.
- b. Depress the "Talk" button (or "Talk Lock" button for hands-free use).
 - To speak - Talk in a normal voice toward the unit at a distance of 12 to 18 inches, or
 - To retransmit the Emergency Director briefing as it is given - Hold the ED intercom speaker in close proximity to the unit.
- c. When finished, release the 'Talk' button or depress the 'Talk Lock' button again to release it, as appropriate.

3.0 Two Way Communications

- a. Depress the station selector button for the station you want to contact.
- b. Depress the 'Talk' button and speak in a normal voice at a distance of 12 to 18 inches. Be sure to identify your station to the station you are calling and instruct them to depress the button on their intercom corresponding to your station.
- c. Release the 'Talk' button when you are finished and wait for a reply.
- d. To answer a call, depress the appropriate station selector button and the 'Talk' button and speak in a normal voice at a distance of 12 to 18 inches.
- e. When the conversation is completed, release the 'Talk' button and the station selector button by depressing it a second time.

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-.29
OSC Operations	Revision No. 18	

EXHIBIT 13

Page 1 of 1

OSC Utilization

The Rad Con Chemistry lunch room is transformed into the Operations Support Center during an emergency or during drills and exercises. OSC staff members must assist in the transformation by clearing any routine paperwork and personal items so that the room needed to efficiently and effectively fulfill Operations Support Center emergency responsibilities is available. Courtesy and sensitivity to the people who use the room every day dictate that personal belongings and paperwork are carefully collected and stored to result in the least amount of disruption or inconvenience. The suggested use of the facility follows.

1. OSC Coordinator - The OSC Coordinator should use the north-west table in the center of the room. This provides a good working surface, access to the emergency telephones and intercom, and is centrally located. It provides accessibility to the OSC Coordinator Assistant and to the Security Representative in the hallway.
2. Rad Con Coordinator - The Rad Con Coordinator and a Rad Con communicator should be stationed in the north-east corner of the room. Space is available for this function and all of the relevant telephone and radio communications are located there.
3. Operations Line Communicator - The Operations Line Communicator should be stationed at the desk with the Operations Line telephone. This provides suitable space for log keeping and communicator activities.
4. Emergency Maintenance Coordinator - The Emergency Maintenance Coordinator should work at the south-east table in the center of the room. This provides suitable writing space and access to a plant page phone. Team briefings can be performed in this or any other suitable area.
5. Security Representative - The Security Representative should work in the hallway outside the OSC door. This is the location of a dedicated telephone jack and the accountability key card reader.
6. Chemistry Coordinator - The Chemistry Coordinator should operate from an available table in the room.
7. OSC Coordinator Assistant - The OSC Coordinator assistant should work in the hallway outside the OSC at the team tracking status board. In this location, the OSC Coordinator Assistant will be in the route of all personnel dispatched from the OSC allowing more positive team tracking.
8. Other Staff - Support staff members should work from an available table in the room.
9. Staging - Personnel awaiting assignment should be staged in the secondary chemistry laboratory.

FOR INFORMATION ONLY

AmerGen

TMI - Unit 1
Emergency Plan
Implementing Procedure

Number

EGIP-TMI-.44

Title

Thyroid Blocking

Revision No.

3

Applicability/Scope

All Personnel involved in Emergency or Recovery Related Activities at TMI

USAGE LEVEL

2

Effective Date

03/01/01

This document is within QA plan scope

<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No

No

Safety Reviews Required

No

List of Effective Pages

<u>Page</u>	<u>Revision</u>	<u>Page</u>	<u>Revision</u>	<u>Page</u>	<u>Revision</u>	<u>Page</u>	<u>Revision</u>
1	3						
2	3						
3	3						
4	3						
5	3						
6	3						
7	3						

Signature

Date

Procedure Owner

/s/ S. R. Finicle

02/07/01

Approver

/s/ N. Brown

02/07/01

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-.44
Title Thyroid Blocking	Revision No. 3	

1.0 **PURPOSE**

The purpose of this procedure is to provide guidance to site personnel for the administration of potassium iodide tablets as a thyroid blocking agent in the event of actual inhalation or ingestion by site personnel of large quantities of radioiodine.

2.0 **APPLICABILITY/SCOPE**

This procedure applies to all personnel involved in emergency or recovery related activities at TMI.

3.0 **DEFINITIONS**

a. Radioiodine - Any of the radioactive isotopes of iodine.

4.0 **RESPONSIBILITIES**

- a. Radiological Assessment Coordinator (RAC) is responsible for completing Exhibit 1.
- b. Radiological Controls Coordinator (RCC) is responsible for completing Exhibits 2 and 3.

5.0 **PROCEDURE**

5.1 Implementation Criteria

- a. This procedure is to be initiated by the RAC if he/she anticipates that person(s) will be exposed to quantities of radioiodide sufficient to cause a thyroid committed dose equivalent (CDE) of greater than or equal to (25 REM).

6.0 **REFERENCES**

- a. TMI Emergency Plan (AP 1092)

7.0 **EXHIBITS**

- 7.1 Exhibit 1 - Radiological Assessment Coordinator Checklist
- 7.2 Exhibit 2 - Radiological Controls Coordinator Checklist
- 7.3 Exhibit 3 - Thyroid Blocking Agent Administration Form
- 7.4 Exhibit 4 - Thyroid Blocking Agent Precautions

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EP-IP-TMI-44
Title Thyroid Blocking	Revision No. 3	

EXHIBIT 1

Page 1 of 1

Radiological Assessment Coordinator Checklist

Initials _____

- _____ 1.0 Determine if one or more individuals have received or are expected to receive an uptake of radioiodine resulting in a thyroid committed dose equivalent (CDE) of greater than or equal to (25 REM).

NOTE

The Thyroid Dose to an individual may be determined as follows:

- A. Using an air sample, the thyroid dose is calculated as 25 mrem per DAC-hr.
- B. Having the individual get a whole body count if the whole body counter is available. The whole body counter software will calculate the thyroid dose.
- C. In the case of field monitoring teams, a dose projection or field sample may be used.

NOTE

With the exception of field monitoring teams, potassium iodide is not to be used in lieu of proper respiratory protection (i.e., as a prophylactic). Potassium iodide is only to be used to block the thyroid gland shortly after accidental or unavoidable inhalation or ingestion of radioiodine.

- _____ 2.0 Have the exposed individual(s) and the Radiological Controls Coordinator assemble in the OSC to administer stable iodine, (KI).

NOTE

Field monitoring teams self-administer KI in the field and, therefore, need not assemble.

- _____ 3.0 Arrange for a bioassay to be performed on each exposed individual of concern after issuance or refusal of the thyroid blocking agent.

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-.44
Title Thyroid Blocking	Revision No. 3	

EXHIBIT 2

Page 1 of 1

Radiological Controls Coordinator Checklist

Initials

- 1.0 Upon assembling the exposed individual(s), direct the exposed individual(s) to read the thyroid blocking agent precaution leaflet (Exhibit 4) and sign the Thyroid Blocking Agent Administration Form (Exhibit 3). This signature verifies that the individual has read and understands the leaflet, understands that taking thyroid blocking agent is voluntary, and has no known allergy to Iodine. All exposed individuals will be offered thyroid blocking agent whether or not they refuse to sign Exhibit 3.

- 2.0 Issue one sealed container of thyroid blocking agent (14 tablets potassium iodide) to each individual and instruct them to follow the label instructions. Label instructions may be altered only by a qualified Physician.

NOTE

Thyroid blocking agent is stored in the Operations Support Center
Emergency Locker.

- 3.0 Verify by signature on Exhibit 3 that thyroid blocking agent was issued to the exposed individual or if he/she declined, note that on Exhibit 3 (if possible, record reason for declining on reverse side of form).

- 4.0 Forward all completed Administration Forms (Exhibit 3) to the Medical department for the persons medical file.

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EGIP-TMI-44
Title Thyroid Blocking	Revision No. 3	

EXHIBIT 3

Whole Body Count Scheduled at: _____ / _____
Time Date

Whole Body Count Completed at: _____ / _____ / _____
Time Date Signature of WB Count Tech

* If the exposed individual refuses to sign but desires to take the thyroid blocking agent, issue the thyroid blocking agent and note the refusal to sign in the signature block.

	TMI - Unit 1 Emergency Plan Implementing Procedure	Number EPIP-TMI-.44
Title Thyroid Blocking	Revision No. 3	

EXHIBIT 4

Page 1 of 1

THYROID BLOCKING AGENT PRECAUTIONS

HOW POTASSIUM IODIDE WORKS

Certain forms of iodine help your thyroid gland work right. Most people get the iodine they need from foods, like iodized salt or fish. The thyroid can "store" or hold only a certain amount of iodine.

In a radiation emergency, radioactive iodine may be released in the air. This material may be breathed or swallowed. It may enter the thyroid gland and damage it. The damage would probably not show itself for years. Children are most likely to have thyroid damage.

If you take potassium iodide, it will fill-up your thyroid gland with non-radioactive iodine. This reduces the chance that radioactive iodine will enter the thyroid gland.

WHO SHOULD NOT TAKE POTASSIUM IODIDE

The only people who should not take potassium iodide are people who know they are allergic to iodide. You may take potassium iodide even if you are taking medicines for a thyroid problem (for example, a thyroid hormone or anti-thyroid drug). Pregnant and nursing women and babies and children may also take this drug.

HOW AND WHEN TO TAKE POTASSIUM IODIDE

Potassium iodide should be taken as soon as possible after Radiological Controls personnel tell you. You should take one 130 mg dose every 24 hours. More will not help you because the thyroid can "hold" only limited amounts of iodine. Larger doses will increase the risk of side effects. You will probably be told not to take the drug for more than 10 days.

SIDE EFFECTS

Usually, side effects of potassium iodide happen when people take higher doses for a long time. You should be careful not to take more than the recommended dose or take it for longer than you are told. Side effects are unlikely because of the low drug dose and the short time you will be taking the drug.

Possible side effects include skin rashes, swelling of the salivary glands, and "iodism" (metallic taste, burning mouth and throat, sore teeth and gums, symptoms of a head cold, and sometimes stomach upset and diarrhea).

A few people could have an allergic reaction with more serious symptoms. These could be fever and joint pains, or swelling of parts of the face and body at times severe shortness of breath requiring immediate medical attention.

Taking iodide may rarely cause overactivity of the thyroid gland, underactivity of the thyroid gland, or enlargement of the thyroid gland (goiter).

WHAT TO DO IF SIDE EFFECTS OCCUR

If the side effects are severe or if you have an allergic reaction, stop taking potassium iodide and contact the medical department.

FOR INFORMATION ONLY



TMI - Unit 1
Emergency Preparedness
Procedure Manual

Number

TEP-ADM-1300.02

tie

Revision No.

Emergency Preparedness Training

10

Applicability/Scope

USAGE LEVEL

Effective Date

All TMI Emergency Response Personnel

3

03/01/01

This document is within QA plan scope
Safety Reviews Required

<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No

List of Effective Pages

<u>Page</u>	<u>Revision</u>	<u>Page</u>	<u>Revision</u>	<u>Page</u>	<u>Revision</u>	<u>Page</u>	<u>Revision</u>
1	10						
2	10						
3	10						
4	10						
5	10						
6	10						
7	10						
8	10						
9	10						
10	10						
11	10						
12	10						
13	10						
14	10						
15	10						
16	10						
17	10						
18	10						
19	10						
20	10						

	Signature	Date
Procedure Owner	/s/ S. R. Finicle	02/05/01
Approver	/s/ N. D. Brown	02/07/01

TMI - Unit 1
Emergency Preparedness
Procedure Manual

Number

TEP-ADM-1300.02

title

Revision No.

Emergency Preparedness Training

10

DOCUMENT HISTORY

REVISION	EFFECTIVE DATE	DESCRIPTION OF CHANGE	PREPARED BY: REVIEWED BY: APPROVED BY:
1	04/30/96	Delete requirement for Emergency Chemistry course for Initial Response Emergency Organization Chemistry Coordinator	J. L. Whitehead N. D. Brown J. N. Grisewood
2	01/27/97	Eliminate references to the On-Shift Rad Con Coordinator Eliminate references positions at the AEOF Eliminate references positions at the PTFC	
3	04/29/98	<ul style="list-style-type: none"> • Add emergency call out training for CRO's and off-site notification training for I&C Technicians. • Separate multiple action paragraphs into single action steps. • Correct references. • Add requirement for completion of qualification cards for initial qualification for certain positions in the emergency response organization. • Clarify the training requirements for TSC Coordinators, TSC Engineers/Support Staff, Group Leader - R&EC, RAC, RAC Support Staff and Rad/Env. Survey Teams. • Update lesson plan titles. • Add a requirement for monthly identification of personnel whose duty roster qualifications are about to lapse. 	
4	04/01/99	<ul style="list-style-type: none"> • References to "GPU", "GPU Nuclear" and "GPUN" have been changed to "TMI". • The reference to the Emergency Plan has been changed to reflect a site-specific plan and remove the reference to GPU Nuclear and Oyster Creek. • Add requirement for "selected course objectives" from the Emergency Management course to be covered in training for Radiological Assessment Coordinator. 	J. L. Whitehead S. R. Finicle J. N. Grisewood
5	06/24/99	<ul style="list-style-type: none"> • Deleted signature block for Corp. Emergency Planner • Added note at bottom of Exhibit 2 "Severe Accident Management Training will be conducted in accordance with the Training Dept. Emergency Preparedness Training Program Procedure". 	

	TMI - Unit 1 Emergency Preparedness Procedure Manual	Number TEP-ADM-1300.02
title	Emergency Preparedness Training	Revision No. 10

DOCUMENT HISTORY (Cont'd)

REVISION	EFFECTIVE DATE	DESCRIPTION OF CHANGE	PREPARED BY: REVIEWED BY: APPROVED BY:
6	08/01/00	<ul style="list-style-type: none"> Change "Site Director" to "Vice President, TMI Unit 1", "Manager, Plant Training" to "Director, Training", Shift Supervisor" to "Shift Manager", "Shift Foreman" to "Control Room Supervisor". Delete reference to Communicator T.F. Exhibit 2. Exhibit 2 change "GRCS" to "On-Shift Rad Assess Coord." Exhibit 2 change "Shift Maintenance Foreman" to "Maintenance Team Leader". 	S. R. Finicle
7	10/06/00	<ul style="list-style-type: none"> Procedure revised to be consistent with new Passive Monitoring Program. Section 5.2 revised for the Director, Training. Added two new Exhibits, 3 and 4. Revised procedure to be consistent with 1001G, Procedure Utilization. 	S. R. Finicle
8	12/04/00	Revised Exhibit 3 to be consistent with recent changes in responsibilities to provide instruction.	S. R. Finicle
9	01/16/01	Delete the respiratory qualification requirement for ESO field monitoring team members and ESO personnel who are not assigned an emergency response role requiring response in-plant. See Exhibit 1.	S. R. Finicle
10	03/01/01	Delete reference to Medical Representative.	S. R. Finicle

	TMI - Unit 1 Emergency Preparedness Procedure Manual	Number TEP-ADM-1300.02
Title Emergency Preparedness Training	Revision No. 10	

1.0 **PURPOSE**

This procedure outlines the emergency preparedness training requirements within the scope of the TMI Emergency Plan.

2.0 **APPLICABILITY/SCOPE**

- 2.1 This procedure applies to all Essential and Non-Essential personnel assigned to TMI or performing duties at or for TMI.
- 2.2 The training is intended to prepare all personnel to successfully perform their emergency duties as outlined in the TMI Emergency Plan, the TMI Emergency Preparedness Program and the Implementing Document for TMI.

3.0 **DEFINITIONS**

For purposes of this procedure, the following definitions apply:

- 3.1 **ESSENTIAL PERSONNEL** - All personnel who have specific emergency response roles:
 - a. All members of the Initial Response Emergency Organization (as listed in Exhibit 2, Section 2).
 - b. All members of the Emergency Support Organization (as listed on the Emergency Support Organization Duty Roster).
 - c. The on-shift personnel required to meet the minimum staffing requirements of Table 5 of Reference a.

3.2 **NON-ESSENTIAL PERSONNEL**

All personnel working at TMI who are not "Essential Personnel" - See Section 3.1.

NOTE

The following steps are provided in an order likely to result in the most efficient result. The order performed may be modified in the interest of efficiency without introducing any adverse consequences.

4.0 **PROCEDURE**

- 4.1 **Essential Personnel.** The specialized emergency preparedness training program is designed to prepare all personnel who have specific emergency-related duties to successfully perform them in accordance with the emergency plan. The scope of training for On-shift, Initial Response Emergency Organization, and Emergency Support Organization personnel is identified in Exhibit 1.

Emergency Preparedness Training

4.2 On-Shift Emergency Organization

- a. All essential personnel who respond as part of the On-Shift Emergency Organization receive emergency preparedness training in accordance with the emergency preparedness training requirements specified in Exhibit 1.
- b. New-hire or initial training programs
 - Where such programs exist for shift personnel (e.g., chemistry, operations, radiological controls), these personnel should receive the specialized emergency preparedness training as part of those programs before being placed on shift in the position for which they are training.
 - Where such programs do not exist, are not available, or other circumstances preclude the completion of the specialized emergency preparedness training, On-Shift Emergency Organization personnel shall receive initial emergency preparedness training by special arrangement or during the cyclic training with their shift; until such time as they complete training, their managers/supervisors shall assign them to duties consistent with their training status.
- c. Personnel may be assigned a specific emergency response role only if the following conditions prevail:
 - a. Personnel have completed the specialized training and are fully qualified to perform in that specific role or
 - b. Personnel who have not completed specialized training are judged by their manager/supervisor to be capable of participating in a specific emergency response role, and they will be operating under the direct supervision of personnel who are fully qualified.
- d. All personnel are required to attend all prescribed training, preferably within every 12 months, but at least every 15 months.

4.3 Initial Response Emergency Organization

- a. Except as noted below, all personnel shall successfully complete the prescribed training before being placed on the current emergency duty roster.
- b. All personnel shall receive training in accordance with the emergency preparedness training requirements specified in Reference a and Exhibit 1 and Exhibit 2 of this procedure preferably within every 12 months, but at least every 15 months.

Emergency Preparedness Training

- c. In exceptional cases, the Vice President, TMI Unit 1 or his designee, with concurrence of the TMI Emergency Preparedness Manager may authorize the assignment of an individual to the on-shift or initial response emergency organization duty roster prior to completion of the required training. Such authorization shall be given only in cases where:
- No qualified individual is readily available
 - The individual is deemed qualified by virtue of previous training or experience, and
 - The individual successfully challenges the course(s) by examination(s).
- d. The letter authorizing placement of an individual qualified per Step 4.3.c above on the duty roster shall state the specific applicable qualifications of that individual, as well as the other above-mentioned prerequisites, and shall be provided to the Director, Training, TMI, for inclusion in the training records.
- This individual, although qualified by exception, shall be required to participate in the next available applicable Training Course.
- e. During a declared Emergency, the ED/ESD may unilaterally assign individuals to specific duty roster positions regardless of qualifications as he deems necessary to mitigate the consequences of the accident when qualified individuals are not available.

4.4 Emergency Support Organization

- a. Except as noted below, all personnel shall successfully complete the prescribed training before being placed on the current duty roster.
- b. Training is site-specific, addressing and meeting the needs arising from emergencies in Units 1 and/or 2, yet differentiating between them as appropriate.
- c. All personnel shall receive training in accordance with Reference a and Exhibit 1 and Exhibit 2 of this procedure preferably within every 12 months, but at least every 15 months.
- d. The TMI Emergency Preparedness Manager, may in exceptional cases authorize the interim assignment of an individual to the emergency support organization duty roster prior to completion of the required training. Such authorization shall be given only in cases where:
- No qualified individual is readily available.
 - The individual is deemed qualified by virtue of previous training or experience, and
 - The individual successfully challenges the course(s) by examination(s).

	TMI - Unit 1 Emergency Preparedness Procedure Manual	Number TEP-ADM-1300.02
Title Emergency Preparedness Training		Revision No. 10

- e. The letter authorizing placement of an individual qualified per Step 4.4.d above on the duty roster shall state the specific applicable qualifications of that individual, as well as the other above-mentioned prerequisites, and shall be provided to the Director, Training, TMI, for inclusion in the training records.
 - This individual, although qualified by exception, shall be required to participate in the next available applicable training course.
- f. During a declared Emergency the ED/ESD may unilaterally assign individuals to specific duty roster positions regardless of qualifications as he deems necessary to mitigate the consequences of the accident when qualified individuals are not available.

4.5 First Aid Training

- a. Personnel subject to assignment to search and rescue teams (auxiliary operators, radiological field operations technicians, and Maintenance Department rotating-shift workers), in addition to receiving instruction on search and rescue teams, shall also be provided first aid training.
- b. The training should consist of Red Cross Standard First Aid. This training shall be conducted in accordance with American Red Cross standards.

4.6 Fire Brigade training shall include instruction in emergency measures and hazardous materials control during fire conditions.

4.7 Examinations

- a. Examinations shall be administered; however, instances where examinations may not be appropriate include introductions, overviews, seminars, and field trips, among others.
- b. The TMI Emergency Preparedness Manager can eliminate the written exam requirement for selected training with the approval of the Director, Training TMI.
- c. Successful completion of training (i.e., passing all required examinations) is a prerequisite for assignment to a current duty roster for on-shift emergency organization, initial response emergency organization and emergency support organization personnel (see Sections 4.3.c and 4.4.d, for exceptions).
- d. Examination Failures - Personnel who fail to pass an examination shall receive remedial training, and/or be administered a second, different version of the examination. No one shall be administered more than two examinations without additional training and the concurrence of the Director, Training, TMI.

	TMI - Unit 1 Emergency Preparedness Procedure Manual	Number TEP-ADM-1300.02
Title Emergency Preparedness Training		Revision No. 10

4.8 Off-Site (Non-TMI) Agencies

a. General

- The TMI Emergency Preparedness Manager shall ensure that the off-site agencies listed below are invited at least annually to participate in TMI emergency preparedness training.
- The training is intended to assist the off-site agencies in preparing themselves for an orderly and efficient response to emergencies at TMI.
- Fire departments and ambulance organizations other than those listed in the Emergency Plan may be invited as part of the supporting fire and ambulance companies mutual aid program, (e.g., Lower Swatara Volunteer Fire Company).

b. Fire Companies/Ambulance Services:

See Reference a.

c. Government Agencies:

Pennsylvania Emergency Management Agency
 Pennsylvania Bureau of Radiation Protection

d. Hospitals:

Hershey Medical Center Personnel
 Harrisburg Hospital Personnel

4.9 Qualification Tracking

a. The Emergency Preparedness Section should identify emergency duty roster personnel whose duty roster qualifications are about to lapse.

- Approximately one week prior to the end of each calendar month, Emergency Preparedness should conduct a check of the qualification records to determine if the qualifications of any duty roster personnel will lapse at the end of the month.
- Emergency Preparedness personnel should attempt to notify those individuals whose qualifications are about to lapse.
- Emergency Preparedness shall remove from the duty roster those individuals whose qualifications have lapsed until the necessary actions for re-qualification have been completed.

5.0 **RESPONSIBILITIES**

5.1 The TMI Emergency Preparedness Manager is responsible for:

- a. Determining, in coordination with affected departments, which categories of personnel are to receive what training.
- b. Reviewing the lesson material to ensure:
 - Compliance with regulatory requirements and with the provisions of the emergency plan, and
 - That the emergency plan-related technical content is current, correct and appropriate.
- c. Identifying emergency duty roster personnel whose qualifications are about to lapse (i.e., by the end of the current month).

5.2 The Director, Training, TMI, is responsible for ensuring the development, scheduling, presentation, documentation, and administration of the emergency preparedness training, consistent with the training scope and instructor responsibility assignments of Exhibit 3 and the periodic training requirements of Exhibit 4.

5.3 The Manager, Rad. Eng./designee is responsible for reviewing, for concurrence, the lesson material dealing with radiological controls procedures, and concerns to ensure that the radiological technical content is current, correct and appropriate.

5.4 All managers and supervisors with personnel assigned to emergency preparedness duty roster are responsible for having their personnel attend training and meet the requirements of Exhibit 1 and Exhibit 2 in accordance with this procedure, and for taking corrective action in case of failure to satisfactorily complete training, maintain qualifications, or for misconduct.

6.0 **REFERENCES**

- a. AP 1092, TMI Emergency Plan
- b. TMI Emergency Preparedness Procedure Manual
- c. TMI Unit 1 Administrative Procedure 1038, Administrative Controls Fire Protection Program
- d. TMI Administrative Procedure TEP-ADM-1300.01, Maintaining Emergency Preparedness
- e. NUREG 0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants

TMI - Unit 1
Emergency Preparedness
Procedure Manual

Number

TEP-ADM-1300.02

Revision No.

Emergency Preparedness Training

10

7.0 **EXHIBITS**

- 7.1 Exhibit 1, Qualification Requirements for Essential Personnel
- 7.2 Exhibit 2, Emergency Organization Training Requirements
- 7.3 Exhibit 3, Department Commitments to Provide Instructions
- 7.4 Exhibit 4, Periodic Training for TMI Emergency Response personnel

	TMI - Unit 1 Emergency Preparedness Procedure Manual	Number TEP-ADM-1300.02
Title Emergency Preparedness Training		Revision No. 10

EXHIBIT 1

Page 1 of 2

Qualification Requirements for Essential Personnel

NOTE

The requirement for certain positions to complete a qualification card as part of initial qualifications applies only to individuals who are qualifying for their position for the first time. Personnel who have previously completed initial qualifications for their position are exempted from this requirement.

A. On-Shift Emergency Organization

- a. Satisfactorily complete and maintain required skills training and possess operators license, as appropriate, for assigned position.
- b. Satisfactorily complete and maintain Emergency Preparedness Training Program requirements for position assigned (refer to Exhibit 2).
- c. Satisfactorily complete and maintain respirator qualification on, as a minimum, a full face-piece negative pressure air purifier.
- d. Satisfactorily complete and maintain General Employee Radiation Worker Training (Category II).
- e. Must be active in the dosimetry system (i.e., TLD assigned).

B. Initial Response Emergency Organization (IREO)

- a. Satisfy the prerequisites for selection and assignment to the specific emergency response position to which assigned, as specified in the Emergency Plan.
- b. Must satisfy 1 hour response time requirement.
- c. Satisfactorily complete and maintain Emergency Preparedness Training Program requirements for position assigned in the Initial Response Organization (refer to Exhibit 2).
- d. Satisfactorily complete and maintain respirator qualification on, as a minimum, a full face-piece negative pressure air purifier.
- e. Satisfactorily complete and maintain General Employee Radiation Worker Training (Category II).
- f. Must be active in the dosimetry system (i.e., TLD assigned).

	TMI - Unit 1 Emergency Preparedness Procedure Manual	Number TEP-ADM-1300.02
Emergency Preparedness Training		Revision No. 10

EXHIBIT 1

Page 2 of 2

NOTE

Item d, e, and f above are not applicable to Emergency Assembly Area Coordinators. Items b, d, e and f are not applicable to the Duty Public Information Rep. However, the Public Information Rep. that reports to the Control Room (i.e., Communications Info Coord.) is required to meet all requirements listed in Section B.

C. Emergency Support Organization (ESO)

- a. Satisfy the prerequisites for selection and assignment to the specific emergency response position to which assigned, as specified in the Emergency Plan.
- b. Must satisfy the response requirements contained in the Emergency Plan.
- c. Satisfactorily complete and maintain Emergency Preparedness Training Program requirements for the position assigned in the Emergency Support Organization (refer to Exhibit 2).

NOTE

All personnel assigned an emergency response role requiring response in-plant during an emergency shall be respirator qualified, as a minimum, Full Face Piece Negative Pressure Air Purifier. In addition, all such personnel shall be active in the dosimetry system (i.e., TLD assigned).

D. Emergency Preparedness Additional Support Personnel/Support Staff (as identified in Exhibit 2)

- a. Satisfy the prerequisites established by the Group Leader/Coordinator responsible for the position.
- b. Satisfactorily complete and maintain EP Training in accordance with Exhibit 2.
- c. Must satisfy the response requirements for the emergency organization they are assigned to (IREO or ESO) contained in the E-Plan.
- d. For personnel responding in-plant:
 - Satisfactorily maintain respirator qualifications and General Employee Radiation Worker Training (Category II).
 - Must be active in the dosimetry system (i.e., TLD assigned).

EXHIBIT 2

Emergency Organization Training Requirements

A. On-Shift Emergency Organization

DUTY POSITION	EMERGENCY MANAGEMENT	ERF OPS	DOSE PROJ & ASSESS	SITE PROT/ASSEM/ACC	EMERGENCY RAD CON	EMERGENCY CHEMISTRY	CONT INJ & DECON	EMERGENCY CALLOUTS	ON/OFFSITE RAD SURV	OPS & MAINT.	RAD SURVEY SUPPORT	OFFSITE NOTIFICATIONS	EMER. PLANT AIR SAMPLE	QUALIFICATION CARD (initial qualification only)
Emergency Director (Shift Manager)	X													X
OPS Coordinator (Control Room Supv.)	X													X
OSC Comms. Coord.								X				X		
Communicator								X		X		X		
Auxiliary Operators										X				
On-Shift Rad Asses Coord.	*	X	X		X		X							X
Radiological Controls Tech.		X			X		X		X					
Chemistry Coord. (Sr. Chem Tech)		X				X							X	
Chemistry Techs		X				X							X	
OSC Coord. (Maint. Team Leader)		X								X				X
Maintenance Personnel										X				
Security Coord.				X										
Security Personnel				X										
Utility Personnel										X	X			

*Selected course objectives

NOTE

Severe Accident Management Training will be conducted in accordance with the "Training Departments" Emergency Preparedness Training Program procedure.

EXHIBIT 2

Emergency Organization Training Requirements

B. Initial Response Emergency Organization

DUTY POSITION	EMERGENCY MANAGEMENT	ERF OPS	DOSE PROJ & ASSESS	SITE PROT/ASSEM/ACC	EMERGENCY RAD CON	CONT INJ & DECON	CALLOUTS AND NOTIF	OFFSITE RAD SURV TM	MEDIA REPRESENTATIVE	QUALIFICATION CARD (initial qualification only)
Emergency Director	X									X
Operations Coordinator	X									X
Emergency Director Assistant	X									X
Rad. Assessment Coordinator	*	X	X							X
Rad. Engineering Support		X	X							X
ECC Communications Coord.		X					X			X
ECC Communicators		X					X			X
TSC Coordinators	X	X								X
TSC Engineers/Support Staff		X								X
OSC Coordinators		X								X
Rad Con Coordinator		X			X	X				X
Emerg. Maint. Coord.		X								X
Chemistry Coord.		X								X
Security Coordinator				X						X
Emergency Assembly Area Coord.				X						X
Public INFO Duty Rep.									X	X

*Selected course objectives

NOTE

Severe Accident Management Training will be conducted in accordance with the "Training Departments" Emergency Preparedness Training Program procedure.

Emergency Preparedness Training

EXHIBIT 2

Emergency Organization Training Requirements

B. (Cont'd) Emergency Preparedness Additional Support Personnel/Support Staff (part of IREO)

DUTY POSITION	EMERGENCY MANAGEMENT	ERF OPS	DOSE PROJ & ASSESS	SITE PROT/ASSEM/ACC	EMERGENCY RAD CON	CONT INJ & DECON	CALLOUTS AND NOTIF	OFFSITE RAD SURV TM	MEDIA REPRESENTATIVE	QUALIFICATION CARD (initial qualification only)
RAC Support Staff		X								X
Ops Support Ctr Coord. Asst.		X								X
Communications Info. Coord. (CR)									X	

NOTE

Severe Accident Management Training will be conducted in accordance with the "Training Departments" Emergency Preparedness Training Program procedure.

EXHIBIT 2

Emergency Organization Training Requirements

C. Emergency Support Organization (ESO)

DUTY POSITION	EMERGENCY MANAGEMENT	ERF OPS	EAC/MET DOSE COORD OPS	DOSE PROJ & ASSESS	MEDIA REPRESENTATIVE	ON/OFFSITE RAD SURV	QUALIFICATION CARD (initial qualification only)
Emergency Support Director	X						X
ESD Assistant	X						X
Group Leader R&EC	X			X			X
Emergency Prep. Rep.	X						X
Group Leader Admin. Support		X					X
Tech Support Rep.	X	X					X
Public Info. Rep.					X		X
EOF Comm. Coord.		X					X
EOF Communicator		X					X
Joint Info/Media Ctr. Briefer					X		X
Environ. Assessment Coord.		X	X				X
MET/Dose Coordinator		X	X				X
Rad/Env Survey Team						X	X

NOTE

Severe Accident Management Training will be conducted in accordance with the "Training Departments" Emergency Preparedness Training Program procedure.

	TMI - Unit 1 Emergency Preparedness Procedure Manual	Number TEP-ADM-1300.02
Title Emergency Preparedness Training	Revision No. 10	

EXHIBIT 2

Emergency Organization Training Requirements

C. (Cont'd) Emergency Preparedness Additional Support Personnel/Support Staff (Part of ESO)

DUTY POSITION	EMERGENCY MANAGEMENT	ERF OPS	EAC/MET DOSE COORD OPS	DOSE PROJ & ASSESS	MEDIA REPRESENTATIVE	ON/OFFSITE RAD SURV	QUALIFICATION CARD (initial qualification only)
Tech Support Staff		X					X

NOTE

Severe Accident Management Training will be conducted in accordance with the "Training Departments" Emergency Preparedness Training Program procedure.

EXHIBIT 3

Department Commitments to Provide Instructions

	TRAINING DEPARTMENT	EMERGENCY PREPAREDNESS	OPERATIONS	ENGINEERING	SECURITY
Cyclic Training Positions					
Shift Manager		X			
Control Room Supervisor		X			
CROs	X				
Auxiliary Operators	X				
Maintenance Foreman	X				
Maintenance Workers	X				
Rad Con Foreman	X				
Rad Con Technicians	X				
Chemistry Technicians	X		X		
Site Protection Force					X
Training Focus					
Emergency Management		X			
ERF-ECC	X				
ERF-OSC	X		X		
ERF-TSC	X			X	
ERF-EOF	X			X	
Dose Projection Assessment	X				
Onsite/Offsite Radiological Survey	X				
Site Protection/Assembly/Accountability					X
Emergency Radiological Controls	X				
Emergency Chemistry	X				
Emergency Teams	X				
Contaminated Injured and Decontamination	X				
Radiological Survey Support	X				
Emergency Notification and Callouts	X				

EXHIBIT 4

Periodic Training for TMI Emergency Response Personnel

NOTE: This table identifies the broad subject areas to be included in Emergency Plan Training for personnel assigned to the Emergency Response Organization. Emergency Plan Training does not include training in the skills that are prerequisite for assignment to these positions.

Position/Title	Scope of Training
<ul style="list-style-type: none"> ◆ Emergency Director ◆ Operations Coordinator ◆ Shift Manager ◆ Control Room Supervisor ◆ ED Assistant ◆ Emergency Support Director ◆ ESD Assistant ◆ Emergency Preparedness Representative ◆ Group Leader R&EC 	Emergency Organization, Emergency Facilities, Emergency Action Levels, Emergency Classifications, Concept of Operations, Emergency Communications, Dose Projection and Assessment Methodology, Protective Actions, and procedural responsibilities. The depth of training provided is a variable of the position held by the responsible member.
<ul style="list-style-type: none"> ◆ Control Room Operators 	Techniques and methodology in operating communications equipment, proper log keeping and formal communication. TMI-1 CRO's will also include notification of offsite agencies.
<ul style="list-style-type: none"> ◆ Radiological Controls Coordinator 	Emergency organization, emergency classification, communications, facilities, relevant EIPs, radiological controls during emergencies and interfacing with hospital, safety, security and rad con personnel.
<ul style="list-style-type: none"> ◆ On-Shift Radiological Assessment Coordinator 	Radiological controls during emergencies, dose projection and assessment, relevant EIPs, post-accident sampling systems, emergency organization, facilities, communications and interfacing with hospital, safety, security and operations personnel.
<ul style="list-style-type: none"> ◆ Public Information Representative ◆ JIC/Presiding Media Briefer ◆ Communications Personnel 	Emergency plan overview, media center activities and lessons learned.
<ul style="list-style-type: none"> ◆ Radiological Controls Technician 	Emergency organization, facilities, emergency classification, communications, emergency kit instrument use, relevant EIPs, radiological controls during emergencies and interfacing with hospital, safety, security and operations personnel concerning injuries and decontamination of personnel and vehicles.
<ul style="list-style-type: none"> ◆ Radiological/Environmental Survey Teams 	Emergency kit instrument use, relevant EIPs, formal radio communications, proper sampling techniques and practical exercises.
<ul style="list-style-type: none"> ◆ Radiological Assessment Coordinator ◆ Radiological Engineering Support 	Plant systems, RAC operations, RAC/EAC responsibilities, dose projection and assessments and Protective Action.
<ul style="list-style-type: none"> ◆ Environmental Assessment Coordinator ◆ Met-Dose Coordinator 	EACC Operations RAC/EAC responsibilities
<ul style="list-style-type: none"> ◆ TSC Coordinator ◆ TSC Engineers ◆ Technical Support Representative (EOF) ◆ OSC Coordinator ◆ Group Leader - Administrative Support 	Emergency organization, emergency response facilities, emergency classification and communications, facility activation, relevant EIPs, and concept of operations of the respective facilities.

	TMI - Unit 1 Emergency Preparedness Procedure Manual	Number TEP-ADM-1300.02
Title Emergency Preparedness Training		Revision No. 10

EXHIBIT 4

Page 2 of 2

NOTE: This table identifies the broad subject areas to be included in Emergency Plan Training for personnel assigned to the Emergency Response Organization. Emergency Plan Training does not include training in the skills that are prerequisite for assignment to these positions.

Position/Title	Scope of Training
<ul style="list-style-type: none"> ◆ Maintenance Team Leader ◆ Emergency Maintenance Coordinator 	Emergency organization, facilities, communications, concept of operations, relevant EIPs, and post-accident radiological controls.
<ul style="list-style-type: none"> ◆ Maintenance Worker 	Emergency organization, facilities, emergency classification, communication, concept of OSC operations, and relevant EIPs. Selected TMI maintenance technicians will be trained in logkeeping, callout of personnel and notification to offsite agencies. TMI utility personnel will be trained in map reading and radio communications.
<ul style="list-style-type: none"> ◆ Auxiliary Operators 	This training will include concept of operations and radiological controls in a post-accident environment, relevant EIPs, emergency organization, facilities and emergency radio communications.
<ul style="list-style-type: none"> ◆ Chemistry Technician ◆ Chemistry Coordinator 	Emergency organization, facilities, and communications equipment. Procedural guidance for gathering and analysis of chemistry samples.
<ul style="list-style-type: none"> ◆ ECC Communications Coordinator ◆ ECC Communicators ◆ EOF Communications Coordinator ◆ EOF Communicators 	Techniques and methodology in operating communications equipment, proper logkeeping and formal communications, notifications and callouts.
<ul style="list-style-type: none"> ◆ Security ◆ Security Coordinator ◆ Emergency Assembly Area Coordinator 	Emergency organization, facilities, concept and methodology for accountability and operation of the Emergency Assembly Area, relevant EIPs. Emergency security processing.

TMI IMC INSTRUCTION MEMO

T0004

180

MANUAL: Three Mile Island EMERGENCY PLAN

DATE 3/1/01

CORRECT NAME AND ADDRESS IF NECESSARY

DOCUMENT CONTROL DESK
DOCUMENT CONTROL DESK
OFFICE OF NUCLEAR REACTOR REGULATION
U. S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555
1 INFO

RETURN TO: AMERGEN ENERGY COMPAN
THREE MILE ISLAND UNIT 1
ATTENTION: DEBBIE MARS
RT. 441 PO BOX 480
ROOM 135, SOB
MIDDLETOWN, PA 17057

PLEASE UPDATE YOUR MANUAL WITH THE ATTACHMENTS AS INSTRUCTED BELOW AND DESTROY THE SUPERSEDED PAGES/PROCEDURES(S). ALSO PLEASE SIGN THE ACKNOWLEDGEMENT AT THE BOTTOM OF THIS MEMO AND RETURN TO THE ADDRESS SHOWN ABOVE.

<u>DOCUMENT NUMBER</u>	<u>REV</u>	<u>LEVEL</u>
<u>1092</u>	<u>7</u>	<u>3</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

[] UPDATED INDEX/TABLE OF CONTENTS ATTACHED.

I HEREBY ACKNOWLEDGE RECEIPT OF THIS MEMO AND HAVE COMPLIED WITH THE INSTRUCTIONS. SIGNATURE AND RETURNED MEMO REQUIRED ONLY IF CONTROLLED.

(SIGNATURE)

(EXTENSION)

(DATE)

FOR INFORMATION ONLY

AmerGen

TMI - Unit 1
Administrative Procedure

Number

1092

Title

Revision No.

Three Mile Island Emergency Plan

7

Applicability/Scope

USAGE LEVEL

Effective Date

TMI Division

3

03/01/01

This document is within QA plan scope

<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
-------------------------------------	-----	--------------------------	----

Safety Reviews Required

<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
-------------------------------------	-----	--------------------------	----

List of Effective Pages

Page	Revision	Page	Revision	Page	Revision	Page	Revision
1	7	21	7	41	7	61	7
2	7	22	7	42	7	62	7
3	7	23	7	43	7	63	7
4	7	24	7	44	7	64	7
5	7	25	7	45	7	65	7
6	7	26	7	46	7	66	7
7	7	27	7	47	7	67	7
8	7	28	7	48	7	68	7
9	7	29	7	49	7	69	7
10	7	30	7	50	7	70	7
11	7	31	7	51	7	71	7
12	7	32	7	52	7	72	7
13	7	33	7	53	7	73	7
14	7	34	7	54	7	74	7
15	7	35	7	55	7	75	7
16	7	36	7	56	7	76	7
17	7	37	7	57	7	77	7
18	7	38	7	58	7	78	7
19	7	39	7	59	7	79	7
20	7	40	7	60	7	80	7

	Signature	Date
Procedure Owner	/s/ S. R. Finicle	02/02/01
Approver	/s/ J. Grisewood for W. Jefferson	02/26/01

FOR INFORMATION ONLY

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan		Revision No. 7

List of Effective Pages

<u>Page</u>	<u>Revision</u>	<u>Page</u>	<u>Revision</u>	<u>Page</u>	<u>Revision</u>	<u>Page</u>	<u>Revision</u>
81	7	121	7				
82	7	122	7				
83	7	123	7				
84	7	124	7				
85	7	125	7				
86	7	126	7				
87	7	127	7				
88	7	128	7				
89	7	129	7				
90	7	130	7				
91	7	131	7				
92	7	132	7				
93	7	133	7				
94	7	134	7				
95	7	135	7				
96	7	136	7				
97	7	137	7				
98	7	138	7				
99	7	139	7				
100	7						
101	7						
102	7						
103	7						
104	7						
105	7						
106	7						
107	7						
108	7						
109	7						
110	7						
111	7						
112	7						
113	7						
114	7						
115	7						
116	7						
117	7						
118	7						
119	7						
120	7						

	TMI - Unit 1 Administrative Procedure	Number 1092
Title		Revision No. 7
Three Mile Island Emergency Plan		

TABLE OF CONTENTS

TOPIC

<u>Section</u>	<u>TOPIC</u>	<u>Page</u>
1.0	<u>GLOSSARY</u>	12
1.1	Definitions	12
1.2	Abbreviations	17
2.0	<u>APPLICABILITY AND SCOPE</u>	20
2.1	General Demographic and Geographic Information	20
2.1.1	General Information and Site Description	20
2.1.2	Owner Controlled Area, Exclusion Area, and Low Population Zone	21
2.1.3	Population and Population Distribution	21
2.1.4	Local Industrial and Military Facilities	21
2.1.5	Emergency Planning Zones	22
2.2	Scope of the Emergency Plan	23
2.2.1	Emergency Plan Implementing Document	23
2.2.2	Related Plans, Programs and Procedures	23
2.2.3	Related County and State Plans	24
3.0	<u>SUMMARY OF EMERGENCY PREPAREDNESS PROGRAM</u>	25
3.1	The TMI Emergency Plan	25
3.2	The Implementing Documents	26
4.0	<u>EMERGENCY CONDITIONS</u>	27
4.1	Emergency Classification System	27
4.1.1	Unusual Event	28
4.1.2	Alert	28
4.1.3	Site Area Emergency	29

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

TABLE OF CONTENTS

TOPIC

<u>Section</u>	<u>TOPIC</u>	<u>Page</u>
	4.1.4 General Emergency	30
4.2	State, County and Local Classification System	30
4.3	Spectrum of Postulated Accidents	31
	4.3.1 Classification of Hypothetical Accidents	31
4.4	Instrumentation Capability for Detection	31
5.0	<u>TMI EMERGENCY ORGANIZATION</u>	32
5.1	Mobilization	32
	5.1.1 Transition from Normal Shift Organization to Emergency Shift Organization	32
	5.1.2 On-Shift Emergency Organization	33
	5.1.3 Initial Response Emergency Organization	35
	5.1.4 Emergency Support Organization	46
	5.1.5 Response to a TMI-2 Emergency	49
5.2	Long-Term Recovery Organization	50
5.3	Additional Support	51
	5.3.1 Medical Support Organizations and Personnel	51
	5.3.2 Firefighting Organizations	51
	5.3.3 Law Enforcement Agencies	52
	5.3.4 Other Government Agencies	52
	5.3.5 Miscellaneous Organizations	52
5.4	Government Agencies	53
	5.4.1 Federal Radiological Emergency Response Plan	53

TABLE OF CONTENTS

TOPIC

<u>Section</u>		<u>Page</u>
	5.4.2 State Agencies	55
	5.4.3 County Agencies	56
6.0	<u>EMERGENCY MEASURES</u>	57
6.1	Emergency Notification of Offsite Agencies	57
6.2	Corrective Actions	57
6.3	Onsite Protective Actions	58
	6.3.1 Sheltering, Evacuation, Personnel Accountability	58
	6.3.2 First Aid and Decontamination	60
	6.3.3 Medical Transportation	62
	6.3.4 Medical Treatment	62
6.4	Environmental Assessment	62
	6.4.1 Radiological Assessment and Offsite Monitoring	62
6.5	Offsite Protective Actions	64
	6.5.1 General Public	64
6.6	Offsite Agency Response	65
	6.6.1 Parent County	65
	6.6.2 State Emergency Management Agency (PEMA)	65
	6.6.3 Bureau of Radiation Protection	66
6.7	Prompt Notification System	66
6.8	Evacuation Time Estimates	67
6.9	Emergency Public Information	67

Three Mile Island Emergency Plan**TABLE OF CONTENTS****TOPIC**

<u>Section</u>		<u>Page</u>
7.0	<u>EMERGENCY RESPONSE FACILITIES AND EQUIPMENT</u>	69
7.1	Onsite Emergency Response Facilities	69
	7.1.1 Emergency Control Center	69
	7.1.2 Technical Support Center	70
	7.1.3 Operations Support Center	70
7.2	TMI Offsite Emergency Response Facilities	70
	7.2.1 Emergency Operations Facility	70
7.3	County, State and Federal Emergency Operations Centers	70
	7.3.1 County Emergency Operations Centers	70
	7.3.2 State Emergency Operations Center	71
	7.3.3 Disaster Field Office	71
7.4	Emergency Communications Systems	71
	7.4.1 Emergency Communications	71
	7.4.1.1 NRC Emergency Notification System (ENS)	71
	7.4.1.2 Health Physics Network	72
	7.4.1.3 Telephone System	72
	7.4.1.4 Transmission (Voice)	72
	7.4.1.5 Automatic Dialing Equipment	72
	7.4.1.6 Maintenance and Instrumentation Telephone System	72
	7.4.1.7 Notification Line	72

	TMI - Unit 1 Administrative Procedure	Number 1092
Title		Revision No.
Three Mile Island Emergency Plan		7

TABLE OF CONTENTS

TOPIC

<u>Section</u>	<u>TOPIC</u>	<u>Page</u>
	7.4.1.8 Bureau of Radiation Protection Line	72
	7.4.1.9 Emergency Director's Line	73
	7.4.1.10 Environmental Assessment Line	73
	7.4.1.11 Operations Line	73
	7.4.1.12 Radiological Line	73
	7.4.1.13 Engineering Line	73
	7.4.1.14 Emergency Management Line	73
	7.4.1.15 Additional Three Mile Island Circuits	73
	7.4.1.16 Telephone System Emergency Power Supplies	74
	7.4.1.17 Radio Communications	74
7.4.2	Station Warning System	75
	7.4.2.1 Alarms	75
	7.4.2.2 Plant Paging System	76
	7.4.2.3 Call Out Telecommunications Equipment	76
7.5	Assessment Facilities	76
7.5.1	Onsite Systems and Equipment	76
	7.5.1.1 Radiation Monitoring System	76
	7.5.1.2 Fire Protection Devices	78
	7.5.1.3 Seismic Monitoring	78
	7.5.1.4 Onsite Meteorological Monitors	79
	7.5.1.5 Process Monitors	80
	7.5.1.6 Laboratory Facilities	80

TABLE OF CONTENTS

TOPIC

<u>Section</u>		<u>Page</u>
	7.5.1.7 Systems and Equipment required by NUREG-0578 (NUREG-0737)	80
7.5.2	Facilities and Equipment for Offsite Monitoring	80
	7.5.2.1 Reuter Stokes Senti System	80
	7.5.2.2 Radiological Environmental Monitoring Program (REMP)	80
	7.5.2.3 National Weather Service	82
	7.5.2.4 Federal Radiological Monitoring and Assessment Plan (FRMAP)	82
	7.5.2.5 State Department of Environmental Protection	82
	7.5.2.6 Offsite Emergency Radiological Assistance	83
7.6	Additional Support Facilities	83
	7.6.1 Media Center/Joint Information Center	83
	7.6.2 Environmental Assessment Command Center (EACC)	83
	7.6.3 Remote Assembly Area (RAA)	84
	7.6.4 Control Room/Shift Manager's Office	84
	7.6.5 Processing Center	84
	7.6.6 Emergency Assembly Areas	84
7.7	First Aid and Medical Facilities	85
7.8	Damage Control Equipment	85
7.9	Radiological Controls Equipment	85
7.10	Emergency Equipment Readiness	85

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

TABLE OF CONTENTS

TOPIC

<u>Section</u>	<u>TOPIC</u>	<u>Page</u>
8.0	<u>MAINTAINING EMERGENCY PREPAREDNESS</u>	86
8.1	Responsibilities	86
8.2	Organizational Preparedness	88
8.2.1	Training	88
8.2.2	Drills and Exercises	90
8.2.3	Emergency Preparedness Department	92
8.3	Reviewing and Updating of the Emergency Plan and Implementing Document	93
8.4	Maintenance and Inventory of Emergency Equipment and Supplies	94
9.0	<u>RECOVERY</u>	95
10.0	<u>REFERENCES</u>	96

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

TABLES

TABLE 1	Percent of Land Use by County
TABLE 2	TMI Emergency Action Summary
TABLE 3	Emergency Classification of Postulated Accidents
TABLE 4	Plant Instrumentation for Accident Detection
TABLE 5	On-Shift Emergency Organization Staffing
TABLE 6	Initial Response Emergency Organization Staffing
TABLE 7	Emergency Support Organization Staffing
TABLE 8	Inventory of Three Mile Island Emergency Kits by General Category
TABLE 9	Typical Environmental/Radiological Monitors
TABLE 10	TMI Emergency Response/Additional Support Facilities
TABLE 11	County, State and Federal Emergency Operations Centers
TABLE 12	TMI Emergency Communications Network
TABLE 13	Department Commitments to Provide Instructors
TABLE 14	Periodic Training for TMI Emergency Response Personnel
TABLE 15	Emergency Response Organization Staffing Responsibilities

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

FIGURES

- FIGURE 1 TMI Site Arrangement
- FIGURE 2 TMI Site Relative Location
- FIGURE 3 TMI Site Exclusion Area and Low Population Zone
- FIGURE 4 TMI Site Plume Exposure Pathway (10 mile) Emergency Planning Zone
- FIGURE 5 TMI Site Ingestion Pathway (50 mile) Emergency Planning Zone
- FIGURE 6 TMI Normal Shift Organization
- FIGURE 7 TMI On-Shift Emergency Organization
- FIGURE 8 TMI Initial Response Emergency Organization
- FIGURE 9 TMI Emergency Support Organization
- FIGURE 10 TMI Notification Network

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

1.0 GLOSSARY

1.1 Definitions

The following is a list of terms and their definitions which are used in the Emergency Plan and Implementing Documents:

- 1.1.1 **Access Control Point** - An access control point serves as the boundary line between the "clean" and radiologically controlled areas of the plant and serves as a processing station for access to the RWP required areas. The main access control point at TMI is 306' elevation in the TMI-1 Control Building.
- 1.1.2 **Accident** - An unintentional event which may result in an emergency.
- 1.1.3 **Adverse Meteorology** - (As described in NUREG/CR-2260) the short-term (0-2 hr.) atmospheric dispersion conditions represented by Pasquill "F" stability associated with a wind speed of 1 meter per second, and independent of wind direction. These conditions are exceeded an average of about 5 percent of the total time on an hourly basis.
- 1.1.4 **Affected Persons** - Persons who, as the result of an accident, have been or may be radiologically exposed or physically injured to a degree requiring special attention (e.g., evacuation, decontamination, first aid or medical services, etc.).
- 1.1.5 **Alert** - An emergency classification where events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any release is expected to be limited to small fractions of the EPA Protection Action Guide exposure levels.
- 1.1.6 **Annually** - Once each calendar year.
- 1.1.7 **Assessment Actions** - Those actions taken during or after an accident which are collectively necessary to make decisions to implement specific emergency actions.
- 1.1.8 **Biennial** - Once every two calendar years.
- 1.1.9 **Clean Area** - The allowable levels of loose surface contamination for a clean area are less than 1000 dpm/100 cm² beta-gamma and 20 dpm/100 cm² alpha.
- 1.1.10 **Contaminated Area** - An area where contamination levels are in excess of those specified for a clean area.
- 1.1.11 **Control Room** - The location from which the reactor and its auxiliary systems are controlled. The TMI-1 Control Room is located on the 355' elevation in the TMI-1 control building. The TMI-2 Control Room is located on the 331.6' elevation of the TMI-2 control building.
- 1.1.12 **Corrective Actions** - Those emergency actions taken to mitigate or terminate an emergency situation.
- 1.1.13 **Dose** - The energy imparted to matter by ionizing radiation per unit mass of irradiated material.

	TMI - Unit 1 Administrative Procedure	Number 1092
title	Three Mile Island Emergency Plan	Revision No. 7

- 1.1.14 **Dose Commitment** - The dose that will be accumulated by a specific organ over a 50 year period following intake.
- 1.1.15 **Effluent Monitor** - An on-line or off-line instrument monitoring radiological conditions of a designed pathway to the environment (e.g., station ventilation exhaust).
- 1.1.16 **Emergency** - That situation or condition which may result in damage to property and/or may lead to undue risk to the health and safety of the general public and/or site personnel.
- 1.1.17 **Emergency Actions** - Those measures or steps taken to ensure that an emergency situation is assessed (assessment actions) and that the proper corrective and/or protective actions are taken.
- 1.1.18 **Emergency Action Levels (EAL)** - Predetermined conditions or values, including radiation and integrated dose; events such as natural disasters or fires; or specific instrument indications which, when reached or exceeded, require implementation of the Emergency Plan.
- 1.1.19 **Emergency Classifications** - The characterization of several classes of emergency situations consisting of mutually exclusive groupings including the entire spectrum of possible radiological emergencies. The four classes of emergencies are (1) Unusual Event, (2) Alert, (3) Site Area Emergency, and (4) General Emergency.
- 1.1.20 **Emergency Control Center (ECC)** - The location from which control and coordination of emergency actions are effected. The designated area encompasses the Shift Manager's Office and Control Room. Once the entire emergency response organization is activated, the Emergency Director retains command and control of all on-site activities from the ECC.
- 1.1.21 **Emergency Core Cooling System** - System of pumps, piping, valves, etc., used to deliver emergency cooling water to the reactor core. The Emergency Core Cooling System (ECCS) pertains to the pumps, piping, valves, etc., of the Decay Heat Removal System, Core Flooding System and the makeup portion of the Makeup and Purification System.
- 1.1.22 **Emergency Director (ED)** - Designated onsite individual having the responsibility and authority to implement the Emergency Plan, and who will coordinate efforts to limit consequences of, and bring under control, the emergency.
- 1.1.23 **Emergency Operations Center (EOC)** - Designated State, county, and Municipal Emergency Management Agency locations especially designed and equipped for the purpose of exercising effective coordination and control over disaster operations within their jurisdiction.
- 1.1.24 **Emergency Operations Facility (EOF)** - Designated location from which the Emergency Support Organization conducts the companies overall emergency response.
- 1.1.25 **Emergency Operations Procedures** - Specific plant procedures that provide step-by-step instructions to guide plant operations during potential or real emergency situations.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

- 1.1.26 **Emergency Plan** – Three Mile Island plan for dealing with emergencies at the TMI site.
- 1.1.27 **Emergency Plan Implementing Procedures** - Specific procedures in the Implementing Document which include emergency action levels and provide step-by-step emergency actions.
- 1.1.28 **Emergency Planning Zone EPZ** - There are two Emergency Planning Zones. The first is an area, approximately 10 miles in radius around the site, for which emergency planning consideration of the plume exposure pathway has been given in order to assure that prompt and effective actions can be taken to protect the public and property in the event of an accident. This is called the Plume Exposure Pathway EPZ. The second is an area 50 miles in radius around the site, for which emergency planning consideration of the ingestion exposure pathway has been given. This is called the Ingestion Exposure Pathway EPZ.
- 1.1.29 **Emergency Support Director (ESD)** - Designated individual offsite having the overall responsibility for the management of the response to an accident and recovery operations.
- 1.1.30 **Exclusion Area** - As defined in 10 CFR 100.3; "that area surrounding the reactor, in which the reactor licensee has the authority to determine all activities including exclusion or removal of personnel and property from the area". This is the area within a 2000 ft. radius from the point equidistant between the centers of the TMI-1 and TMI-2 reactor buildings. For emergency planning purposes, the TMI exclusion area boundary and the TMI site boundary are considered the same.
- 1.1.31 **General Emergency** - Events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for large releases of radioactive material and/or loss of reactor building (containment) integrity, and other accidents that have large radioactive release potential such as fuel handling and waste gas system accidents. Releases can be reasonably expected to exceed EPA Protective Action Guide Exposure levels off-site for more than the immediate site area.
- 1.1.32 **Implementing Document** - A document containing a description of the concept of emergency operations, emergency communication system, Emergency Plan Implementing Procedures and administrative procedures.
- 1.1.33 **Ingestion Exposure Pathway EPZ** - The 50 mile Emergency Planning Zone in which a radioactive plume can cause the exposure of the population-at-risk and/or onsite personnel to internal contamination resulting from ingestion of contaminated water or foods, such as milk or fresh vegetables.
- 1.1.34 **Joint Information Center (JIC)** - Center of release of information to the news media, and the public, and for coordination of information releases with Federal, State and local agencies.
- 1.1.35 **Low Population Zone (LPZ)** - As defined in 10 CFR 100.3, the area immediately surrounding the exclusion area which contains residents, the total number and density of which are such that there is a reasonable probability that appropriate protective measures could be taken in their behalf in the event of a serious accident.
- 1.1.36 **Off-site** - Any area outside the owner controlled area.

	TMI - Unit 1 Administrative Procedure	Number 1092
title	Three Mile Island Emergency Plan	Revision No. 7

- 1.1.37 **Operable** - A component or system is defined as operable when it is capable of performing its intended function within the required range.
- 1.1.38 **Operations Support Center (OSC)** - Designated location from which accident mitigation personnel are dispatched.
- 1.1.39 **Owner Controlled Area** - That area within the security fence that surrounds the immediate site area. The area within the security fence that extends from the north vehicle gate along both shore lines to the south parking lot.
- 1.1.40 **Parent County** - County in which the site is located i.e., Dauphin County for the TMI site.
- 1.1.41 **Personnel Monitoring Equipment** - As defined in 10 CFR 20.1003, devices designed to be worn or carried by an individual for the purpose of measuring the dose received (e.g., pocket dosimeters, thermoluminescent dosimeters, etc.).
- 1.1.42 **Plume Exposure Pathway EPZ** - The approximate 10 mile Emergency Planning Zone in which a radioactive plume can expose the population-at-risk and/or onsite personnel to radiation. The principal modes of exposure in the EPZ are: (1) whole body external exposure to gamma radiation from the plume, and (2) dose commitments from inhalation of the radioactive material within the plume.
- 1.1.43 **Population-At-Risk** - Those persons for whom protective actions are being or would be taken.
- 1.1.44 **Population Center Distance** - The distance from the reactor to the nearest boundary of a densely populated center containing more than about 25,000 residents.
- 1.1.45 **Projected Dose** - A calculated estimate of dose which the population-at-risk may receive as a result of a radiological emergency in the absence of protective action.
- 1.1.46 **Properly Relieved** - Qualified individual/fit for duty.
- 1.1.47 **Protected Area** - As defined in 10 CFR 73.2, an area encompassed by physical barriers and to which access is controlled. This area includes all areas within the security fence that immediately surrounds the major site structures (i.e. Reactor, Auxiliary, Turbine, Service, Fuel Handling, and Control Buildings).
- 1.1.48 **Protective Actions** - Those actions taken during or after an emergency situation that are intended to minimize or eliminate the hazard to the health and safety of the general public and/or on-site personnel.
- 1.1.49 **Protective Action Guides** - Projected radiological dose or dose commitment values to individuals in the general population and to emergency workers that warrant protective action before or after a release of radioactive material. Protective actions would be warranted provided the reduction in individual dose expected to be achieved by carrying out the protective action is not offset by excessive risks to individual safety in taking the protective action. The protective action guide does not include the dose that has unavoidably occurred prior to the assessment.

Three Mile Island Emergency Plan

- 1.1.50 **RAC Model** - Computer model used by the radiological assessment personnel to estimate radiological release source terms and make off-site dose projections. This model has been verified by comparison of results to those from the MIDAS Model.
- 1.1.51 **Radiologically Controlled Area** - All plant areas where radiation, contamination, or airborne radioactivity have a potential for existing in amounts above the limits set forth for an uncontrolled area as defined in 10CFR20; includes Radiation Area, High Radiation Area, Airborne Radioactivity Area, Radioactive Material Area, Contaminated Area or any other posting established for Radiological Controls purposes.
- 1.1.52 **Recovery Actions** - Those actions taken after the emergency to restore the plant as nearly as possible to its pre-emergency condition.
- 1.1.53 **Restricted Area** - As defined in 10 CFR 20.3, any area access to which is controlled by the licensee for purposes of protection of individuals from exposure to radiation and radioactive materials. A restricted area shall not include any areas used as residential quarters, although a separate room or rooms in a residential building may be set apart as a restricted area.
- 1.1.54 **Risk County** - Any County which is within (in whole or in part) the Plume Exposure Pathway (i.e., approximate 10 mile) Emergency Planning Zone.
- 1.1.55 **Semi-Annually** - Twice within a calendar year.
- 1.1.56 **Site Area Emergency** - An emergency classification where events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public. This emergency class includes accidents which have a significant radiation release potential. Any releases are not expected to exceed EPA Protective Action Guide exposure levels except near the site boundary.
- 1.1.57 **State** - A term used for convenience to indicate the Commonwealth of Pennsylvania.
- 1.1.58 **State Plan** - State developed and maintained radiological emergency response plan (RERP) which coordinates off-site response by state, county and municipal agencies.
- 1.1.59 **Technical Support Center (TSC)** - Emergency response facility utilized by engineering personnel to provide engineering support for emergency operations.
- 1.1.60 **Tornado Warning** - Meteorological conditions imminent for a tornado or a tornado sighted in the area.
- 1.1.61 **Unrestricted Area** - As defined in 10 CFR 20.1003, any area to which access is not controlled by the licensee for the purposes of protection of individuals from exposure to radiation and radioactive materials, and any area used for residential quarters.
- 1.1.62 **Unusual Event** - An emergency classification where events are in progress or have occurred which indicate or allow recognition of a potential degradation of the level of safety of the plant. No releases of radioactive material requiring off-site response or monitoring are expected unless further degradation of safety systems occurs.

Three Mile Island Emergency Plan1.2 Abbreviations

- 1.2.1 AmerGen Amergen Energy Company, LLC
- 1.2.2 BRP - Bureau of Radiation Protection
- 1.2.3 CDE - Committed Dose Equivalent
- 1.2.4 CFR - Code of Federal Regulations
- 1.2.5 cpm - counts per minute
- 1.2.6 CRO - Control Room Operator
- 1.2.7 CRS - Control Room Supervisor
- 1.2.8 CRT - Cathode Ray Tube
- 1.2.9 DEP - Pennsylvania Department of Environmental Protection
- 1.2.10 DFO - Disaster Field Office
- 1.2.11 DGI - Digital Graphics Incorporated
- 1.2.12 DOE - US Department of Energy
- 1.2.13 dpm - disintegrations per minute
- 1.2.14 EAA - Emergency Assembly Area (on-site)
- 1.2.15 EAC - Environmental Assessment Coordinator
- 1.2.16 EAAC - Emergency Assembly Area Coordinator
- 1.2.17 EACC - Environmental Assessment Command Center
- 1.2.18 EAL - Emergency Action Level
- 1.2.19 EAS - Emergency Alert System
- 1.2.20 ECC - Emergency Control Center
- 1.2.21 ED - Emergency Director
- 1.2.22 EMA - Emergency Management Agency
- 1.2.23 ENS - NRC Emergency Notification System
- 1.2.24 EOC - Emergency Operations Center
- 1.2.25 EOF - Emergency Operations Facility

Three Mile Island Emergency Plan

- 1.2.26 EPA - US Environmental Protection Agency
- 1.2.27 EPI - Emergency Public Information
- 1.2.28 EPIP - Emergency Plan Implementing Procedure
- 1.2.29 EPZ - Emergency Planning Zone
- 1.2.30 ESD - Emergency Support Director
- 1.2.31 FEMA - Federal Emergency Management Agency
- 1.2.32 FRERP - Federal Radiological Emergency Response Plan
- 1.2.33 FRMAC - Federal Radiological Monitoring and Assessment Center
- 1.2.34 FRMAP - Federal Radiological Monitoring and Assessment Plan
- 1.2.35 FSAR - Final Safety Analysis Report
- 1.2.36 FTI - Framatome Tech. Inc.
- 1.2.37 GM - Geiger Mueller (radiation detection tube)
- 1.2.38 GPUN - GPU Nuclear, Inc.
- 1.2.39 HPN - NRC Health Physics Network Line
- 1.2.40 JIC - Joint Information Center
- 1.2.41 LPZ - Low Population Zone
- 1.2.42 NRC - US Nuclear Regulatory Commission
- 1.2.43 NRR - US Nuclear Regulatory Commission, Nuclear Reactor Regulation
- 1.2.44 NWS - US National Weather Service
- 1.2.45 NUREG - Nuclear Regulatory Guide
- 1.2.46 OSC - Operations Support Center
- 1.2.47 PAG - Protective Action Guides
- 1.2.48 PAR - Protective Action Recommendation
- 1.2.49 PEMA - Pennsylvania Emergency Management Agency
- 1.2.50 PEMARS - Pennsylvania Emergency Management Agency Radio System
- 1.2.51 RAA - Remote Assembly Area (off-site)

Number

TMI - Unit 1
Administrative Procedure

1092

title

Revision No.

7

Three Mile Island Emergency Plan

- 1.2.52 RAC - Radiological Assessment Coordinator
- 1.2.53 RCC - Radiological Controls Coordinator
- 1.2.54 RERP - Radiological Emergency Response Plan
- 1.2.55 RMS - Radiation Monitoring System
- 1.2.56 SDD - System Design Description
- 1.2.57 SM - Shift Manager
- 1.2.58 SRO - Senior Reactor Operator
- 1.2.59 TEDE - Total Effective Dose Equivalent
- 1.2.60 TLD - Thermoluminescent Dosimeter
- 1.2.61 TMI - Three Mile Island
- 1.2.62 TSC - Technical Support Center
- 1.2.63 χ/Q - Atmospheric Dispersion Factor (χ/Q)

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

2.0 APPLICABILITY AND SCOPE

The prime objectives of emergency planning are to: (1) develop a plan and implementing procedures that will provide the means for mitigating the consequences of emergencies (including very low probability events) in order to protect the health and safety of the general public and site personnel and to prevent damage to property and (2) ensure operational readiness of emergency preparedness capabilities.

This Emergency Plan has been developed in accordance with the provision of 10 CFR 50, Appendix E and 10 CFR 50.47, and is consistent with the guidelines given in (1) Regulatory Guide 1.70, "Standard Content and Format of Safety Analysis Reports for Nuclear Power Plants", Revision 3 and (2) "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants", NUREG 0654/FEMA-REP-1, dated November, 1980. Additional references used in the development of this Emergency Plan are listed in Section 10.

2.1 General Demographic and Geographic Information

In addition to the following information, specific details concerning Three Mile Island site are included in the Final Safety Analysis Report (FSAR).

2.1.1 General Information and Site Description

Three Mile Island Unit 1 is operated by AmerGen Energy Company, LLC. The Three Mile Island Nuclear Unit #1 has a pressurized water-type nuclear steam supply system supplied by Babcock & Wilcox Company. The TMI-1 reactor uses chemical shim and control rods for reactivity control and generates steam with a small amount of superheat in once-through steam generators and is an 870 Mw plant. TMI Unit II is owned by GPU Nuclear. The TMI-2 reactor, damaged during an accident in 1979 has been defueled and the plant has entered long-term monitored storage. Monitoring of this facility is performed by AmerGen Energy Company, LLC through a service agreement with GPU Nuclear. The arrangement of the major TMI-1 and TMI-2 facilities is shown in Figure 1.

Three Mile Island is located in an area of low population density about 12 miles southeast of Harrisburg, Pennsylvania.

The area is in Londonderry Township, Dauphin County, about 2.5 miles from the southern tip of Dauphin County, where the county is coterminous with York and Lancaster Counties.

The TMI site is part of an 814 acre tract consisting of Three Mile Island and several adjacent islands which were purchased by a predecessor. The island, which is situated about 900 feet from the east bank and approximately one mile from the west bank of the Susquehanna River, is elongated parallel to the flow of the river with its longest axis oriented approximately due north and south. The north and south ends of the island have access bridges which connect the island to State Highway Route 441. The north access bridge is used daily. Route 441 is a two lane highway which runs parallel to Three Mile Island on the east bank of the Susquehanna River and is more than 2,000 feet from the TMI reactors at the closest point. A Norfolk Southern one-track line runs adjacent and parallel to Route 441 on the east bank of the river. On the west bank of the river, there is a multi-track Norfolk Southern line at the river's edge about 1.25 miles west of the site and a black top, two lane road that runs parallel to it. There is a one-track railroad spur across the bridge on the north end of the island which is used for site-related activities. A general area map showing the relative location of the TMI sites is shown as Figure 2.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

2.1.2 Owner Controlled Area, Exclusion Area and Low Population Zone

The Owner Controlled Area for the Three Mile Island site includes all areas within the perimeter security fence. The minimum distance to the owner controlled area boundary is measured from the centerline of the Fuel Handling Building to the western shoreline of the island which is approximately 675 feet.

The Exclusion Area for the TMI site is a 2,000 foot radius that includes a portion of Three Mile Island, the river surface around it, and a portion of Shelly Island. The minimum distance of 2,000 feet occurs on the shore of the mainland in a due easterly direction. The TMI-1 licensee retains complete authority to determine and maintain sufficient control of all activities including the authority to exclude or remove personnel and property for all land areas within the exclusion area. A map showing the exclusion area boundary is included as Figure 3. For the purposes of Emergency Planning, the exclusion area boundary and the site boundary are considered the same.

The Low Population Zone has a minimum distance of 2 miles to its outer boundary. The area of the Low Population Zone is also shown in Figure 3.

2.1.3 Population and Population Distribution

As previously discussed, the low population zone has been defined with a minimum distance of 2 miles from its outer boundary to the TMI site. The nearest major population center is Harrisburg, Pennsylvania which is located approximately 12 miles northwest of TMI. This distance satisfies the requirements of 10 CFR 100 with respect to population center distance. The population of residential areas, typical enrollment in various schools, and the hospital patient capacity in the surrounding area can be found in the TMI Evacuation Time Estimate Study.

Within the two mile low population zone, there are no schools. There are several recreational areas (Falmouth Fish Commission Access Area, Tri-County Boat Club and Canal Lock Boat Launch Area). There is some seasonal shift in population within a 5 mile radius of Three Mile Island since there are over 100 summer cabins on the islands within the area. Additional transients participate in boating activities in the vicinity of Three Mile Island.

2.1.4 Local Industrial and Military Facilities

The Three Mile Island site is currently surrounded by farm lands within a 10 mile radius. Lands are used for dairy cattle, tobacco, poultry, vegetables, fruit, corn, wheat, and other products. A summary of land use for the risk counties is provided in Table 1 and the FSAR. The Susquehanna River is used for sport fishing and boating but is not used for commercial fishing. Manufacturing industries in the region produce clothing, wood products, shoes, electrical wiring devices, steel products, packed meat and other food. These activities, within a 10-mile radius of the site, are confined chiefly to the communities of Harrisburg, New Cumberland, Steelton, and Middletown. A listing of typical industries within 10 miles of TMI can be found in the site FSAR. There are gas and oil transmission lines located at a minimum distance of approximately 2 miles from TMI.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

Approximately 3 miles downstream from the site is the York Haven hydro-electric project. The York Haven Station is operated on a "run-of-the-river" basis, and its power output is dependent primarily upon the water available. The reservoir is used for peaking operation during periods of low river flow. Brunner Island Station, a large steam-electric generating plant owned by the Pennsylvania Power & Light Company is located on the Susquehanna River approximately one mile downstream from the York Haven project. This station uses water from the river on a "once-through" basis for cooling water. Three other hydroelectric generating stations are also located downstream from TMI, with each project having a dam and reservoir on the Susquehanna River. The three stations are Safe Harbor, Holtwood, and Conowingo Hydroelectric projects, located approximately 25, 31, and 47 miles south of Three Mile Island, respectively. There is also a coal fired, steam electric plant at Holtwood, and the Muddy Run Pumped Storage Project is associated with Conowingo station. The Peach Bottom Nuclear Generating Station is located along the west bank of the Susquehanna River, about 41 miles downstream of Three Mile Island, just north of the Maryland-Pennsylvania border and is the only nuclear plant within a 50-mile radius of Three Mile Island.

There are two airports within 10 miles of the TMI sites. Harrisburg International Airport (formerly Olmsted Air Force Base) is located on the east bank of the Susquehanna River approximately 2.5 miles northwest of the site. The Capital City Airport is located approximately 8 miles west-northwest of TMI. The vital areas of the TMI sites are designed to withstand a hypothetical aircraft accident.

Norfolk Southern lines are located on both sides of the Susquehanna River, the closest being the east bank, approximately 2,000 feet from the TMI Reactor Buildings. Routine traffic in liquified petroleum gas was identified on the railroad line which passes along the east shore of the river. Analyses indicate that any missiles generated by this traffic would be less damaging than the postulated aircraft strike against which the plant is protected and that flammable gases would dissipate before reaching the TMI Nuclear Units.

The closest military installation to the site is the Air National Guard facility at Harrisburg International Airport. There are no military firing ranges or missile facilities within a 10 mile radius of TMI. Other military facilities, however, are Army and Navy depots located at New Cumberland and Mechanicsburg, Pennsylvania, respectively.

2.1.5 Emergency Planning Zones

TMI has taken into consideration the information and data presented above, guidance provided by the Environmental Protection Agency, Nuclear Regulatory Commission and the Pennsylvania Emergency Management Agency as well as other important factors such as organizational capabilities, availability of emergency facilities and equipment, and the methods for implementing the Emergency Plan in defining the Emergency Planning Zones (EPZs) for the Three Mile Island. As a result, an EPZ having an approximate radial distance of 10 miles from the site has been defined as the Plume Exposure Pathway EPZ. An EPZ having a radial distance of 50 miles from the site has been defined as the Ingestion Exposure Pathway EPZ. Figures 4 and 5 illustrate the respective boundaries of this EPZ.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

2.2 Scope of the Emergency Plan

In the event of an accident, a radioactive release may pose the principal threat to the workforce and population-at-large in the area around the plant site. Emergency preparedness planning accordingly then focuses on response to this release potential. Prime objectives include development of plans and procedures that provide the basis for efficient and effective radiological emergency response, ensure and maintain operational readiness and emergency preparedness and mitigate environmental impact.

The Emergency Plan describes the methods and procedures to be used by TMI in satisfying its onsite responsibilities. The Emergency Plan describes: (a) the organizations and facilities to be relied upon in responding to emergencies, (b) the means to be used for initial accident assessment and notification, (c) the resources available for continued monitoring, assessment and dissemination of information about the emergency, (d) the emergency measures to be taken, including onsite protective and corrective actions, and (e) the procedures to be followed for maintaining emergency preparedness.

To ensure that the response to emergencies is initiated in a timely manner and effectively controlled, the Emergency Plan is coordinated with other plans, programs, and procedures, as follows:

2.2.1 Emergency Plan Implementing Document

The TMI Emergency Plan has Implementing Documents which are distributed to those individuals, agencies, organizations, and facilities where immediate availability of such information would be required in an emergency. The Implementing Documents are organized to provide:

- ① Detailed Emergency Plan Administrative Procedures which define all necessary actions that must be performed on a periodic basis in order to ensure readiness of the emergency preparedness program. These procedures cover such topics as training, drills, emergency equipment and administration of emergency duty rosters.
- ② Detailed Emergency Plan Implementing Procedures that define specific emergency action levels, requirements for implementation of the procedures, persons responsible for implementing each procedure and the detailed emergency actions (i.e., step by step instructions) necessary to implement the procedure. These procedures give detailed instructions to be used during an emergency including: emergency assessment, classification, notification, protective and corrective actions.

The Emergency Plan Implementing Procedures have a direct relationship to the Emergency Plan and are coordinated with other corporate and site-specific plans, programs, and procedures.

2.2.2 Related Plans, Programs, and Procedures

- ① The site Security Plans and procedures and the Emergency Plan and Implementing Procedures have been coordinated to ensure that appropriate emergency actions can be taken. For example, the Security Plan and procedures will make provision for emergency response personnel and vehicle access when required by Emergency Plan Implementing Procedures.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title		Revision No. 7
Three Mile Island Emergency Plan		

- ② The Radiation Protection Plan sets forth the philosophies, basic policies and objectives of the Radiological Controls Programs at TMI. The objectives of the radiological controls programs are to control radiation hazards to avoid accidental radiation exposures, to maintain exposures within the regulatory requirements and to maintain exposures to workers and the general population as low as is reasonably achievable. In addition, Radiological Controls Procedures provide adequate guidance and specify appropriate methods or techniques to ensure that the performance of each activity is in accordance with sound radiological controls principles, and is in compliance with applicable regulatory provisions. The pertinent information and details provided in these documents either have been incorporated into the Emergency Plan, Implementing Procedures or appropriately referenced.
- ③ The TMI Environmental Control Plan provides for systematic control of plant systems and materials to avoid accidental environmental discharges and thereby minimize the environmental impact of plant operation.
- ④ A comprehensive set of Emergency Operations Procedures that are used to control plant operations during emergency and abnormal conditions have been prepared. Since there is a direct relationship between emergency operations and emergency planning, these procedures and the Emergency Plan Implementing Procedures are coordinated and complementary. As a result, specific Emergency Operations Procedures will, when appropriate, direct the onshift operations personnel to the applicable Emergency Plan Implementing Procedure(s).
- ⑤ TMI has developed the Emergency Public Information Implementing Document for the TMI site. This implementing document describes the methods by which TMI will disseminate information to the media and the public.

2.2.3 Related County and State Plans

The development of the Commonwealth of Pennsylvania Emergency Plan and the TMI Emergency Plan were closely coordinated. In addition, specific State requirements for reporting of emergencies, providing information and data, and recommending protective actions, have been integrated directly into the Emergency Plan Implementing Procedures. In considering the Plume Exposure Pathway EPZ, there are also county plans that have been considered in the development of the TMI Emergency Plan. The State Plan designates the Pennsylvania Emergency Management Agency (PEMA) as the lead state agency for radiological emergency response planning and the state agency through which the Governor will exercise coordination and control during emergency. The State Plan is an integrated document setting forth the resources and responsibilities of all relevant state agencies. Significant plans from the State Departments of Agriculture, Environmental Resources, Bureau of Radiation Protection are included in the State Plan.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

3.0 SUMMARY OF EMERGENCY PREPAREDNESS PROGRAM

The Emergency Preparedness Program, consists of separate, coordinated, documents. The Emergency Plan provides the means for performing advance planning and defining specific requirements and commitments that will be implemented by other documents and procedures (e.g., Administrative Procedures, Surveillance Procedures, and Emergency Plan Implementing Procedures). The Emergency Plan Implementing Documents provide the detailed information and procedures that will be required to implement the Emergency Plan, in the event of an emergency at the TMI reactor site and to ensure a high state of emergency readiness.

3.1 The TMI Emergency Plan

The TMI Emergency Plan ensures that all emergency situations, including those which involve radiation or radioactive material are handled logically and efficiently. It covers the entire spectrum of emergencies from minor, localized emergencies to major emergencies involving action by offsite emergency response agencies and organizations. The TMI Emergency Plan includes schemes for classifying emergencies consistent with the guidance provided by the Nuclear Regulatory Commission (NRC) in NUMARC/NESP-007, Revision 2. This classification system is described in detail in Section 4.0 with site specific information in the applicable Emergency Plan Implementing Procedures (EPIPs). A summary of each classification, its description, purpose and a list of the actions to be taken by TMI site personnel and offsite authorities is included in Table 2. Furthermore, this Plan incorporates response criteria (emergency action levels) which will be used in the assessment of emergency situations.

In summary, the TMI Emergency Plan provides:

- ① Guidance for classifying emergency conditions.
- ② Guidance for reclassifying such emergency conditions should the severity increase or decrease.
- ③ Details of emergency response organizations.
- ④ General guidelines, as well as specific details, as to which state, county and federal authorities and agencies, and other outside organizations are available for assistance.
- ⑤ Information pertaining to the emergency facilities and equipment available both on-site and off-site.
- ⑥ Emergency Preparedness direction necessary for the development of Emergency Plan Implementing Procedures.
- ⑦ Commitments to training, drills, reviews and audits, which will ensure a high degree of emergency preparedness and operational readiness on a continuous basis.
- ⑧ Figures and tables which display detailed information and data such as organization charts, maps, etc.
- ⑨ Emergency Public Information Implementing Procedure.
- ⑩ Site-specific plans and agreements pertaining to participating off-site organizations and agencies.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

3.2 The Implementing Documents

The Emergency Plan Implementing Documents provide a "single source" of pertinent information and the procedures required by or useful to various emergency response organizations for the site. The Implementing Documents, therefore, consolidate and integrate specific material described in such documents as the Emergency Plan, the State Plans, and the various County Plans.

The TMI Emergency Plan Implementing Documents provide:

- ❶ Administrative Procedures necessary to ensure a high state of readiness.
- ❷ Implementing Procedures which detail the emergency actions to be taken by appropriate plant personnel.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

4.0 EMERGENCY CONDITIONS

4.1 Emergency Classification System

This Emergency Plan characterizes four classes of emergency situations which consist of mutually exclusive groupings covering the entire spectrum of possible emergency situations. Each class is associated with a particular set of immediate actions to be taken to perform: (1) accident classification, (2) notification of offsite agencies and support groups, and (3) mobilization of the applicable portion of the emergency organizations to cope with the situation and continue accident assessment functions. The various classes of emergencies represent a hierarchy of events based on potential or actual hazards presented to the general public. Emergencies may be classified in a lower category at first and then escalate to another, higher class if the situation deteriorates, as well as de-escalate as the situation improves.

Although mobilization of TMI personnel is generally keyed to a specific formal classification of emergency, declaration of an emergency is not a prerequisite for activation of TMI emergency response organizations and facilities. However, activation and mobilization must occur if a prescribed emergency level is declared.

Each of the four emergency classes are characterized by emergency action levels. These levels consist of specific sets of plant parameters (e.g., instrument indications, system status) that will be used to initiate emergency response including (1) emergency class designation, (2) notification, and (3) emergency organization mobilization. These emergency action levels are used to facilitate rapid assessment and accident classification and to attain rapid readiness status on the part of emergency response persons and organizations. These levels have not been selected so as to infer any immediate need to implement protective actions but rather to ensure a reasonable amount of time is available to confirm in-plant readings by implementing assessment measures onsite and offsite. Once declaration of an emergency class requiring possible protective action occurs, dose assessments will be made by measurement and/or projection methods. The dose assessment values, along with other plant status assessments, will be reported to offsite agency officials as inputs for their decision on whether or not protective actions should be implemented for the public. The relationship of these dose assessment values to the Environmental Protection Agency (EPA) Protective Action Guides (PAGs), as well as the possibility of approaching or exceeding the PAGs, will be reported.

A specific methodology was used to relate Total Effective Dose Equivalent (TEDE), hereafter referred to as Total Whole Body Dose, and thyroid dose (CDE) emergency action levels of the Alert, Site Area and General Emergency classes to the EPA PAGs. The radiation levels used in the Emergency Action Levels (EALs) were chosen such that an individual exposed to these levels would receive a dose equivalent to the following fraction of the EPA PAGs:

	NESP-007
	<u>Fraction of PAG</u>
Alert	N/A
Site Area Emergency	≥ 0.10
General Emergency	≥ 1.00

The applicable PAG(s) for TMI-1 Emergency Action Levels are 1 Rem total whole body dose (total effective dose equivalent) and 5 Rem thyroid dose (CDE).

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan	Revision No. 7	

The philosophy used to classify an emergency is to promptly declare the highest class for which an emergency action level is indicated, based on plant status or projected dose. For example, a Site Area Emergency would be declared directly if a Site Area Emergency action level is exceeded, even if the lower Alert class had not been previously declared. The classification system is designed to permit rapid evaluation of plant conditions based on comparison to established emergency action levels to facilitate prompt recognition and declaration of emergencies (typically within 15 minutes of the onset of an event).

Emergency action levels and corresponding indications requiring emergency declaration are found in the site's Emergency Plan Implementing Procedures (EPIP's). The intent of the stated values is to provide absolute values which, if exceeded, will initiate the required action for the given emergency classification.

Each of the four emergency classes, and the related emergency action levels requiring declaration of each class, are described in the following subsections.

4.1.1 Unusual Event

The least severe of the four emergency classes defined by this Plan is called an Unusual Event. For the purposes of this Plan, an Unusual Event shall be defined as the occurrence of an event or events that indicate or allow recognition of a potential degradation of the level of safety of the plant.

The incident shall be classified as an Unusual Event only if the event is a minor one and no releases of radioactive material requiring offsite response or monitoring are expected. Events in this class are selected based upon a potential to degrade to a more severe situation rather than an actual public hazard.

In addition the Emergency Director shall also declare an Unusual Event any time that in his judgement plant conditions exist that warrant the activation of emergency centers and precautionary public notification. The Unusual Event class may be referenced by an action statement in a specific Emergency Operating Procedure, Abnormal Transient Procedure or Abnormal Operating Procedure. Steps in these procedures state that an Unusual Event has occurred or is occurring and require that an Unusual Event class of emergency be declared in accordance with the Emergency Plan Implementing Procedures. All Emergency Plan related actions (notification, etc.) will be carried out in parallel with the remainder of the Operating Procedures.

In exercising the judgement as to the need for declaring an Unusual Event, uncertainty concerning the safety status of the plant, the length of time the uncertainty exists and the prospects for resolution of ambiguities in a reasonable time period is sufficient basis for declaring an Unusual Event.

4.1.2 Alert

The next level of emergency class designated in this Plan is called an Alert. An Alert is the occurrence of an event or series of events that indicate and allow recognition of an actual or potentially substantial degradation of the level of safety of the plant. As in the case of an Unusual Event, the Alert class includes emergency situations that are expected to be minor in nature but where it has been deemed prudent to notify more of the off-site emergency response agencies and mobilize a larger portion of the emergency organization. In addition, because of the nature of the Alert class (releases of radioactive

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

material possible), broader assessment actions will be started. Events that will initiate an Alert shall be those with the potential of limited releases of radioactive material to the environment or events that indicate a decrease in plant safety with potentially severe consequences. As before, a situation will only be classified at the Alert level if none of the emergency action levels for a higher class have been exceeded or are expected to be exceeded in the near term. The values specified are absolute action levels requiring declaration of the Alert emergency class.

In addition, the Emergency Director shall also declare an Alert any time that in his judgement plant conditions exist that warrant the activation of emergency centers and precautionary public notification.

This class of emergency may also be referenced by arrival at an action statement in specific Emergency Operating, Abnormal Operating or Abnormal Transient Procedures. Steps in these procedures state that an Alert has occurred or is occurring and require that an Alert class of emergency be declared in accordance with Emergency Plan Implementing Procedures.

All Emergency Plan related actions (notification, etc.) will be carried out in parallel with the remainder of the Operating Procedure (s).

In exercising the judgement as to the need for declaring an Alert, uncertainty concerning the safety status of the plant, the length of time the uncertainty exists the prospects for resolution of ambiguities beyond a reasonable time period and the potential of the level of safety of the plant is sufficient basis for declaring an Alert.

4.1.3 Site Area Emergency

The next level of emergency class designated is the Site Area Emergency. The Site Area Emergency class includes accidents in which actual or likely major failures of plant functions needed for protection of the public have occurred. Although immediate protective actions are not automatically required, declaration of a Site Area Emergency will set into motion all personnel on-site and off-site that would be required to perform actions in preparation for a potential evacuation to off-site areas. Monitoring teams will be dispatched to make continuing assessments and provide officials with information necessary to make decisions concerning protective actions. The Site Area Emergency class includes accidents which have a significant radiation release potential.

In addition, the Emergency Director shall also declare a Site Area Emergency any time that in his judgement plant conditions exist that warrant the activation of emergency centers and precautionary public notification. In exercising the judgement as to the need for declaring a Site Area Emergency, uncertainty concerning the status of the plant functions needed for protection of the public, the length of time the uncertainty exists, the prospects for resolution of ambiguities beyond a reasonable time and the potential degradation of the plant functions needed for protection of the public is sufficient basis for declaring a Site Area Emergency.

This class of emergency may also be referenced by arrival at an action statement in specific Emergency Operating, Abnormal Operating or Abnormal Transient Procedures. Steps in these procedures state that a Site Area Emergency has occurred or is occurring and requires that a Site Area Emergency be declared in accordance with Emergency Plan Implementing Procedures as a minimum.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

All Emergency Plan related actions (notification, etc.) will be carried out in parallel with the remainder of the Operating Procedure (s).

It should be noted that, unlike the two previously described classes of emergency, the Site Area Emergency class may likely involve some radiation exposure to the public. Many of the accidents included in the class have the potential for degradation to the General Emergency class. Although the emergency action levels for this class have been selected at values which would result in off-site exposures below the protective action guides, off-site monitoring team reports and continuing assessment may lead to a decision warranting a recommendation for protective actions. If such a decision is necessary, a General Emergency shall be declared prior to issuing the protective action recommendation.

4.1.4 General Emergency

The most severe class of emergency defined by this Emergency Plan is the General Emergency. The General Emergency class includes accidents which involve actual or imminent substantial core degradation or melting with potential for loss of Reactor Building (containment) integrity (e.g. loss of two of three fission product boundaries with potential loss of the third), and other accidents that have large radioactive release potential such as fuel handling and waste gas system accidents.

In keeping with the philosophy adopted throughout this Plan, the emergency action levels are based on the EPA protective action guides and are used to (1) declare the emergency, (2) notify the appropriate authorities and support groups, and (3) mobilize the applicable portions of the emergency organizations. However, this class of emergency is somewhat different in that protective actions are typically recommended within 15 minutes of declaration of the General Emergency since the lower limits of the protective action guides may be exceeded. The emergency action levels have been selected to be consistent with the site specific EAL methodology guidance. Confirmatory measurements in the field should be made prior to any expansion of the protective actions beyond the initial recommendation.

This emergency class may arise from an action statement in specific Emergency Operating, Abnormal Operating or Abnormal Transient Procedures.

4.2 State, County and Local Classification System

State, county and local emergency plans incorporate the same emergency classification system as that utilized by TMI in this Plan. Since both the State and TMI classification schemes include events which have significant potential for radioactive releases, it is imperative that specific guidance for initiating protective actions be available to the "decision-making" personnel in emergency response organizations and agencies. The Commonwealth of Pennsylvania has, for planning purposes, adopted the Environmental Protection Agency (EPA) protective action guides (PAG's).

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

4.3 Spectrum of Postulated Accidents

Each of the discrete accidents that have been hypothesized for the plant is encompassed within the aforementioned emergency classification scheme.

4.3.1 Classification of Hypothetical Accidents

All of the events hypothesized in Chapter 14 of the TMI-1 Final Safety Analysis Report (FSAR) have been evaluated against the criteria of the four emergency classes. Approximately two-thirds are included in the Alert, Site Area, and General Emergency categories. Table 3 lists each of these events and the related emergency class. A complete discussion of these hypothetical events may be found in Chapter 14 of the TMI-1 FSAR.

4.4 Instrumentation Capability for Detection

The plant instrumentation that will be used to promptly detect accidents at TMI-1 is discussed in detail in the corresponding FSAR. Table 4 lists each hypothetical accident and the important instrumentation that would be expected to detect each. Only major installed equipment is listed.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Revision No. 7	
Three Mile Island Emergency Plan		

5.0 TMI EMERGENCY ORGANIZATION

5.1 Mobilization

TMI Emergency Response capabilities include On-Shift, Initial Response and Emergency Support Organizations. The On-Shift Emergency Organization includes members of the normal operating shift which assume an emergency posture to immediately respond to the emergency. The Initial Response Emergency Organization at TMI is comprised of rotating duty roster positions which maintain a one-hour response time, 24 hours a day, to relieve and or augment the On-shift organization as needed. The Emergency Support Organization is comprised of duty roster positions which maintain four hour and selected one hour response time, 24 hours per day, to augment the Initial Response Organization, as needed.

Emergency manpower staffing for the site is presented in Tables 5, 6 and 7. The tables include: Emergency position; minimum number of personnel required; shift position, title or expertise; emergency duties and location and person to which each emergency position reports. The Initial Response Emergency Organization shall report to the duty station within 1 hour of notification of declaration of an Alert, Site Area or General Emergency. The Emergency Support Organization shall be fully manned within 4 hours of notification of declaration of a Site Area or General Emergency; however, the Emergency Support Director and designated members of the EOF staff will respond within one (1) hour as noted in Table 7.

5.1.1 Transition from Normal Shift Organization to Emergency Shift Organization

The TMI Normal Shift Organization is shown as Figure 6. Requirements for minimum shift crews are specified in the TMI-1 Technical Specifications. Licensed operators are provided on-site on a rotating shift basis to ensure the safe and proper operation of the plant 24 hours per day. In addition, personnel from other departments are assigned to shifts to provide additional capabilities. The Normal Shift Organization can be augmented, in an emergency, with designated/additional personnel within 60 minutes of notification.

The normal operating shift organizations are generally described as follows:

- ① A **Shift Manager** is on duty at all times at TMI. The Shift Manager is the immediate position of authority and responsible for the safe and proper operation of the plant. The Shift Manager will be responsible for the initial evaluation of any abnormal or emergency situation and for directing the appropriate response. If it is determined that an emergency exists, those responsibilities assigned to the Emergency Director will be assumed by the Shift Manager.

The **Shift Manager** (or Senior Plant Representative) may request and direct activation of any or all emergency response organizations, or any portions there of, as he may deem appropriate, based on non-emergency plant conditions for which he perceives a need for additional support.

The **Emergency Director** will initiate appropriate actions, implement proper procedures, notify appropriate offsite emergency response organizations and agencies (e.g., risk county[ies], PEMA, NRC) and retain such responsibilities until relieved by the Initial Response Emergency Organization Emergency Director. During normal and emergency operations, the Shift Manager shall

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

retain responsibility for the plant safety and shall maintain control over the conduct of operations and personnel in the Control Room unless relieved by a senior reactor operator (SRO) licensed management representative.

- ② The **Control Room Supervisor** assists the Emergency Director. In the absence of the Shift Manager, the Control Room Supervisor will assume his responsibilities.
- ③ The **Control Room Operators** are responsible for the manipulation of controls as necessary to perform plant operations as directed by the Control Room Supervisor or Shift Manager. They are responsible to the Control Room Supervisor.
- ④ The **Auxiliary Operators** are responsible for performing component and/or system operations outside the Control Room. They are responsible to the Control Room Supervisor.
- ⑤ In addition to the operations personnel assigned to each shift, a **Shift Technical Advisor** is assigned to each shift. He/She serves as an advisor on plant safety to the Shift Manager. He/She has no duties or responsibilities for manipulation of controls or for command of operations.
- ⑥ Radiological Controls Technicians are assigned to each shift. These technicians are qualified to determine doses received by workers during the performance of their duties and will be available during emergencies on a 24-hour-per-day basis to perform related functions.
- ⑦ To provide for round-the-clock maintenance coverage, a maintenance crew is assigned to each shift. This crew typically consists of several craft personnel providing capability in the mechanical, electrical, and instrumentation and controls disciplines overseen by plant supervision.
- ⑧ The **Site Security Force** provides round-the-clock security services in accordance with the Security Plan and procedures.

5.1.2 On-Shift Emergency Organization

An On-Shift Emergency Organization will be maintained for TMI. Upon declaration of an emergency, members of the Normal On-Shift Organization gain additional responsibilities by assuming roles as the On-Shift Emergency Organization. This transition is shown in Figure 7. These roles are retained until these personnel are relieved by members of the Initial Response Emergency Organization or other qualified personnel. The On-Shift Emergency Organization is described as follows:

- ① **Emergency Director** - The senior licensed individual in the Control Room (i.e., TMI-1 Shift Manager) assumes the duties of the Emergency Director. The TMI-1 Shift Manager assumes the duties of the Emergency Director in the event of a TMI-2 related emergency. The individual assigned to the duties of Emergency Director, will assume overall charge of the plant emergency, ensure that the Emergency Plan is properly implemented and notify senior plant management. He shall retain his normal plant responsibilities in addition to these emergency responsibilities until properly

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

relieved. When relieved, this individual may assume the Operations Coordinator position.

Due to the numerous responsibilities assigned to the Shift Manager at the onset of an emergency, he shall prioritize his actions to (1) ensure the safe operation of the plant, (2) ensure that immediate notification requirements are met, (3) obtain an operational and radiological assessment of the emergency, and (4) perform additional emergency actions as designated in the plant procedures as time and conditions permit.

- ② **Control Room Supervisor** - The next senior licensed individual in the control room, (i.e., TMI Control Room Supervisor), is responsible for directing the actions of the control room operators to return the plant to a safe condition. He may assume the responsibilities of the Operations Coordinator. When relieved, he again reports to the senior licensed individual, i.e., Shift Manager, etc., and continues to direct plant operations through the control room operators.
- ③ **Shift Technical Advisor** - The Shift Technical Advisor retains the normal STA duties to advise and assist the Emergency Director on plant conditions.
- ④ **ECC Communications Coordinator** - Control room operators assume the role of ECC Communications Coordinator. This position is responsible to make notifications to offsite agencies until properly relieved. (Actual notifications to off-site agencies may be delegated to the ECC Communicator). The remaining control room, equipment and auxiliary operators continue to support emergency plant operations.
- ⑤ **ECC Communicator** - The ECC Communicator position is filled by selected maintenance personnel. This position is responsible for callout of the Initial Response Emergency Organization and Emergency Support Organizations, and the ECC Communicator may be requested to make notifications to off-site agencies.
- ⑥ **Radiological Assessment Coordinator** - The On Shift Radiological Assessment Coordinator assumes the role of Radiological Assessment Coordinator (RAC) and provides the radiological assessment input and radiological support. This position reports to and advises the Emergency Director in regards to in-plant, onsite and offsite radiological conditions. At the RAC, he/she performs dose projections, coordinates onsite and offsite radiological/environmental survey teams and helps formulate Protective Action Recommendations in conjunction with the Emergency Director. The RAC also coordinates the dispatch of Radiological Control Technicians from the OSC. The On-Shift Radiological Assessment Coordinator will turn over the duties to the IREO RAC when relieved.
- ⑦ **Operations Support Center Coordinator** - The Maintenance Team Leader fills the Operations Support Center (OSC) Coordinator position. His responsibilities include chemistry, maintenance and operations support. This position reports to the Emergency Director until properly relieved.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

- ③ **Chemistry Coordinator** – A senior Chemistry technician assumes the position of Chemistry Coordinator. This position reports to the OSC Coordinator and is responsible for sample procurement and analysis. When relieved, the Chemistry Coordinator returns to his normal duties of chemistry support.
- ⑨ **Security Coordinator** - The Security Coordinator position is filled by the Site Protection Shift Supervisor/designated Senior Site Protection Officer and is responsible for directing the security force, accountability, access control and interfaces with the local law enforcement agencies/EOD.

5.1.3 Initial Response Emergency Organization

Personnel are assigned to positions on the Initial Response Emergency Organization by the Director of the applicable Division or their designees. The Initial Response Emergency Organization is illustrated on Figure 8. The duty roster assignments will be published to ensure that full coverage is provided. As a minimum, this organization will be manned at the Alert level.

5.1.3.1 Direction and Coordination

As previously stated, the Shift Manager will initially assume the responsibilities of the Emergency Director in the event of an emergency. Until personnel can be recalled to staff the Initial Response Emergency Organization, the Shift Manager will assign members of the on-shift organization to carry out the appropriate prioritized actions. In addition, he will ensure notification of the duty roster Emergency Director, who will relieve the Shift Manager of Emergency Director responsibilities upon his arrival in the Control Room. If the Shift Manager is unavailable or becomes incapacitated for any reason, the Control Room Supervisor has the authority to assume the position of Emergency Director until properly relieved by a designated Emergency Director. The Operations Coordinator may assume the ED Role, if necessary, until properly relieved.

The **Emergency Director** has the authority and the responsibility to immediately and unilaterally initiate any emergency action, including providing protective action recommendations to authorities responsible for implementing offsite emergency measures.

Following notification of an existing or potential emergency, the Emergency Director will be responsible for the assessment of emergency situations, especially where the emergency presents a real or potential hazard to offsite persons or property. The Emergency Director will implement the Emergency Plan through the use of specific Emergency Plan Implementing Procedures, activate necessary and/or required portions of the emergency organizations and, as appropriate:

- ① Establish the necessary communications to ensure that all emergency organizations are kept informed of the status of the emergency.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

- ② Provide direction and support in the plant emergency mitigation process.
- ③ Ensure that notification and reports to County, State, and Federal governments, are made in a timely manner.
- ④ Interpret radiological data in terms of real-time measurements and projected radiological doses in order to evaluate the need to recommend offsite protective actions.
- ⑤ Ensure adequate protective measures for the safety of personnel involved in emergency response efforts.

The Emergency Director is vested with certain authority and responsibility that shall not be delegated to a subordinate. Included are:

- ① Approving and directing official notifications to offsite agencies.
- ② Approving information for release to the news media. ED/ESD approval is not required for public announcement of formal emergency declarations and changes of emergency classifications.
- ③ Approving and, if possible, personally conveying appropriate Protective Action Recommendations to the State (e.g., PEMA)
- ④ Brief the NRC Site Team Leader and serve as principle "point of contact" for receiving NRC directives. However, NRC will interface with other TMI emergency response personnel in mitigating the consequences of the emergency.
- ⑤ Classification of an emergency event.
- ⑥ Directing onsite evacuation at the Alert or lower level emergency classification based on potential hazard to non-essential personnel.
- ⑦ Authorizing emergency workers to exceed 10 CFR 20 Radiation Exposure Limits.
- ⑧ Approving and directing deviation from established procedures during plant emergencies or during a declared National Security Emergency. Procedures shall be followed unless the situation dictates a valid need to deviate and in all cases the deviation shall be documented. Emergency Operating Procedures are written to address emergency conditions and generally should be followed with no deviations.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

NOTE

For National Security Emergencies the following conditions must be met:
 1) When this action is immediately needed to implement National Security Objectives as designated by the National Command Authority through the NRC, and 2) No action consistent with license conditions and technical specifications that can meet National Security objectives is immediately apparent.

No one other than a licensed SRO individual or Senior Management can make the decision to depart from the Technical Specifications, the license or license conditions (required by 10 CFR 50.54). However, if a more senior manager is present (i.e., Emergency Director) even though he does not possess an SRO License the decision authority would be passed to him as a higher authority in the chain of command. The licensed SRO shall provide his best judgement to the ED for consideration. Beyond that, the SRO shall follow the orders of his supervision. For emergencies at TMI the Emergency Director shall consult the SRO and the technical staff to the fullest extent practicable in arriving at a decision to deviate from the Technical Specifications, the license or license conditions (required by 10 CFR 50.54).

If the decision is made to depart from technical specifications, license or license conditions (required by 10 CFR 50.54), notify the NRC before taking such actions, if time permits or if time does not permit, then within one hour. Deviations from Technical Specifications, the license and license conditions (required by 10 CFR 50.54) should only be authorized in extreme cases. However, only the specific portions of those Plans and Programs that implement the requirements of 10 CFR 50.54 need be considered when reporting deviations to the NRC. As an example, this Emergency Plan is a license condition required by 10 CFR 50.54. However a deviation from this plan does not necessarily require invoking 10 CFR 50.54(x). This emergency plan is required by 10 CFR 50.54 to meet the standards in 10 CFR 50.47(b) and the requirements of 10 CFR 50 Appendix E. Only the items in these two parts are the ones that need be considered when deciding the applicability of 10 CFR 50.54(x). Specific instructions on the applicable parts of the AmerGen Plans and programs required by the license and 10 CFR 50.54 will be contained in the implementing procedures.

NOTE

10 CFR 50.54(x) must be invoked when deviating from the Technical Specifications, License, license conditions (required by 10 CFR 50.54) or safeguards measures. This should only be done when such action is immediately needed for public health and safety and no other alternatives are apparent.

If the decision is made to depart from license conditions or technical specifications, notify the NRC before taking such actions, if time permits or if time does not permit, then within one hour.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title		Revision No. 7
Three Mile Island Emergency Plan		

When the designated Emergency Support Director (ESD) arrives at the Emergency Operations Facility (EOF) and declares himself to be ready to assume that role, he will assume overall responsibility for management of the response to the accident and recovery operations. With activation of the ESD function, the ESD specifically will assume decision authority for Items 2, 3 and 4, above and may assume Item 1 if requested by the ED. Decision authority for Items 5, 6, 7 and 8 above will be retained by the Emergency Director (ED). Decisions on all of the listed actions normally will result from close and continuous consultation between the ESD and the ED and it is the responsibility of the ED to ensure the ESD is provided with the necessary information to arrive at timely and appropriate decisions. In the special case of event classification, the ESD shall retain the prerogative to overrule the ED if, in the judgment of the ESD, uncertainty or other considerations exist to the extent warranting classification of a higher level of emergency than that classified by the ED. Directives from the NRC must come from the Director of the executive team (typically, the NRC Chairman) or the Director of Site Operations (typically, the NRC Regional Administrator). Such advice or directive can only be communicated to the Emergency Director (the Emergency Support Director when the EOF is activated). If a directive is issued by the NRC Director or Director of Site Operations, the ED/ESD should request written confirmation which spells out the specific nature of the directive.

While the ED/ESD may challenge the advice of the NRC, the ED/ESD must comply with all directives.

With respect to protective action recommendations for the public, the NRC may either endorse TMI's recommendation or opt to recommend a different one. The ED/ESD is encouraged to include the NRC and State representatives in the protective action recommendation discussions in order to arrive at a mutually agreeable recommendation. In the event that the NRC opts to recommend a different recommendation, they will communicate directly with the State. Their recommendation, like the utility recommendation, will be considered by the State in the development of a Governor directive.

Upon arrival of the NRC personnel, the ED/ESD should:

- ① Verify who is the senior NRC person in charge (Site Team Leader)
- ② Ask the Site Team Leader to inform the ED/ESD once he assumes the role of Director Site Operations and whether this designation also includes the responsibility to issue directives.
- ③ Request that the NRC keep TMI informed of all substantive information exchanges between the NRC and the State.
- ④ Request that the NRC provide all directives in writing.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

As a matter of policy, when a judgement is made by the senior person in the Control Room to declare an emergency based on a discretionary emergency action level, senior management will honor this decision unless it is in error.

To ensure that proper offsite authorities are kept fully informed of the emergency status and actions in progress, the Emergency Director will ensure that follow-up messages containing the following information, if it is known and appropriate, are transmitted in a timely manner:

- Location of incident and name and telephone number (or communications channel identification) of caller
- Date/time of incident
- Class of emergency, nature of emergency, and plant status
- Type of actual or projected release and identification of potentially affected areas
- Estimate of quantity of radioactive material released or being released and height of release
- Isotopic and physical form of released material, including estimates of the relative quantities and concentration of noble gases, iodines and particulates
- Prevailing weather conditions (e.g., wind velocity, direction, temperature, atmospheric stability data)
- Actual or projected dose rates and integrated dose at exclusion area boundary and at about 2, 5 and 10 mile radii, including sectors affected
- Surface radioactive contamination levels
- Emergency response actions underway
- Recommended actions, including protective measures
- Request for on-site support from off-site organizations
- Prognosis for future course of event based on current plant information

5.1.3.2 Plant Staff Emergency Assignments

a. Assistance

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

The **ED Assistant** provides direct interface with the ECC Communications Coordinator, Emergency Assembly Area Coordinator, Security Coordinator and Public Information Representative. He then advises and assists the Emergency Director in matters pertaining to these areas.

b. Communications

The **ECC Communications Coordinator** will report to the ED Assistant. He will function as liaison between the ECC and the Initial Response and Emergency Support Organizations, governmental agencies and other off-site support organizations (e.g. Technical Support Center, Technical Support Representative, NRC headquarters, Framatome Tech Inc.). The ECC Communications Coordinator will provide reliable and accurate communications in accordance with the appropriate Emergency Plan Implementing Procedures. In addition, he is responsible for maintaining records of outgoing and incoming communications. The **ECC Communicators** will report to the ECC Communications Coordinator and be responsible for maintaining communications with the NRC as well as assisting in the notification process and receiving incoming calls.

c. Technical Support

The **Technical Support Center Coordinator** will report to the Emergency Director. The Technical Support Center engineers will assist the Technical Support Center Coordinator in analyzing current and projected plant status and, in close communications with the Emergency Director, provide technical support and recommendations regarding emergency actions. In addition, the Technical Support Center Coordinator will provide a direct interface with the Technical Support Representative and staff at the EOF. Specifically, the Technical Support Center Coordinator and his staff will:

- Assume the position of technical advisor for the emergency.
- Provide technical support, analysis, and guidance in matters concerning specific plant request, equipment response, exceeding normal equipment operating limits and technical specifications, varying from normal and emergency operating procedures.
- Analyze reactor core, mechanical, electrical, and instrument and control problems; develop solutions; design and assist in the coordination of the installation of short-term modifications.
- Provide recommendations to the plant that would mitigate the consequences of the emergency.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

- Assess the implications of actions taken and provide recommendations that would minimize damage to plant equipment, loss of plant assessment/monitoring capabilities, and reduce plant radiation and contamination levels.
- Analyze general plant conditions and develop guidance for the Emergency Director, Emergency Support Director and operations personnel.
- Analyze thermohydraulic and thermodynamic problems and develop solutions.
- Assist in the development of Emergency Procedures and Operating Procedures necessary for conducting emergency response operations, and resolve questions concerning Operating License requirements.
- Provide technical support concerning plant operating procedures, emergency operating procedures and normal plant specific concerns.

d. Plant Operations

- (1) The **Operations Coordinator** is responsible for coordinating operations and maintenance activities through the Shift Manager and the Operations Support Center Coordinator. The Operations Coordinator may not relieve the Shift Manager or specifically direct plant operations unless he is a licensed Senior Reactor Operator. The Operations Coordinator will report to the Emergency Director.
- (2) The senior on-shift management person initially assumes the duties of the **Emergency Director**. Once relieved by the Emergency Director, he may assume the Operations Coordinator position and will be responsible for maintaining control over plant operations. He shall have the Control Room Supervisor, Shift Technical Advisor and the Operations shift personnel to assist him.
- (3) The **Shift Technical Advisors** will advise their respective Shift Managers on activities that impact the safe and proper operation of the plant.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

- (4) The **Control Room Supervisor** will continue his normal duties; i.e., directing control room operators and assisting the Shift Manager. He reports directly to the Shift Manager and has the operations shift personnel report to him. He may assume the responsibilities of Operations Coordinator. When relieved, he again reports to the senior licensed individual, i.e., Shift Manager, etc. and continues to direct plant operations through the control room operators.
- (5) The **Operations Shift** under the direction of the Shift Manager, is responsible for the safe and proper operation of the plant at all times. Therefore, the operations shift will respond to all abnormal and emergency situations and take action as necessary to mitigate the emergency.
- The shift organization will be self-reliant for a sufficient period of time to allow for initial emergency response, notification of required personnel, and the assembly and integration of response personnel into the emergency organization.
- The station personnel are familiar with the operation of plant systems and the location and use of emergency equipment. Some members of each shift are trained in firefighting, first aid, and the use of radiation monitoring equipment. The duties of the operations shift during an emergency includes operating both primary and secondary plant systems, making initial notifications to off-site authorities and operational support to the emergency.
- (6) The **Operations Support Center (OSC) Coordinator** is responsible for supporting operations in the areas of maintenance, first aid, search and rescue, chemistry and radiological controls. He reports to the Operations Coordinator. The Emergency Maintenance Coordinator and Chemistry Coordinator, report directly to him.
- (7) The **Emergency Maintenance Coordinator** is responsible for directing the activities of maintenance personnel involved in emergency maintenance repair and corrective actions.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Revision No. 7	
Three Mile Island Emergency Plan		

(8) Shift maintenance personnel serve as the **Emergency Repair Teams** and shall report directly to the Emergency Maintenance Coordinator. They shall be used for emergency repair, search and rescue, drivers for radiation monitoring teams and fire brigade members (if qualified).

(9) The **Radiological Assessment Coordinator (RAC)** is responsible for dose projections and in-plant radiological controls activities. The RAC reports to the Group Leader - R&EC after the Emergency Support Organization is activated.

Initially, the Radiological Assessment Coordinator is responsible for directing the on-site and off-site Radiological/Environmental Survey Teams (after they are dispatched), Radiological Engineering Support, and the Radiological Controls Coordinator. He/she shall coordinate initial on-site and off-site radiological assessment activities, review results, report findings and make recommendations to the Emergency Director. In addition, he/she shall interface with the Environmental Assessment Coordinator to keep him/her current as to plant conditions and radiological source terms. The RAC will independently review dose projections from the computer based dose assessment program. Redundant power supplies, hardware and software exist at TMI for RAC code utilization.

(10) The **Radiological Controls Coordinator** will report to the Radiological Assessment Coordinator (RAC) and will have the Radiological Controls Technicians report to him/her. He/she will be responsible for coordinating the in-plant radiological controls activities from the OSC and initially dispatching the Radiological/Environmental survey teams until they have established communications with the RAC. His/her functions include supervising the radiological controls technicians in the areas of radiological access control; radiological control coverage for emergency repair, corrective actions, search and rescue, first-aid, assembly area monitors, firefighting, and personnel monitoring. He/she will be responsible for prioritizing the immediate radiological controls response in-plant. The Radiological Controls Coordinator must keep the OSC Coordinator advised of the jobs he/she is covering in order to effectively coordinate the in-plant radiological control needs with plant operational needs.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

- (11) The **Radiological Controls Technicians** will report directly to the Radiological Controls Coordinator. In addition to the aforementioned functions, the technicians will also be responsible to assist the Radiological Controls Coordinator in the call out of additional technicians, and for performing as radiological/environmental survey team members. Additional technicians may be obtained by calling in off-duty technicians.
- (12) The **Chemistry Coordinator** will report directly to the OSC Coordinator. He shall be responsible for obtaining and analyzing all post-accident samples in accordance with procedures.
- (13) **Chemistry Technicians** will report directly to the Chemistry Coordinator at the OSC. They will perform all post-accident chemistry samples and analyses.
- (14) **Radiological Engineering Support** shall assist the RAC in performing dose projection calculations, source term calculations, and other calculations or determinations necessary to assess radiological hazards and to minimize personnel exposure. As additional personnel become available, they will assist the RAC with Communications, with other facilities and with the field teams.
- (15) The **Emergency Assembly Area Coordinator** directs the muster of non-essential site personnel at the Emergency Assembly Areas. The Emergency Assembly Area Coordinator reports to the ED Assistant in the ECC.
- (16) The **Public Information Representative** At the onset of an emergency, the duty Public Information representative is notified after the risk counties and PEMA and implements the Emergency Public Information (EPI) Implementing Document. Another Public Information Representative is dispatched to the control room for information gathering. This representative will remain at the control room during the emergency to provide technically accurate information to public information personnel who will be preparing information for release to the public. All information that is not directly obtained from the plant process computer, the Reuter Stokes System or previous approved documents will be approved by the Emergency Director.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

(17) The **Security Coordinator** is responsible for the overall security response during an emergency. Coordinates the activities of the Site Protection Shift Supervisor and local law enforcement agencies/EOD.

(18) The following functions will be performed by trained members of the normal shift complement:

a. **Firefighting**

Specific personnel on each shift (Site Fire Brigade) are trained in firefighting to ensure such capability will be available 24 hours per day. The Fire Brigade, under the direction of the Fire Brigade Team Leader or another individual designated by him, shall respond to all confirmed fire alarms or as directed by the Control Room and report to the location of the fire with assigned equipment. During the normal work week, additional qualified firefighting personnel will, as necessary, be obtained from the normal on-site organization. Assistance will be requested from local fire departments through the county dispatcher/appropriate local dispatch system if deemed necessary by the Emergency Director.

b. **First Aid and Search and Rescue**

Medical emergencies and search and rescue operations will be the responsibility of the First Aid and Search and Rescue Teams. Specific personnel on each shift are trained in first aid techniques to ensure such assistance will be available 24 hours per day. Assistance will be requested from outside medical support personnel or organizations as deemed necessary by the Emergency Director.

c. **Radiological Monitoring**

Prior to the activation of the entire Initial Response Emergency Organization, the Radiological Assessment Coordinator (RAC) may dispatch offsite and/or on-site Radiological/ Environmental Survey Teams to perform radiological monitoring functions. Initially, the off-site and on-site Radiological/Environmental Survey Teams report directly to the Radiological Assessment Coordinator. The Environmental Assessment Coordinator (EAC) will assume command of

	TMI - Unit 1 Administrative Procedure	Number 1092
Title		Revision No. 7
Three Mile Island Emergency Plan		

radiological and environmental assessment upon activation of the EACC. At this point the Radiological/Environmental Survey Teams will report directly to the EAC. The various survey teams are responsible for performing radiation/contamination surveys, other radiological monitoring as directed, and for assisting in assigned decontamination activities. A complete discussion of monitoring teams and dose assessment is contained in Section 6.4.1.

d. Security and Personnel Accountability

The site Security Force will operate in accordance with the established Security Plan and Procedures. During emergencies, the Site Protection Shift Supervisor assumes the duties of the Security Coordinator. The site Security Force will report to the Security Coordinator in emergency situations. The Security Coordinator, in turn, shall report to the ED Assistant. The security force will respond and provide assistance as required for security controls. The security force will assume responsibility for personnel accountability. In addition, provisions have been made in the Security Plan for admitting off-site emergency vehicles when Security is notified by the Shift Manager or Emergency Director and for escorting these vehicles to the proper location.

5.1.4 Emergency Support Organization

The Emergency Support Organization will provide technical and logistic support in the event of a serious or potentially serious emergency. An illustration of the Emergency Support Organization is included as Figure 9. This organization will be staffed by personnel from the normal station organization, the normal technical support organization, and consultants.

In general, the responsibilities of the Emergency Support Organization are to:

- ① Provide liaison and communications with the Nuclear Regulatory Commission and the appropriate State and county agencies.
- ② Provide for public relations activities and disseminate information to the public.
- ③ Provide for environmental monitoring and assessment in support of the Initial Response Organization.
- ④ Provide security support.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

- ⑤ Support the Initial Response Organization in engineering and technical matters.
- ⑥ Coordinate the restoration and/or operation of all generation, transmission and distribution facilities.
- ⑦ Procure and dispatch transportation equipment and services.
- ⑧ Purchase materials, equipment, and services necessitated by the emergency.
- ⑨ Provide assistance for re-entry operations and post-accident planning.
- ⑩ Assign post-accident investigation and review responsibilities.

1. The **Emergency Support Director** will be responsible for activating and directing the Emergency Support Organization and for ensuring that the functional groups provide a coordinated response in support of the Initial Response Organization. The Emergency Support Director shall report to the EOF within one hour of notification of declaration of a Site Area or General Emergency or when directed and will serve as the senior corporate management representative at or in the vicinity of the site. As such, during emergency operations, the Emergency Support Director will provide overall direction and policy guidance for the emergency response; the Emergency Director will retain primary responsibility for the operation and control of the plant. As emergency situations stabilize, the Emergency Support Director may expand his involvement in the technical direction of in-plant accident management. This will provide a controlled means of shifting to a recovery organization should that type of organizational arrangement be deemed appropriate. The Initial Response Emergency Organization shall report to the Emergency Support Director through the Emergency Director.
2. The **ESD Assistant** located at the EOF will assist the Emergency Support Director by interfacing with senior representatives of the Emergency Support Organization and providing status reports to the Emergency Support Director. The ESD Assistant assists and advises the ESD in matters pertaining to communications, technical support, implementation of the Emergency Plan and public information. In the absence of the Emergency Support Director, the ESD Assistant will not assume his emergency responsibilities. Rather, it will be the most senior (ESD qualified) operations person (e.g., Director, TMI). Until the designated Emergency Support Director (ESD) arrives at the EOF, the person designated to coordinate the activities of the EOF is the ESD Assistant. His responsibilities are specifically limited to the activation of the EOF, coordination of activities prior to the arrival of the ESD, and communications with the Emergency Director (ED) located onsite. The ED retains decision-making authority as the senior corporate representative until the arrival of the ESD.
3. The **Group Leader-Radiological and Environmental Controls** (R&EC), also located at the EOF, functions as the "point of contact" for radiological and environmental information for the Emergency Support Director. The Group Leader - R&EC collects information from the RAC and EAC and presents that information to the ESD. This position is overall-in-charge of the radiological and environmental controls effort. This position also maintains industrial health and safety responsibilities.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

4. The **EOF Communications Coordinator** and **EOF Communicators** will be responsible for the operation of the communications systems at the Emergency Operations Facility and the coordination of requests for outside assistance. The EOF Communicators report to the EOF Communications Coordinator who, in turn reports to the ESD Assistant.

Their duties include, but are not limited to:

- ❶ The setup and operation of primary communications systems.
- ❷ The setup and operation of backup communications systems.
- ❸ Maintaining records of communications.
- ❹ Maintaining the status boards at the EOF.
- ❺ Coordinating the procurement of outside resources (e.g., technical assistance, manpower, equipment, etc.) with the Group Leader-Administrative Support.

5. The **Public Information Representative**

Once the EOF is activated, a Public Information Representative shall report to the EOF in a staff capacity and is responsible for preparation of information to be disseminated to the public. This information is to be approved by the Emergency Support Director. A Tech Info Specialist is dispatched to the EOF to support the EOF Public Information Representative.

6. The **Joint Information Center Presiding Media Center Briefer** reports to the Joint Information Center to lead and coordinate news media briefings and the release of information on an emergency. This role, filled by one of the Public Information Duty Representatives, is the key media response role at the Joint Information Center.

7. The **Emergency Preparedness Representative**, located at the EOF, will provide advice and information to the ESD Assistant relating to on-site, off-site and state emergency facilities, communication capabilities, personnel and resource availability's and procedural requirements.

8. The **Technical Support Representative**, located at the EOF, shall provide technical assistance and long term planning to the Emergency Support Director and TSC, and shall assist in the review of news releases to ensure technical accuracy. As additional staff become available, they will help the Technical Support Representative obtain engineering information to be passed onto the ESD and other agency representatives.

9. The **Group Leader-Administrative Support** and his staff will be responsible for administrative and logistic functions required to support the Initial Response and Emergency Support Organizations. The types of support services that might be required include, but are not limited to:

- ❶ General Administration
 - Word processing
 - Typing pool
 - Reproduction

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

- ② Personnel Administration and Accommodations
 - Personnel processing (Registration, Indoctrination and Training, Security badging)
 - Lodging, food
 - Transportation
- ③ Outside Plant Support
 - Trailer set-up
 - Janitorial service
 - Telephones
- ④ Commissary
 - Temporary facilities
 - Meal delivery
- ⑤ Human Resources
 - Manpower
 - Labor relations
 - Payroll
 - Badging

10. The **Environmental Assessment Coordinator (EAC)** and staff will assume responsibility for all radiological and environmental monitoring. The EAC and staff will respond within one hour upon notification of an Alert, Site Area or General Emergency. The Environmental Assessment Coordinator will be located in the Environmental Assessment Command Center and will initially report directly to the Emergency Director. Following activation of the EOF, the EAC will report to the Group Leader - R&EC. He/she shall direct the staff's assignments which shall include, but are not limited to:

- ① Track and plot release plume direction and speed.
- ② Deploy and direct Radiological/Environmental Monitoring Teams.
- ③ Maintain an emergency and routine Radiological Environmental Monitoring Program (REMP) which includes off-site radiological/environmental monitoring.

5.1.5 Response to a TMI-2 Emergency

TMI-2 alarms will be monitored on a 24 hour a day basis remotely from Unit 1 or by another appropriate location in the event of a failure of the remote monitoring system. For failures of specific local alarm capabilities, local conditions will be monitored in accordance with the applicable procedures.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan	Revision No. 7	

A TMI-2 related emergency will be reported to the TMI-1 Control Room. TMI-1 Control Room personnel will assess and evaluate the situation; classify the event as required; and provide the appropriate response. When direct monitoring is in effect the individual may leave the monitoring point in order to provide direct assistance to the TMI response team provided that he/she does not leave the monitoring point unattended in excess of one hour for any single event.

5.2 Long-Term Recovery Organization

In those cases where post-accident conditions indicate that recovery operations will be either complicated or will extend over a relatively long period of time, TMI will shift from the emergency response organizations (e.g., Initial Response and Emergency Support) to a long-term recovery organization. The functioning of the recovery organization will be dependent on the nature of the accident, post-accident conditions (e.g., plant conditions, radiation/contamination levels, etc.) and other factors to be determined at the time. Prior to initiating recovery operations, a specific long-term recovery organization will be defined based on the normal TMI organization. A detailed discussion of recovery operations is provided in Section 9.

A typical long-term recovery organization is described as follows:

- ① The **TMI Unit 1 Chief Nuclear Officer** is responsible for overall recovery operations. This includes overseeing the operations of the various functional groups and ensuring that all activities, proposed courses of action, and contingency plans are subjected to proper analysis and coordination. Selection of senior personnel to fill the key positions in the long-term recovery organization will be based on the particular conditions.
- ② The **Vice President, TMI Unit 1** is responsible to arrange for financial reporting, accounting, budgets and material management support using TMI resources or company resources if needed.
- ③ The **Exelon Nuclear Manager, Communications and Public Affairs** is responsible for the overall guidance and direction of the public relations and communications program to ensure distribution of information about the nuclear facilities to public officials, industry representatives, media, customers, employees and the general public.
- ④ The **Manager, Human Resources** is responsible for medical and human resources.
- ⑤ The **Director, Site Engineering** is responsible to TMI to provide engineering support, nuclear analyses, chemistry and materials, equipment reliability, configuration control procedures and information resources management.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

- ⑥ The Vice President, TMI Unit 1 is responsible for ensuring the safe and efficient clean-up of all radioactive waste and required decontamination of buildings for either return of the unit to full operation or decommissioning of the unit as a nuclear generating station in accordance with corporate policies, all applicable laws, regulations, licenses and technical requirements. In addition, he will provide liaison with the NRC. Manpower and commissary requirements will be coordinated with appropriate personnel. Also, the Vice President, TMI Unit 1 is responsible for radiological health and safety, environmental affairs, security, emergency preparedness and training.

5.3 Additional Support

The nature of an emergency may require augmenting the emergency organizations with assistance from additional personnel and organizations. In order to ensure that support from local law enforcement, fire departments, hospitals, ambulance services and other organizations will be available on relatively short notice, agreements have been established with personnel and organizations. Agreements from offsite individuals, groups and agencies that support Three Mile Island may take one of the following forms:

- ① Contracts
- ② Letters of Agreement
- ③ Memoranda of Understanding
- ④ Formal Emergency Plans

These typical support organizations include:

NOTE

While this list reflects letters of agreement currently in effect, it is possible that the list may change for a number of reasons. The EP Department will consider the impact that a loss of an agency will have on the emergency response process.

5.3.1 Medical Support Organizations and Personnel

- Londonderry Volunteer Fire Company (ambulance service)
- Lower Swatara Emergency Medical Services
- Bainbridge Volunteer Fire Company (ambulance service)
- Lancaster County Medic 5 (advanced life support)
- Hershey Medical Center
- Harrisburg Hospital
- Oak Ridge

5.3.2 Firefighting Organizations

NOTE

These are supplemented by Mutual Aid agreements with other firefighting as organizations.

- Bainbridge Volunteer Fire Company
- Liberty Fire Company No. 1

	TMI - Unit 1 Administrative Procedure	Number 1092
Title		Revision No. 7
Three Mile Island Emergency Plan		

- Londonderry Volunteer Fire Company
- Rescue Hose Company No. 3
- Union Hose Company No. 1
- Friendship Fire and Hose Company No. 1 (Elizabethtown)
- Lower Swatara Volunteer Fire Department

5.3.3 Law Enforcement Agencies

- ① Pennsylvania State Police
- ② Others as specified in the State Plans

5.3.4 Other Government Agencies

- ① Nuclear Regulatory Commission
- ② Dept. of Commerce/NOAA
- ③ Dept. of Energy
- ④ Federal Aviation Administration
- ⑤ U.S. Coast Guard
- ⑥ Dept. of the Army
- ⑦ Others as specified in the State Plans
- ⑧ National Weather Service

5.3.5 Miscellaneous Organizations

- ① GPU Service
- ② Other utilities
- ③ The Institute for Nuclear Power Operations (INPO)
- ④ American Nuclear Insurers
- ⑤ Framatome Tech Inc.
- ⑥ Aviation services

5.3.5.1 NEI/EPRI/INPO Coordination Agreement

In order to provide efficient and timely transfer of technical and public information regarding formal emergencies at nuclear power stations and maximize their assistance to their utility members and the industry, the Nuclear Energy Institute (NEI), the Electric Power Research Institute (EPRI), the Institute of Nuclear Power Operations (INPO) have agreed to coordinate their actions and activities. In general, support will be provided as follows:

- ① NEI - Technical & Regulatory Division will maintain an emergency response capability for consultation on regulatory issues.
- ② NEI - Industry Communications and Publications Division will develop and issue, in coordination with the affected utility, appropriate public statements to the news media, as necessary.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

- ③ INPO will provide the Nuclear Network electronic communications system to its members, NEI and EPRI to facilitate the flow of media and technical information about the emergency to other INPO members and participants and coordinate the flow of technical information among the parties to the agreement.
- ④ EPRI will maintain an emergency response capability and be available for consultation and to conduct in-depth analysis of the emergency as appropriate. Both EPRI and INPO will be available to assist the affected utility through their analysis capabilities. EPRI and INPO will coordinate such efforts with each other.

Specific details can be obtained by consulting the NEI/EPRI/INPO Coordination Agreement which is maintained on file by the Emergency Preparedness Department.

5.4 Government Agencies

TMI has and will continue to work closely with Federal, State and County agencies in coordinating emergency preparedness activities for the Emergency Planning Zones to ensure the health and safety of the general public. As a part of this coordination, each participating agency has been assigned specific responsibilities and authority for both emergency planning and emergency response. Also as a part of this combined effort, specific emergency-related notification and information reporting requirements have been defined between TMI and the various participating agencies. Information pertaining to emergency-related offsite notification requirements that activate the emergency response organizations and the subsequent information reporting requirements is provided in Section 6.1. Additional reporting requirements, contained in 10 CFR 50.72, 10 CFR 50.73, and plant (safety) Technical Specifications, will also be met. A brief description of the key elements of the role of each of the participating Federal, State and County agencies is provided in the following subsections.

5.4.1 Federal Radiological Emergency Response Plan

The Federal Radiological Emergency Response Plan (FRERP) is to be used by Federal agencies in peacetime radiological emergencies. It primarily concerns the offsite Federal response in support of State and local governments with jurisdiction for the emergency. The FRERP: (1) Provides the Federal government's concept of operations based on specific authorities for responding to radiological emergencies; (2) outlines Federal policies and planning assumptions that underlie this concept of operations and on which Federal agency response plans (in addition to their agency-specific policies) were based; and (3) specifies authorities and responsibilities of each Federal agency that may have a significant role in such emergencies. The FRERP includes the Federal Radiological Monitoring and Assessment Plan (FRMAP) for use by Federal agencies with radiological monitoring and assessment capabilities.

5.4.1.1 Nuclear Regulatory Commission

When the licensee notifies the NRC of an incident, the initial NRC response is to ascertain the status of the plant and monitor licensee activities. The purpose of this monitoring role is to assure that the public and the environment are fully protected. The NRC (and other organizations) will measure offsite radiological effects and will develop a projection of on-site and off-site effects for use by other Federal State and local agencies.

If and when the NRC determines that there is a potential threat to the public or the environment, it will begin to monitor more intensively to develop an NRC assessment of the problems. The NRC will offer specific advice to the licensee to help solve or limit the consequences of the problem.

In addition to monitoring and advisory activities, in some unusual and very rare situations, the NRC could find it necessary to intervene in a limited fashion to direct the licensee's onsite response; however, it is not expected that NRC will be required to assume this role. In such an unlikely event, the NRC would issue formal orders to the licensee to take certain measures and then monitor implementation of the actions ordered. In this role, the licensee continues to make other key operational decisions and to operate and manage the facility with licensee personnel. Directives from the NRC must come from the Director of the Executive Team (typically, the NRC chairman) or the Director of Site Operations (typically, the NRC Regional Administrator). NRC directives would be channeled to licensee management; (ED until the ESD is available).

To ensure reports can always be made, the NRC Headquarters Operations will be called. The Headquarters Operations Officer will record the call and bridge it to the Region I Duty Officer and Manager on call.

The NRC in conjunction with FEMA whenever possible, will present any Federal recommendations to the State or other appropriate offsite authority with jurisdiction for implementing or relaxing protective actions. In the case of a fixed nuclear facility licensed by the NRC, the licensee is responsible for developing appropriate protective action recommendations and promptly providing those recommendations to State and local authorities with or without NRC's concurrence. NRC will evaluate the licensee's protective action recommendation as time permits and will either concur in them or suggest modifications, as appropriate. In the event NRC opts to recommend a different recommendation, they will communicate directly with the State. Their recommendation, like the utility recommendation, will be considered by the State in the development of the Governor's directive. FEMA is then responsible for promoting coordination among Federal agencies providing assistance to the State in implementing those recommendations if such assistance is requested by the State, and for communicating those recommendations to the responding Federal agencies.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

5.4.1.2 Department of Energy

The Department of Energy (DOE), during the initial phases of the emergency, and the EPA thereafter, will work with the appropriate State and local agencies to coordinate offsite radiological monitoring and assessment activities. DOE or EPA will assess monitoring data and present them to the NRC and appropriate State agencies. The NRC will use this information, together with its assessment of the current condition and prognosis of the emergency on site, to develop or evaluate public protective action recommendations.

5.4.1.3 Department of the Army

The local Ordinance Detachment, Department of the Army, will provide an Explosive Ordinance Disposal capability in response to requests for assistance in the event of a bomb threat.

5.4.1.4 Federal Aviation Administration

The Federal Aviation Administration will ensure air traffic is diverted in the event of an emergency situation with a potential for radioactive release.

5.4.1.5 National Weather Service

The National Weather Service will provide backup meteorological information upon request.

5.4.2 State Agencies

The planning for, and response to a radiological emergency at the TMI site is the joint responsibility of TMI and the state/county/local governmental agencies. TMI is responsible for onsite emergency response. In order to fulfill this responsibility, TMI relies on various offsite agencies, both governmental and private, to provide assistance beyond that available onsite. The Commonwealth of Pennsylvania, through the various state, county and local agencies, is responsible for offsite emergency response. In order to fulfill this responsibility, the state relies on TMI to provide necessary information on plant status and radiation releases. Recognizing the joint nature of their responsibilities, TMI and the relevant governmental agencies have coordinated their emergency planning and have provided for adequate and redundant communication systems to coordinate their response during an emergency event.

The Pennsylvania Emergency Management Agency is responsible to coordinate emergency services in the Commonwealth of PA.

5.4.2.1 Pennsylvania Emergency Management Agency (PEMA)

Should a radiological emergency occur at the TMI site that requires the implementation of state, county, and local government radiological emergency response plans, the state agency through which the Governor will exercise coordination/control will be PEMA. However, as in all emergencies, the Governor retains directional control. The State role is further defined in the State Disaster Operations Plan - Annex E.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

PEMA exercises authority over all non-licensee offsite organizations who are a part of the emergency response team in the TMI EPZs. This authority is based on the provisions of Section 7313 of the State of Pennsylvania Emergency Management Services Code 35 PA (C.S.A. Sections 7101-7707) also referred to as Pamphlet Law 1332. By law, PEMA is authorized to:

- ① provide emergency direction and control of Commonwealth of Pennsylvania and local disaster emergency operations.
- ② accept aid and coordinate assistance provided by Federal Agencies under provisions of the Federal Disaster Relief Act of 1974.

5.4.2.2 Department of Environmental Protection

The Department of Environmental Protection (DEP), under the administration and technical direction of the Secretary, is responsible for gathering and evaluating technical information and for supplying such information and technical advice and recommendations to PEMA and the Pennsylvania Emergency Management Council.

Within the DEP, the Bureau of Radiation Protection (BRP) has been delegated responsibility for radiological emergencies. Specific responsibilities assigned to the DEP/BRP that are appropriate to radiological emergencies are defined in the State Plan.

To provide for emergency response capability, the BRP has made provisions for 24 hour per day interface with PEMA.

5.4.3 County Agencies

Pamphlet Law 1332 states that "each political subdivision of this Commonwealth is directed and authorized to establish a local emergency management organization in accordance with the plan and program of the Pennsylvania Emergency Management Agency. Each local organization shall have responsibility for emergency management, response and recovery within the territorial limits of the political subdivision within which it is organized and, in addition, shall conduct such services outside of its jurisdictional limits as may be required under this part." Therefore, each County and Local Emergency Management Coordinator in the State is responsible for establishing an emergency management organization within their respective jurisdiction, developing plans and preparing for emergency operations.

With respect to the TMI Plume Exposure Pathway EPZ, Dauphin, York, Cumberland, Lancaster and Lebanon counties have prepared Radiological Emergency Response Plans that are coordinated with both the State's Disaster Operations Plan and the TMI Emergency Plan. Local government plans are either included directly within the respective County plan or are maintained as separate, but coordinated documents. The county Emergency Operations Centers are the location of the County dispatcher for police, fire, rescue and emergency medical services and is manned by dispatchers on a 24 hour basis. In the event of a PEMA communications breakdown, Dauphin County will act as the primary Communicator with PEMA, BRP, and the other four risk counties.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Revision No. 7	
Three Mile Island Emergency Plan		

6.0 EMERGENCY MEASURES

This Section describes the notifications and specific actions that will be taken for each class of emergency and is used as the basis for detailed Emergency Plan Implementing Procedures. Emergency measures all begin with (1) the recognition and declaration of an emergency class, (2) notification of the applicable agencies, and (3) mobilization of the appropriate portions of the emergency organization. Implementation of these measures are organized into emergency notification of offsite agencies, corrective actions, on-site protective actions, offsite protective actions, environmental assessment, offsite agency response and emergency public information.

6.1 Emergency Notification of Offsite Agencies

Parameters that establish emergency situations have been predetermined and specified as emergency action levels and included in procedures contained in the site Emergency Plan Implementing Documents. When conditions or criteria specified in one of these procedures are met or exceeded, an emergency classification (i.e., Unusual Event, Alert, Site Area Emergency or General Emergency) must be declared. The senior management person must classify and declare the emergency and ensure that all required notifications are made. Messages, developed in conjunction with State and local agencies, have been specified in Emergency Plan Implementing Procedures and will be used to provide information relative to the emergency class, (i.e., type and magnitude of any actual or potential release, affected populace and areas, and any recommendations to take protective actions). The Bureau of Radiation Protection provides verification of initial notification at TMI. For initial notification/escalation of Unusual Event, Alert and Site Area and General Emergencies at TMI, TMI will notify PEMA, all five risk counties directly and the NRC.

In addition to the initial notification and verification, communication channels will be maintained between the facility and offsite emergency response organizations to allow for any further dissemination and update of information concerning the emergency. The communications networks that have been established at the site for notification requirements, information reporting, and decision making are presented as Figure 10.

Offsite emergency support from Federal, State and local agencies will be coordinated by the Commonwealth of PA in accordance with the (state) Radiological Emergency Response Plan.

6.2 Corrective Actions

Detailed operating procedures are available to the operators for use during emergencies as well as normal operations. Specific Emergency Procedures are provided to assist the operators in placing the plant in a safe condition and taking the necessary supplemental corrective actions. In addition, operations personnel are trained in the operation of plant systems and their associated procedures and will be capable of taking appropriate corrective actions.

Selected staff personnel, including operations, radiological controls, and maintenance personnel, are trained and assigned to emergency teams. These teams will be able to respond as set forth in the Emergency Plan Implementing Procedures in order to assess conditions and take any available corrective actions. Maintenance personnel will provide the necessary crafts expertise to affect repair and damage control functions.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

Corrective actions will normally be planned events that are taken to ameliorate or terminate the emergency situation. Planned radioactive releases or corrective actions that may result in a radioactive release will be evaluated by the Emergency Director and/or Emergency Support Director and staff as far in advance of the event as possible. Such events and data pertaining to the release will be reported to the appropriate offsite emergency response organizations and agencies.

6.3 Onsite Protective Action

Protective actions are emergency measures taken during or after an emergency situation which are intended to minimize or eliminate the hazard to the health and safety of the general public and/or Site personnel. Such actions taken onsite are the responsibility of TMI while those taken offsite fall under the jurisdiction of the State and other offsite response agencies.

6.3.1 Sheltering, Evacuation, Personnel Accountability

During an emergency, personnel may be required to temporarily relocate to prevent or minimize exposure to radiation and radioactive materials. The following subsections discuss the policies applying to sheltering, evacuation and personnel accountability during emergencies at the TMI site.

6.3.1.1 Station Personnel

At the time an emergency is declared, an announcement is made on the site public address system to all personnel within the Owner Controlled area. The announcement will include the classifications of the event, a brief description of the event, and actions taken by site personnel. Shift personnel will proceed to their emergency assignments.

The primary protective measures for onsite personnel during an emergency is prompt evacuation from areas which are affected by significant radiation, contamination, airborne radioactivity or other personnel hazards. All persons onsite at the time an emergency is declared shall be notified by means of the plant page supplemented by designated personnel providing notification in areas that the page does not cover. Upon declaration of a Site Area Emergency or General Emergency and/or at the discretion of the Emergency Director, all essential personnel within the Protected Area will be individually accounted for at the ECC, TSC and OSC unless other factors (e.g., security events) advise against it. When directed, all non-essential personnel report to an Emergency Assembly Area. This process allows for personnel mustering, monitoring and evacuation as needed. This procedure provides the ability to initially account for all essential personnel and identify all missing persons within the Protected Area within 30 minutes. If by 60 minutes full accountability is not achieved, search and rescue should be initiated.

Non-essential personnel shall be evacuated from the site based upon:

- ❶ Declaration of a General Emergency, or

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

- ② The discretion of the ED, if emergency conditions warrant evacuation unless other factors (e.g., tornadoes, security events) advise against it. Consideration of protective actions (e.g., relocation, respiratory protection) for essential personnel should be done on the same basis.

Evacuation routes will be determined by the Emergency Director based on the prevailing radiological conditions. This evacuation will be accomplished using private vehicles to relocate to the Remote Assembly Areas.

Upon declaration of a General Emergency, or at the discretion of the Emergency Director, all non-essential personnel will be directed to proceed to their vehicles directly and to evacuate to the Remote Assembly Areas.

In support of these operations, a sweep of buildings, trailers, and other areas of the Owner Controlled area will commence to ensure that all persons have assembled and/or evacuated the site. Search and rescue operations will be implemented to locate any missing persons.

At the Remote Assembly Area, personnel and vehicles will be monitored for radioactive contamination. Individuals found to be contaminated will be decontaminated in accordance with applicable Radiological Controls Procedures. Vehicles found to be contaminated will be impounded until they can be decontaminated. Inclement weather will not affect the direction of the traffic flow, but may increase evacuation times.

The TMI-1 licensee retains complete authority to determine and maintain sufficient control of all activities including the authority to exclude or remove personnel and property for land areas within the exclusion area and contamination will, thereby, be controlled. In addition, there are no areas for producing agricultural products within the exclusion area. In-plant contamination control will be in accordance with approved Radiological Controls procedures.

6.3.1.2 Emergency Personnel Exposure

Emergency personnel, including those involved in removal of injured persons, undertaking corrective actions, performing assessment actions, providing first aid, performing personnel decontamination, providing ambulance service, and providing medical treatment services, will have their radiation dose controlled in accordance with normal Radiological Controls Practices onsite. When offsite emergency personnel are called to respond to TMI, qualified Radiological Controls technicians are provided to support these teams. For example, a Radiological Controls technician is assigned to the offsite fire teams to monitor and control radiation exposures and evaluate radiological hazards.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

Emergency measures may warrant the acceptance of greater than normal radiation exposure (doses). Lifesaving, measures to prevent substantial radiation exposure to the population or preservation of vital equipment may be sufficient cause for greater than normal exposures. The following are the exposure guidelines for these emergency activities:

Life saving action - No pre-established limit

Corrective action - 10 Rem total whole body dose (TEDE), 30 Rem to the lenses of the eye, or 100 Rem total organ dose to any organ.

The Emergency Director is the designated individual who can authorize emergency workers to receive doses as defined in excess of 10 CFR 20 limits. These workers must be volunteers and will be required to closely adhere to the controls specified in applicable procedures. In authorizing onsite volunteers to receive radiation exposure in the course of carrying out lifesaving activities, the Emergency Director shall balance the risks from such exposures against the benefits to be received from the lifesaving activities. Risks are determined and decisions are made to expedite lifesaving activities based upon advance radiation surveys done at the affected areas to determine stay times, shielding requirements, or the possibility of dispatching a "scouting" team to assess actual conditions. Measures will be utilized to aid in exposure reduction and the Emergency Director, in consideration of advice from the Radiological Assessment Coordinator, shall assure that all possible measurements are taken to minimize other exposures (such as internal exposures) during the activities.

All personnel who are members of the emergency response teams and who have emergency duties onsite are issued dosimetry including self-reading dosimeters. Additional provisions have been made for dosimetry issue at the site entrance gates or other locations, if required. This dosimetry will be periodically read and recorded in accordance with approved site Radiological Control Procedures.

6.3.2 First Aid and Decontamination

① First Aid

Emergency first aid and medical treatment will be given to injured personnel who may or may not be contaminated. Shift personnel, trained in first aid, will be available onsite on a 24-hour per day basis and will assist contaminated personnel at the scene of the accident. Provisions have been made, through agreements, to ensure contaminated and injured personnel will receive specialized medical treatment, if necessary. Local hospitals in the vicinity of the TMI site have agreed to accept contaminated patients for emergency medical and surgical treatment and/or observation.

A comprehensive program of radiological control for injured/contaminated personnel has been developed and will be instituted when necessary during an emergency. The primary emphasis will be to initially address traumatic or life-threatening injuries since radiation injuries may not be immediately life threatening.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

Detailed instructions for treatment and transportation of contaminated and injured individuals are specified in appropriate procedures.



Decontamination

Personnel and equipment decontamination will be initially accomplished at the Radiological Controls Access Control Point where specialized equipment and supplies are available. Procedures are written with specific details for decontamination. For personnel within the Protected Area, emergency situations which require decontamination will be handled in accordance with these procedures and the Emergency Plan Implementing Document.

All personnel leaving a Radiologically Controlled Area will be monitored for contamination. Any individual found to have contamination levels in excess of 100 net cpm (above background as measured by a pancake probe at 1/2 inch) at any of the sites will be considered contaminated.

Personnel found to be contaminated will undergo decontamination by radiological controls personnel (or other designated personnel as specified in Radiological Controls or Emergency Plan Implementing Procedures). Measures will be taken to prevent the spread of contamination. Such measures may include isolating affected areas, placing contaminated personnel in "clean" protective clothing before moving, and decontaminating affected personnel, their clothing and equipment prior to release, in accordance with applicable station Radiological Controls Procedures.

In the event that a release of contaminants has occurred or is occurring, in-plant potable water systems will be secured to prevent possible contamination. If food and water supplies are brought in for emergency personnel who remain on-site these supplies will be packaged in sealed containers and will be monitored by Radiological Controls personnel (using standard Rad Con practices and procedures) prior to use or consumption and on a normal routine basis. Any food or water supplies discovered to be contaminated will immediately be disposed of as waste and will not be used.

Upon receipt of information that the emergency has entered recovery phase, in-plant facilities and areas will be surveyed, sampled, and cleared for use, or controlled as necessary, in accordance with applicable Radiological Controls practices.

If it becomes necessary to declare an onsite evacuation, personnel from outside the Protected Area will be directed to proceed to the Remote Assembly Area. Upon arrival at the Remote Assembly Area, personnel will be monitored for contamination. If anyone is found to be contaminated, showers, sinks and decontaminating supplies are available in close proximity to the plant. Equipment for decontamination personnel will be stored in Emergency Supply Lockers. Portable survey instruments are available and routinely calibrated for use in decontamination operations. All skin contamination problems will be treated using accepted Radiological Controls practices.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan	Revision No. 7	

For contaminated personnel inside the Protected Area, the preferred decontamination facility will be those onsite at the TMI Radiological Controls Laboratory if accessible, otherwise offsite facilities will be used.

6.3.3 Medical Transportation

Agreements have been made with local medical support organizations to provide ambulance services to the site. Ambulance personnel will be certified in accordance with State regulations. TMI will offer training to the squad members in the treatment and transportation of contaminated injured individuals. TMI will provide radiological control technicians if available to assist the squads enroute to the hospital. Ambulance service for the facility is provided by TMI or local first aid squads.

When affected personnel must be transported, measures will be taken to prevent the spread of contamination. Such measures will include placing affected personnel in "clean" protective clothing or wrapping in blankets. The Emergency Director will insure that the organizations who will provide the transportation and treatment are alerted.

Detailed instructions for treatment and transportation of contaminated and injured individuals are specified in appropriate procedures.

6.3.4 Medical Treatment

Arrangements for hospital and medical services for injured or contaminated/overexposed personnel are provided for by letters of agreement.

The first level of treatment can be given on-site. On-site emergency medical services will be rendered by qualified site personnel. If the severity of the injury requires more extensive or prolonged treatment, the patient will be transported for the second level of assistance. For conventional injuries (that is, non-radiation injuries), the patient will be transported to any of the local hospitals.

Arrangements for hospital and medical services for injured and/or contaminated/overexposed personnel are provided by Harrisburg Hospital and Hershey Medical Center. These hospitals have agreed to accept contaminated patients for emergency medical and surgical treatment or observation. Detailed plans and procedures are in place for decontamination and treatment of contaminated patients.

6.4 Environmental Assessment

6.4.1 Radiological Assessment and Offsite Monitoring

Prior to the activation of the entire Initial Response Emergency Organization, offsite radiological/environmental survey teams may be dispatched. These teams will consist of one to two persons per team, trained in the use of portable radiation monitoring equipment. When dispatched, the teams will pick up portable radios, and emergency kits containing portable monitoring equipment. Emergency kit inventory lists are included as Table 8. After an operational check of the equipment, including a radio operability check, they will proceed in an emergency vehicle to their first monitoring location. They will be controlled by the Radiological Assessment Coordinator and will report directly to him/her. The site has the capability to dispatch up to two radiation monitoring teams within one-half hour of the emergency declaration, if necessary.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

Procedures are in place which enable monitoring teams to detect airborne radioiodine and particulates under field conditions in the presence of noble gases and background radiation.

For gaseous releases, the first step in the initial assessment process is to estimate the radioactive source terms in microcuries per second. To do this, the radiation monitoring system readings for each monitored effluent release path are converted to a source term by applying the appropriate ventilation flow rates, meter conversion factors, containment building design leak rate, etc. using a computer program known as the RAC Model. The RAC Model prompts the user for specific entries, e.g., meter readings and release type, to estimate the radiological source terms by isotope. This model, using real time meteorological data directly from the on-site monitoring system, performs off-site dose calculations of the total whole body dose (TEDE) and thyroid dose (CDE) based on the expected or a default duration.

These integrated doses are examined in the context of the EPA PAGs and an estimate of time to reach the PAGs, assuming constant release rate and source terms. After the projections are made, the radiation monitoring teams can be directed to the location of interest to take readings and confirm the projection. Radiation Monitoring team data lend credence to the dose projection process, better quantify ground receptor dose rates and alert plant personnel of any unmonitored release pathways or potential problems in the dose projection process. Dose calculations and projections are relayed to the BRP.

If the instrumentation used for radiological assessment is off-scale or inoperative, the Radiological Assessment Coordinator may utilize in-plant sample data from the affected ventilation pathway. In lieu of instrumentation or in-plant sample data, the RAC must utilize contingency calculations. The contingency calculations are based on plant conditions. Concurrently, radiological/environmental survey teams are sent to these locations of interest to take actual field measurements in order to verify the projections and to correlate projected versus actual results. These detailed calculational techniques are included in the Emergency Dose Calculation Manual (EDCM) and incorporated as part of the RAC Model.

For liquid releases, the radionuclide concentration at any downstream location is determined by taking liquid effluent concentrations and applying the effluent flow rate and volumetric flow rate of the receiving water. Downstream users will be notified to curtail intake if the projected concentration is above the level specified in the procedures.

When the Environmental Assessment Coordinator (EAC) is ready (typically within one hour of the declaration of an Alert or higher classification), the responsibility for radiological and environmental monitoring will be transferred to the Environmental Assessment Coordinator. (NOTE: The Radiological Assessment Coordinator will retain responsibility for in-plant radiological controls). The EAC will assume radiological and environmental monitoring, but the RAC will retain the duty of performing dose projections. The BRP liaison in the EOF make independent assessments and maintain contact with BRP headquarters.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan		Revision No. 7

Two field monitoring teams can be dispatched at the site during an emergency situation. This can be backed-up with two additional teams, should it become necessary. The Environmental Assessment Command Center generally communicates with the field teams using two-way radios. Field data can be relayed to both the ECC and Emergency Operations Facility using separate dedicated phone lines from the Environmental Assessment Command Center. Verification of the model projections will be accomplished by comparisons with field monitoring team results.

The Environmental Assessment Coordinator and his staff, located at the EACC, have the following capabilities:

- ❶ Obtain additional monitoring teams and expertise in the area of dose projections from PECO Energy Company.
- ❷ Obtain and evaluate meteorological forecast information and evaluate effects of atmospheric releases.
- ❸ Obtain additional expertise in the areas of meteorology from the National Weather Service.

Typical environmental/radiological monitoring equipment is listed in Table 9.

6.5 Offsite Protective Actions

6.5.1 General Public

The Emergency Support Director/Emergency Director shall be prepared to provide protective action recommendations, as appropriate. Initially, the Emergency Director is responsible to develop recommendations, however, this function is assumed by the Emergency Support Director in coordination with the Emergency Director after the EOF is activated. Recommendations are developed when it is apparent that a release is possible or underway and dose projections indicate protective actions may be required for the public and within approximately 15 minutes of the declaration of a General Emergency.

The responsibility for actions to protect persons in offsite areas rests with the State and is described in detail in the State Emergency Plan and implemented in conjunction with the county emergency plans.

The State Departments of Environmental Protection and Bureau of Radiation Protection are the specific agencies responsible for evaluating information from the TMI staff and all other sources and recommending to PEMA that protective actions be taken. The BRP has sheltering and evacuation as protective action options. The most appropriate protective action for a particular situation will depend on the magnitude of the release, duration of the release, wind speed, wind direction, time of day and transportation constraints. In the case of a General Emergency, circumstances may indicate the immediate need to initiate some precautionary protective action. This judgment is the responsibility of the BRP and should be based on an evaluation of the current plant conditions, dose projections relative to the PAG's and expected subsequent plant operations/evaluations.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

TMI, through the Emergency Director (Emergency Support Director when the EOF is activated), shall remain ready throughout an emergency to provide Protective Action Recommendations to State officials. General Protective Action Recommendation methodology is shown in the respective site implementing procedures.

Off-site it is the responsibility of the State Department of Agriculture, in conjunction with the Department of Environmental Protection, to issue guidance and coordinate actions to control contaminated agricultural products.

The means to warn or advise involved persons is a responsibility of the risk county. The risk county, in coordination with the State, is also responsible for the preparation and dissemination of information material for the general public on protective actions including necessary information (evacuation routes, maps, etc.) for the implementation of protective measures in the Plume Exposure Pathway.

The population within the 10-mile Emergency Planning Zone will be provided, on a periodic basis, information describing the methods by which they will be notified of an emergency and specific instructions that should be followed upon receipt of such notification.

6.6 Offsite Agencies Response

6.6.1 Parent County

- ① The dispatcher at the Parent County shall notify the County Emergency Management Coordinator or his designated alternate.
- ② The County Office of Emergency Management shall notify county and municipal personnel, as appropriate.
- ③ Dauphin County - Act as central communications agency in the event of a PEMA/TMI communication breakdown.

6.6.2 State Emergency Management Agency (PEMA)

- ① Upon receiving notification of an emergency from the site, the Duty Officer at the State Emergency Management Agency shall immediately notify the State Bureau of Radiation Protection.
- ② The State Emergency Management Agency shall, notify the following personnel, organizations, and agencies as appropriate in accordance with their standard operating procedures:
 - a. Parent County
 - b. Other affected County Emergency Management Agencies
 - c. Other affected states
 - d. Selected State agencies
 - e. Selected Federal agencies

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan	Revision No. 7	

6.6.3 Bureau of Radiation Protection

The person at the Bureau of Radiation Protection (i.e., Incident Manager) who receives the notification from the State Emergency Management Agency shall:

- ① Call the site Emergency Control Center to:
 - Verify actual origin of the emergency message.
 - Determine the classification of the emergency.
 - Obtain and assess information and data pertaining to the emergency.
- ② Initiate activation of the BRP emergency response organization, if appropriate.
- ③ Advise the State EMA Duty Officer or Operations Officer of the BRP initial assessment of the emergency.
- ④ Notify selected Federal agencies, as appropriate.

6.7 Prompt Notification System

Prompt notification and instructions to the population at risk are accomplished by PEMA and the affected county emergency management organizations. Prompt notification is the vital first link in this process. Sirens are used for prompt notification throughout the Plume Exposure Pathway EPZ.

After state authorities have been notified, the Prompt Notification (siren) System and the Emergency Alert System (EAS) are the primary means of notifying the population within the Plume Exposure Pathway EPZ. The risk counties can activate the sirens located in their portion of the county that falls within the same Plume Exposure Pathway EPZ. This signal is a three to five minute steady tone which alerts the population to tune their radio or television to the local EAS station.

PEMA and the risk counties have the capability to broadcast emergency information messages advising the population of what actions should be taken, if any. These EAS messages will be repeated at frequent intervals to ensure proper dissemination. In addition to the Prompt Notification System and the EAS message, state and/or municipal police and fire departments will act to supplement emergency notification through the use of route alerting procedures, as necessary.

The Three Mile Island Prompt Notification System meets the guidelines of Appendix 3 to NUREG-0654-FEMA-Rep. 1 Rev-1 Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants as identified in each site specific siren acoustical evaluation.

The Prompt Notification System is comprised of 79 sirens distributed throughout the 5 risk counties that fall within the TMI Plume Exposure EPZ. A complete description of the siren system to include siren ratings, siren coverage, and location is located with the Emergency Preparedness Department.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

The Prompt Notification System will be activated by the TMI Risk County Emergency Operations Centers, upon receipt of notification of an emergency situation which would require the dissemination of pertinent information to the public. The emergency situation that could require the sounding of the warning systems may be a natural catastrophe, industrial accident, or fixed nuclear facility emergency which may require protective action. The siren sounding is intended as an alerting mechanism to have the public monitor a designated Emergency Alert System radio station for emergency information. If an incident at the plant warrants the activation of the Prompt Notification System, the initial notification will be made to PEMA. PEMA will in turn notify the BRP and the risk county(ies). BRP will assess the severity of the emergency and notify PEMA of any protective actions required. If the incident is severe enough to warrant activation of the sirens within the Plume Exposure EPZ, the respective county(ies) will activate the siren system to sound a steady 3-5 minute tone. To actuate the system, signals are generated at each county siren control panel.

These signals are transmitted to the individual sirens where they are received and translated causing the siren to sound. The system deactivates in a manner analogous to that of the activation signals.

Protection and selectivity is afforded to the system through an individual carrier frequency and/or series of dedicated activation signals for each county. Varying combinations of activation signals will minimize the probability of inadvertent siren activations and permit the sounding of several different signals.

The preventive maintenance program for the system insures a high degree of reliability. The sirens are inspected and tested in accordance with NUREG 0654 guidance on a continuous schedule.

The TMI respective counties have test programs which consist of actual siren soundings. TMI retains system ownership and maintenance responsibility.

6.8 Evacuation Time Estimates

The TMI Evacuation Time Estimates meet the guidelines of Appendix 4 of NUREG-0654-FEMA-Rep. 1 Rev. 1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants. The analyses used various assumptions in estimating populations, automobile occupancy factors and roadway capacities. The Evacuation Time Estimates take into consideration the population within the Plume Exposure Pathway (EPZ).

Population information is contained in the site updated FSAR. However the complete set of information for evacuation planning is contained in the site's Evacuation Time Estimate Study.

The complete TMI Evacuation Time Estimate Report is maintained on file by the Site Emergency Preparedness department.

6.9 Emergency Public Information

Communications is assigned primary responsibility for providing information promptly and accurately to the media, public officials, employees and members of the public through news releases, media briefings and public official notification.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan		Revision No. 7

To achieve this goal, TMI makes the following commitment:

- ❶ Implementing guidelines establish a communications organization and enumerate responsibilities for performing organization functions. Statements are prepared by qualified communications professionals working closely with emergency response team members. The guidelines allow for quick dissemination to the news media as well as opportunities for media representatives to ask questions and gain further details on plant status during an emergency.
- ❷ The Emergency Public Information Implementing Document provides for quick notification and update of emergency information to local, county and State public officials.
- ❸ A Media Center/Joint Information Center has been established for TMI. The center is equipped with dedicated phone lines, commercial phone lines, telecopiers, radios, television monitors and necessary charts and maps to adequately provide media support. The Media Center/Joint Information Center will be the focal point for the Utility, Local, State and Federal Public Information Officials to interact with the media and each other. As a minimum this center will be activated at the Alert or higher emergency classification.
- ❹ On an annual basis, provide the news media with information that acquaints them with the dissemination of news information and the points of contact during times of plant emergencies.
- ❺ Annually in conjunction with PEMA and risk counties, emergency-related information containing educational information on radiation, contact points for additional information and protective measures is disseminated to all residents, business establishments, hotels, motels and parks within the Plume Exposure Pathway EPZ. In addition, a means is provided for individuals requiring special assistance to be identified and accommodated.
- ❻ Communications acts as the focal point for Rumor Control. Plant personnel have been instructed to refer all public inquiries related to emergency status and actions to the Plant Communications Section. This rumor control center augments the state center.
- ❼ The company will designate a chief spokesperson with support from technical personnel to facilitate the flow of accurate and timely information to the media and ultimately to the public.
- ❽ Members of the Public Information emergency response team will be trained annually on their roles in responding to an emergency at the station.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

7.0 EMERGENCY RESPONSE FACILITIES AND EQUIPMENT

Emergency response facilities and equipment described in this section are provided to ensure the capability for prompt, efficient assessment and control of situations over the entire spectrum of probable and postulated emergency conditions. Personnel are assigned to staff the emergency response facilities on a rotating duty roster schedule to assure a proper and timely response.

This section describes the equipment and facilities that are utilized to:

- ❶ Assess the extent of accident hazards.
- ❷ Mobilize the resources required to mitigate the consequences of an accident.
- ❸ Provide protection to plant personnel.
- ❹ Support the accident mitigation process.
- ❺ Provide immediate care for injured personnel.
- ❻ Effect damage control.
- ❼ Provide information concerning potential environmental impact offsite to appropriate governmental agencies.
- ❽ Provide information to the news media and the general public.

Many of the TMI facilities and much of the equipment are normally used for routine plant operations. Other items are reserved for use only on an "as needed" basis.

Site specific details pertaining to onsite and offsite emergency response facilities as well as the TMI related county, state and federal Emergency Operations Centers are included in Tables 10 and 11.

7.1 TMI Onsite Emergency Response Facilities

7.1.1 Emergency Control Center (ECC)

The Emergency Control Center is the primary location for the initial assessment and coordination of corrective actions for all emergency conditions. The ECC is located in the Control Room and Shift Manager's Office areas. The Center is equipped with meteorological, radiological and plant system parameter readouts integrated with assessment aids for all critical plant systems and provides access to all station communication systems.

Command and control of all initial emergency response activities originate from the ECC. When the entire emergency response organization is activated, the Emergency Director retains command and control of all onsite activities from the ECC and responsibility for offsite emergency management is transferred to the Emergency Support Director at the Emergency Operations Facility (EOF). The ECC is activated for all emergency levels.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan	Revision No. 7	

7.1.2 Technical Support Center (TSC)

The Technical Support Center accommodates engineering personnel that provide in-depth diagnostic and corrective engineering assistance to the Emergency Director command and control functions. The TSC is activated during an Alert, Site Area Emergency, General Emergency or when directed by the Emergency Director. Records and drawings which describe conditions and layout of structures, systems, and components are contained in filing cabinets inside the TSC.

7.1.3 Operations Support Center (OSC)

The Operations Support Center serves as a muster area for shift personnel and as a location to organize and dispatch emergency response teams (i.e., onsite radiological monitoring, fire brigade, rescue operations, damage control, and maintenance). Emergency equipment and supplies, including portable radios, portable lighting, protective clothing, and respirators, are maintained in emergency lockers located in the Operations Support Center. Additional emergency equipment, such as gamma and air monitoring equipment can be made promptly available to the OSC if needed. The OSC is activated during an Alert, Site Area Emergency, General Emergency or when directed by the Emergency Director.

7.2 TMI Offsite Emergency Response Facility

7.2.1 Emergency Operations Facility (EOF)

The Emergency Operations Facility serves as the primary location for management of the Corporation's overall emergency response. The facility is equipped for and staffed by the Emergency Support Organization to coordinate emergency response with offsite support agencies and assessment to the environmental impact of the emergency.

When activated, the EOF participates in accident assessment and transmits appropriate data and recommended protective actions to Federal, State and local agencies. The facility is equipped with data transmission links with the plant, status boards and dedicated communication links with the ECC, TSC, OSC, NRC, State and County emergency agencies, and the State Bureau of Radiation Protection and the JIC. Drawings which describe the as-built conditions and layout of the structures, systems, and components and applicable operating procedures are available of the plant.

7.3 County, State and Federal Emergency Operations Centers

7.3.1 County Emergency Operations Centers

Emergencies at the TMI site could impact the risk counties. Each of these risk counties, therefore, has an Emergency Operations Center (EOC) that meets or exceeds the maximum federal criteria for sufficient space, communications, warning systems, self sufficiency in supplies and accommodations. All counties maintain a full time employee to coordinate emergency planning.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan		Revision No. 7

7.3.2 State Emergency Operations Center

The State Emergency Operations Center contains provisions and accommodations to support State emergency operations. A communications system ties all area and county emergency operations centers into this center. During an emergency, representatives from the selected State agencies assemble in the State EOC to manage and coordinate response activities.

7.3.3 Disaster Field Office (DFO)

Disaster Field Office – The office will be established by FEMA at a location identified in conjunction with the State that serves as a focal point for Federal response team interactions with the State. The DFO will more than likely be established at PEMA headquarters in Harrisburg, Pennsylvania.

7.4 Emergency Communications Systems

The emergency communications systems are designed to ensure the reliable, timely flow of information between all parties having an emergency response role. Reliability is provided through (1) redundancy, (2) alternate communications methods, (3) dedicated communication equipment, and (4) routine use of many of the systems which reduces the probability of undetected system failures. Timeliness of information flow is achieved by (1) prompt notification, (2) predefined lines of communication, (3) predefined emergency action levels, and (4) predefined levels of authority and responsibility, and (5) diversity.

The Control Room is the primary source of plant information. Information originating in the Control Room can be classified into two major categories: operational data and radiological data. The emergency communications networks are formulated around this basic concept and designed to channel information directly to the key parties having closely related functions. By providing well-defined and dedicated communication links, efficient and effective accident management can be achieved albeit key personnel operate from physically separated facilities. The following circuits have been installed at the TMI site. The specific details of these circuits and description of additional emergency communications available at the site are included in Table 12.

7.4.1 Emergency Communications

7.4.1.1 NRC Emergency Notification System (ENS)

The NRC Emergency Notification System lines are part of the dedicated telephone system that connects Emergency Response Facilities at the TMI site with NRC Operations Center. The ENS is used primarily to report emergencies. Commercial telephone lines are used as backup communications. Transmittal of operational data to the NRC should be accomplished using this circuit. A qualified communicator will be assigned to man the ENS line.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

7.4.1.2 Health Physics Network (HPN)

In the event of a radiological emergency, the HPN will be activated. These lines are circuits used to relay information to the NRC Regional and Headquarters offices. The HPN can be used for NRC notification when the ENS is out of service. This system is dedicated to transmission of radiological information to the NRC.

7.4.1.3 Telephone System

The TMI site is served by a Private Phone System and direct commercial lines. These systems are expected to function during emergencies as they do during normal plant operations.

7.4.1.4 Transmission (Voice)

The TMI site maintains a telephone communications system using technology such as fiber optics links. The system bypasses potentially congested public-use circuits. Backup to these routes are commercial business lines.

7.4.1.5 Automatic Dialing Equipment

Automatic dialing equipment provides automatic dialing of pre-selected telephone numbers, reducing callout/notification time and dialing errors.

7.4.1.6 Maintenance and Instrumentation Telephone System

The Maintenance and Instrumentation telephone system provides maintenance personnel with a direct communications circuit to the Control Room from strategic locations throughout the plant.

The Maintenance and Instrumentation Phone System consists of three essentially independent circuits: the Nuclear Subsystem, the Turbine Subsystem, and the Fuel Handling Subsystem. These circuits are designed for use between two or more locations during operations when direct communications between operators and/or maintenance personnel is required. Handsets and headsets are provided. The system is operable when headsets and/or handsets are plugged into the various stations of the three subsystems.

7.4.1.7 Notification Line

The Notification Line is dedicated for use by the TMI ECC and EOF to make official notifications (i.e., initial notification, reclassification, close-out of the event).

7.4.1.8 BRP Line

The BRP line is dedicated for use by the RAC to communicate plant status and radiological information to the BRP. Internal plant radiological assessment and discussions leading to the development of protective action recommendations should not occur over this circuit.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Revision No. 7	
Three Mile Island Emergency Plan		

7.4.1.9 Emergency Director's Line

The Emergency Director's line is dedicated to communications and consultation between the Emergency Director and Emergency Support Director and are intended for their exclusive use.

7.4.1.10 Environmental Assessment Line

The Environmental Assessment line is the primary communication link between the RAC and Group Leader, R&EC to communicate source term, in-plant radiological conditions and dose projections. It is also the primary circuit for discussions and development of protective action recommendations.

7.4.1.11 Operations Line

The Operations Line is dedicated for use by the Emergency Director/Operations Coordinator to direct in-plant response and to receive status reports from the OSC.

7.4.1.12 Radiological Line

The Radiological Line is dedicated for use by the RAC to communicate in-plant radiological conditions and concerns to all interested parties. It may also function as a backup communication link for the EACC and in-plant Rad Con lines.

7.4.1.13 Engineering Line

The Engineering Line is dedicated for primary use in a conference mode for technical engineering discussions between the TSC, EOF and ECC.

7.4.1.14 Emergency Management Line

The Emergency Management Line is dedicated for use by the ED and ESD for communication with all other emergency response facilities.

7.4.1.15 Additional Three Mile Island Circuits

❶ In-Plant Radiological Controls Line

The TMI In-Plant Radiological Controls Line is dedicated to the exclusive use of the RAC and RCC to discuss in-plant Radiological Controls and to coordinate the dispatch of Radiological Controls personnel for in-plant and survey team monitoring operations.

❷ NRC Intra-Communications Line

The NRC Intra-Communications Line is dedicated to the exclusive use of the site NRC staff/Director - Site Operations for communication with NRC personnel at all key emergency response facilities.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

③ TMI - Framatome Line

The TMI - Framatome line is dedicated to communication and consultation with Framatome Tech Inc. in Lynchburg, VA to discuss NSSS component response and recovery. These telephones are extensions of the Framatome telephone system and are located in the TMI Shift Manager's Office, and TMI TSC.

④ Pennsylvania Emergency Management Agency Radio System (PEMARS).

The Control Room is equipped with a radio capable of transmitting and receiving on the Pennsylvania Emergency Management Agency Radio System Frequency. The radio provides an additional notification pathway between TMI, PEMA, and the five risk counties.

7.4.1.16 Telephone System Emergency Power Supplies

The TMI communications equipment uses a variety of power sources, power supply back ups, and redundant signal routing which makes a complete loss of communications with off site agencies an unlikely event.

ML-8000 emergency telephone equipment is connected to TMI ES vital power with diesel generator back up.

The TMI telephone equipment is a DC powered system. Batteries receive power through chargers which are normally fed from an AC power source. Should the AC power source fail, the batteries can supply power to the system for a minimum of eight hours. Additionally diesel generator backup is available within eight hours.

USNRC telephones are on the corporate PBX System which is powered locally at the local office.

7.4.1.17 Radio Communications

Radio communication equipment used during normal plant operations will be used in an emergency to communicate with mobile units and to provide backup to the telephone system.

At TMI, radio capabilities include the following frequencies:

- ① TMI Operations Frequencies (e.g. Ops-1, Ops-2, Ops-3 and Ops-4)
- ② TMI Security Frequency
- ③ Environmental and Radiological System Frequency
- ④ Maintenance and Rad Con Frequency
- ⑤ Met-Ed System (Lebanon Frequency)
- ⑥ PEMARS (Pennsylvania Emergency Management Agency)

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

⑦ Local Law Enforcement Agency Frequency

Radio transmission capabilities are follows:

- ① TMI Security Frequency transmits from: a) Central Alarm Station, b) Secondary Alarm Station, c) TMI OSC, d) TMI ECC, e) TSC, f) Portables.
- ② TMI Operations Frequencies transmit from: a) TMI ECC, b) TSC, c) TMI-OSC, d) Central Alarm Station, e) Secondary Alarm Station and f) Portables.
- ③ Environmental and Radiological System Frequency transmits from: a) TMI ECC, b) TMI OSC, c) TSC, d) EACC, e) Central Alarm Station, f) Secondary Alarm Station and g) mobile vehicles.
- ④ Maintenance and Rad Con Frequency transmits from: a) TMI ECC, b) Rad Con Office, c) Portable Units, d) TSC, e) TMI OSC, f) Central Alarm Station and g) Secondary Alarm Station.
- ⑤ Met-Ed Frequency transmits from: a) TMI ECC, b) Central Alarm Station, c) Secondary Alarm Station, d) TSC, and e) TMI OSC.
- ⑥ Pennsylvania Emergency Management Agency Radio System transmits from TMI ECC and EOF.

7.4.2 Station Warning System

7.4.2.1 Alarms

Audible alarms are a quick and effective means of communicating emergency warnings on the site. Alarms currently installed at TMI include:

- ① Station Emergency Alarm
- ② Fire Alarm
- ③ Reactor Building Evacuation Alarm

Each alarm provides a distinctive sound that all site personnel and contractors are trained to recognize and respond to. The Station Emergency Alarm will be followed by an announcement that provides emergency information such as class of emergency declared, accountability directions, radiological precautions, etc. At TMI-1, the Reactor Building evacuation alarm is supplemented with flashing lights at specific locations in the Reactor Building to provide both audible and visual warnings.

The Control Room alarm systems consist of overhead annunciators, panel annunciators and computer alarms. The overhead and panel annunciators consist of flashing translucent tiles and audible indicators (i.e., buzzer or horn). The computer alarms use annunciators and also provide specific data using the alarm printer. At TMI-1, alarm data is also provided by CRTs.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan		Revision No. 7

7.4.2.2 Plant Paging System

The Plant Paging System provides plant-wide paging from the Control Room and all remote stations plus private communications during normal operating conditions.

The plant paging system provides immediate warning and instructions to onsite personnel in the event of an emergency. Phone stations and speakers of this subsystem are located in vital plant areas.

7.4.2.3 Call Out Telecommunications Equipment

The telephone system and dedicated instruments enable the Communicators to contact emergency response personnel during an emergency and receive a response from each individual responding. Through the use of this equipment, the Communicator is able to determine which individuals are responding by name, duty roster position, and estimated time of day of their arrival.

7.5 Assessment Facilities

7.5.1 Onsite Systems and Equipment

7.5.1.1 Radiation Monitoring System

The onsite Radiation Monitoring System contributes to personnel protection, equipment monitoring, data gathering, and accident assessment by measuring and recording radiation levels and concentrations of radioactive material at selected locations within the plant. The Radiation Monitoring System alarms and initiates required emergency actions when radiation levels or radionuclide concentrations exceed predetermined levels. Area, liquid, and atmospheric monitoring subsystems are required to perform these functions. Specific details regarding radiation monitoring and effluent monitoring systems can be found in system design descriptions (SDDs) and site Final Safety Analysis Reports, the TMI Emergency Dose Calculation Manual and the TMI Radiation Monitoring Setpoint Procedures.

The data from these subsystems are displayed by readout in the Control Room. Selected channels are recorded by recorders and/or the plant process computer which are also located in the Control Room.

In general the radiation monitoring equipment is designed in accordance with the following:

- ① Each monitoring station has adjustable alarm, alert, and power supply failure alarms.
- ② Solid-state circuitry is used except for primary detectors.
- ③ Most AC operated radiation monitoring equipment, except for the pump assemblies, is provided with power from the battery-backed, inverter-fed vital power supply bus.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

- ④ Each radiation monitor is capable of being checked periodically with solenoid actuated check sources.
- ⑤ A pulse generator or solid sources are used for electrically checking each monitor or subsystem.
- ⑥ The modules are designed so that an alarm and/or indication is initiated when failure occurs anywhere in the channel.

7.5.1.1.1 Area Radiation Monitoring

The TMI-1 area radiation monitoring subsystem is comprised of channels which utilize an ion chamber detector housed in a weatherproof container.

7.5.1.1.2 Containment Radiation Monitors

Post accident radiation levels in containment are monitored by two channels of fully qualified high range area monitors. These monitors are ion chamber detectors and are designed to withstand a LOCA.

Readout modules are located for these detectors on the radiation monitoring panel in the control room.

7.5.1.1.3 Atmospheric Radiation Monitoring

Each installed atmospheric monitor (except the condenser off-gas, ESF ventilation exhaust and waste gas monitor) is comprised of a particulate measuring channel, iodine measuring channel, and a gaseous measuring channel. The atmospheric radiation monitor subsystem is comprised of monitors with fixed and movable particulate filters, and fixed radioiodine filters. Representative samples are obtained by means of a sampling head placed in a ventilation duct.

Movable airborne monitors are typically used in the spent fuel handling area during refueling operations and in the radiochemical laboratory during laboratory sample preparation operations. These monitors are supplemented with various other portable radiation monitors. Each monitor contains three channels for particulate, iodine, and gaseous monitoring, respectively.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

7.5.1.1.4 Liquid Radiation Monitoring

The liquid radiation monitoring subsystem is comprised of monitors, each of which has a sampler, detector, and Control Room ratemeter module (exceptions are the IWTS/IWFS discharge monitor, waste treatment system discharge monitor and the turbine building sump pump). The monitors provide visual indications in the Control Room. The TMI-1 Primary Coolant Letdown monitor also contains a high range channel.

7.5.1.1.5 Post Accident Sampling System

Liquid Reactor Coolant System Post Accident Sample System (PASS) samples may be taken from the pressurizer and decay heat and reactor coolant letdown systems. Liquid samples may be analyzed for isotopic concentration, boron concentration, chloride concentration and dissolved gases. The Containment Atmosphere Post Accident Sampling System (CATPASS) is used to sampling isotopic concentration in the containment atmosphere. MAP-5 microprocessor stations sample iodine and particulates in condenser off-gas and auxiliary and reactor building exhausts.

7.5.1.2 Fire Protection Devices

Site specific details regarding Fire Protection at the TMI site is as follows:

TMI has implemented and maintains a Fire Protection Program as described in the updated FSAR for TMI-1. The Fire Protection Program is controlled under TMI-1 license conditions.

7.5.1.3 Seismic Monitoring

Specific details regarding the seismic monitoring system at the TMI site is included as follows:

Strong motion recording systems at TMI measures ground motion and structural vibrating response caused by an earthquake occurring in the vicinity of the site. Cassette magnetic tape recorders located in the TMI-1 Control Room receive information supplied by triaxial sensor units which are firmly mounted on the Reactor Building. One triaxial sensor unit is attached immediately outside of the containment wall at the base of the Reactor Building. A second triaxial sensor is situated along the same Reactor Building axis, but is attached to the Reactor Building ring girder. The triaxial sensor units begin to supply seismic data to the magnetic tape recorder after a signal is sent to the sensors by a remote starter unit. A remote starter unit attached to the base of the Reactor Building provides a signal for its systems sensor units when the starter unit detects a ground acceleration greater than a present threshold level. The remote starter also actuates an annunciator in the TMI-1 control room labeled "Threshold Seismic Condition". If the ground acceleration exceeds the horizontal or vertical setpoints, a seismic trigger, also mounted on the base of the Reactor Building, will cause a TMI-1

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

annunciator labeled "Operating Basis Earthquake" to actuate. The time history of a ground motion and resulting vibrating response can be displayed by using magnetic tape cassettes containing the recorded data, and the magnetic tape playback system in the control rooms. The magnetic tape playback system produces visual playouts of selected magnetically recorded data. This is accomplished with a strip chart recorder built into the playback system. A visual playout allows quick analysis of the earthquake. The magnetic tapes are available also for detailed analysis.

Peak reading accelerographs are anchored to Class 1 selected items. These accelerographs will produce a permanent record of the peak amplitude of the low frequency accelerations caused by seismic disturbances.

This record is in the form of magnetic erasure clips which must be developed using the magnetic developer kit. After developing, these clips can be examined to verify seismic response which had been determined analytically.

7.5.1.4 Onsite Meteorological Monitors

Specific details regarding the onsite meteorological monitoring system at the TMI site are included as follows:

At TMI, basic meteorological information is obtained from a weather tower maintained at the north end of the Island. Meteorological information has been collected at the site since May 1967. Real time information can be obtained from the mini-computer at the site.

The meteorological measurement system is deployed on a 150 ft. tower. It measures wind speed and wind direction at 100 ft. and 150 ft. above grade. There are redundant speed and direction sensors at the 100 ft. level. Temperature is measured at both 33 ft. and 150 ft. from two sets of platinum sensors. Temperature difference (ΔT) is also derived and recorded. Strip charts located inside the meteorological building adjacent to the weather tower record all of the above information. The Control Room is also provided with strip charts of wind speed, direction, temperature, and a measure of atmospheric stability.

Meteorological data can be remotely interrogated by telephone by NRC and Commonwealth of Pennsylvania.

Environmental Controls personnel are capable of making real-time offsite estimates of atmospheric effluent transport and diffusion following an accidental airborne radioactive release from the plant. Real time meteorological information is obtained by telephone from the personal computer at the meteorological building located at the north end of TMI. The personal computer has a storage capacity of several days worth of data. Beyond that time period the meteorological data is permanently stored in a history file. Back-up meteorological information is available from the National Weather Service directly and indirectly from other sources that collect National Weather Service information.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

7.5.1.5 Process Monitors

Process monitors measure appropriate parameters that are indicative of the status of various plant systems and the reactors. These parameters are displayed and recorded in the Control Room, or at local panels in the plant.

7.5.1.6 Laboratory Facilities

The TMI laboratory facility is equipped to provide the water chemistry and radiochemical analysis support required during normal plant operations and emergencies.

7.5.1.7 Systems and Equipment Required by NUREG-0578 (TMI-1)

Onsite capability and resources to provide initial values and continuing assessment throughout the course of any accident include post-accident sampling capability, radiation and effluent monitors, in-plant iodine instrumentation and containment radiation monitoring in accordance with NUREG-0737, which has superseded NUREG-0578.

7.5.2 Facilities and Equipment for Offsite Monitoring

7.5.2.1 Reuter Stokes Senti System

The Reuter Stokes Senti System at TMI consists of radially located monitoring stations hard-wired into a central processing center (CPC). The TMI system was installed in 1981.

Each monitoring station measures and records ambient radiation levels every five seconds. The central processing units interrogate each monitoring station at regular, specified time intervals. Average ambient radiation levels, station status and diagnostic information are then transmitted by telephone line to the print-out locations. The TMI system monitoring stations can measure from 0 mR/hr to 100 mR/hr.

Alarm setpoints for each station are set at the CPC. When a setpoint is exceeded, the CPC automatically increases print-out frequency and indicates which station(s) have exceeded the setpoint.

7.5.2.2 Radiological Environmental Monitoring Program (REMP)

A complete Radiological Environment Monitoring Program (REMP) for the TMI site has been established.

The objectives of the REMP are:

- ① To fulfill the obligations of the radiological environmental surveillance sections of the Technical Specifications.
- ② To determine whether any statistically significant increase occurs in the concentration of radionuclides in critical pathways.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

- ③ To detect any buildup of long-lived radionuclides in the environment.
- ④ To detect any change in the ambient gamma radiation levels.
- ⑤ To verify that radioactive releases are within allowable limits and that plant operations have no detrimental effect on the health and safety of the public or the environment.
- ⑥ To obtain a post accident historical assessment of accumulated dose for the affected area.

Samples for the REMP are taken from the aquatic, atmospheric, and terrestrial environments. Sample types are based on: 1) established critical pathways for the transfer of radionuclides through the environment to man, and 2) experience gained during the preoperational and initial operational phases of the REMP. Sampling locations were determined from site meteorology, hydrology, local demography, and land uses.

Sampling locations are divided into two classes: indicator and control. Indicator stations are those which are expected to monitor plant effects, if any exist; control samples are collected at locations which are believed to be unaffected by plant operations. Fluctuations in the levels of radionuclides and direct radiation at indicator stations are evaluated with respect to analogous fluctuations at control stations. Indicator station data is also evaluated relative to background characteristics established prior to station operation.

The following samples are obtained: air iodine, green leafy vegetables, air particulates, immersion dose (TLD), fish, aquatic plants, precipitation, sediment, surface water, drinking water, ground water, soil, fodder crops, fruit and milk.

The TLD program used by TMI meets the requirements set forth in the TMI Technical Specifications. Locations of Environmental TLDs can be found in the most recent Radiological Environmental Monitoring Report for Three Mile Island. This report is submitted annually to the NRC in accordance with Technical Specifications. Additional information regarding the site specific TLD program follows:

TLD's are thermoluminescent dosimeters. They contain calcium sulfate and lithium borate phosphor elements. Multiple badges are used such that there are at least 2 calcium sulfate and 2 lithium borate phosphor elements at each sample site. This enables the evaluation of beta dose, if needed, as well as gamma dose, but during normal operations only gamma dose is evaluated. The Annual Radiological Environmental Monitoring Report describes the locations of each station. Environmental TLDs are normally collected and analyzed quarterly.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

7.5.2.3 National Weather Service (NWS)

The NWS can provide backup meteorological information (e.g., wind speed, temperature, wind direction) from several locations in the vicinity of the TMI site. At TMI, information is provided by Harrisburg International Airport, Capital City Airport and the State Turnpike Authority.

The NWS will also perform emergency balloon runs to collect data upon request. Air stability determinations are also provided, with information received from weather stations in Pittsburgh; Washington, D.C.; Binghamton, NY; and Mt. Holly, NJ.

Back-up meteorological information from the National Weather Service is also available indirectly from other sources that collect National Weather Service data.

7.5.2.4 Federal Radiological Monitoring and Assessment Plan (FRMAP)

The Federal Radiological Monitoring and Assessment Plan was developed to coordinate Federal radiological assistance. The FRMAP establishes: (a) A means of requesting and providing Federal radiological assistance from existing Federal resources and (b) an operational framework for coordinating the radiological monitoring and assessment activities of Federal agencies during radiological emergencies occurring within the United States and its territories.

To the extent that assistance under this plan is needed, TMI requests for Federal assistance will be coordinated through the NRC. Requests for this assistance will be initiated by the Emergency Director, Radiological Assessment Coordinator or Emergency Support Director. When notified of an emergency, the Federal agencies will respond with equipment and personnel, as required, to assist in the performance of assessment actions. The resources available consists of, but are not limited to:

- ① Portable radiation survey instrumentation
- ② Mobile laboratory facilities
- ③ Personnel for supporting functions
- ④ Special transportation activities
- ⑤ Environmental monitoring teams

7.5.2.5 State Department of Environmental Protection

The PA Department of Environmental Protection and BRP are responsible for responding to radiological incidents within the state boundaries. The BRP maintains personnel, facilities and equipment to assist in assessing the hazard and provide technical guidance and recommendations regarding the implementation of protective actions for the general public. The BRP performs both routine and emergency environmental monitoring.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Revision No. 7	
Three Mile Island Emergency Plan		

7.5.2.6 Offsite Emergency Radiological Assistance

Backup radiological monitors, including rate meters, sampling devices, dosimeters and laboratory facilities will be obtained from PECO Energy Company.

Additional radiological emergency assistance available to the TMI site from companies, utilities and governmental agencies is included in the INPO Emergency Resources Manual.

7.6 Additional Support Facilities

Personnel protective action is a function of the nature of the hazard (e.g., preparing for a hurricane is somewhat different from preparing for radiological hazards). Preplanned responses to basic hazards, high wind, flooding, earthquakes, and radiation exposure, are an integral part of the Emergency Plan. A fundamental concept in personnel protection is the evacuation of all individuals not essential to the operation, safety, security, and damage control of the plant. Obviously some hazards can occur before significant protective action can be applied (e.g., earthquake). When the situation permits positive action, the appropriate alarms are sounded and all personnel on the site either assume assigned emergency responsibilities or prepare for evacuation.

Provision has been made for adequate supplies and protective equipment for all personnel who may be required to perform emergency activities. Specific quantities of each type are detailed in station procedures and include equipment for personnel monitoring, determining the magnitude and continuously assessing the impact of the release of radioactive material, decontaminating personnel and providing emergency first aid. Additionally, a current prescription and adequate supplies of potassium iodide are maintained by the site Medical Department for issue to personnel exposed or suspected of exposure to radioactive iodine.

Onsite locations have been designated as emergency assembly points or areas where emergency teams will be assembled in accordance with the Emergency Plan Implementing Procedures or as directed by the Emergency Director. Major locations for onsite protective equipment and supplies are the Control Room, access control point, and processing center. Additional information regarding protective facilities can be obtained by consulting the FSAR.

7.6.1 Media Center/Joint Information Center

A Media Center has been established for the TMI site to provide for the dissemination of accurate and timely news information. Equipment and facilities are designed to support timely communications and information dissemination on plant conditions and emergency operations to the news media.

7.6.2 Environmental Assessment Command Center (EACC)

The Environmental Assessment Command Centers is co-located in the Emergency Operations Facility. The EACC provides for the analysis of field monitoring data and the coordination of radiological and environmental monitoring. Computer terminals are available to display real-time meteorological data and facilitate dispersion modeling and dose projections.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

7.6.3 Remote Assembly Areas (RAA)

Offsite Remote Assembly Areas have been designated at the TMI site for assembly of personnel following muster and accountability at the onsite emergency assembly areas. Personnel and vehicles arriving at the RAA are monitored by qualified personnel in accordance with approved Radiological Controls Procedure. Personnel arriving at the RAA as a result of site evacuation will be mustered, monitored and given further instructions.

7.6.4 Control Room/Shift Manager's Office

The Control Room and Shift Manager's Office are designed to be habitable under accident conditions and will serve as the primary onsite Emergency Control Center (ECC).

These areas are located in seismically-rated structures and have adequate shielding to permit safe occupation for extended periods of time. The TMI-1 Control Room ventilation system has redundant fans and chillers and is provided with radiation and smoke detectors with appropriate alarms and interlocks. Provisions have been made for air from the control rooms to be recirculated through high efficiency particulate air (HEPA) and activated charcoal filters. Fresh air is drawn through underground ventilation tunnels which have been provided with protection against combustible vapors, incipient explosions or fires. The tunnels are Seismic Class I rated and also designed for a hypothetical aircraft incident.

Emergency lighting, power, ventilation system, and shielding walls enable operators to remain in the Control Room to ensure that the reactor will be maintained in a safe condition. In addition, the operators will be able to evaluate plant conditions and relay pertinent information to appropriate onsite and offsite personnel, organizations, and agencies during emergencies. To ensure the operations shift and other personnel assembled at the location can remain self-sufficient, emergency equipment and supplies will be stored in or near the Control Room. The exact location, type and quantity of emergency equipment and supplies available is specified in the Emergency Plan Implementing Documents.

7.6.5 Processing Center

The Processing Center will be continuously manned by Site Security Force personnel, unless otherwise directed. Emergency equipment and supplies will be maintained in this facility to support such tasks as reentry efforts, performing onsite and offsite radiation surveys or collecting samples. The exact location and the type and quantity of emergency equipment and supplies are specified in the Emergency Plan Implementing Document.

7.6.6 Emergency Assembly Areas

All TMI non-essential personnel will be directed to Warehouse 1 or 3 depending on the radiological conditions as determined by the RAC. Both structures are pre-engineered metal buildings with a conventional ventilation system. Respirators, protective clothing, and most other protective equipment for the plant are stored in these warehouses. If required, personnel assembled at these points could be issued protective equipment from stored supplies. (See Table 10)

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan	Revision No. 7	

7.7 First Aid and Medical Facility

A first aid facility is designed to support a wide range of immediate care requirements ranging from simple first aid to procedures requiring a physician. The most readily available first aid is provided by small kits placed throughout the plant. These kits contain items typically needed to care for minor injuries. Typical contents can be referenced in Table 8. The next level of first aid equipment is found at first aid stations. The medical staff can also provide Advanced Life Support and routine trauma care.

7.8 Damage Control Equipment

The TMI plant site is extensively equipped to conduct preventive maintenance and repairs on mechanical, structural, electrical, and instrumentation and controls equipment found in the plant. Operational policy requires that a minimum maintenance crew be assigned to the onsite shift organization at all times. Each individual assigned to the maintenance crew is qualified and certified to perform the tasks associated with his craft in the working environment of a nuclear plant.

In addition to the equipment and materials required for normal maintenance, other items are available to handle extraordinary maintenance jobs that might arise in damage control. Selection of damage control equipment inventory is based upon (a) mitigating the consequences of flooding, (b) personnel rescue, (c) checking the uncontrolled flow of fluids from process systems, and (d) elimination of electrical hazards. Typical equipment available for damage control can be found in Table 8.

7.9 Radiological Controls Equipment

The TMI plant site maintains an inventory of protective clothing, respiratory equipment, survey instruments and supplies to provide adequate contamination control for all personnel expected to be onsite who might be affected in the event of an emergency.

The supplies are maintained, updated, inventoried and calibrated, as appropriate, on a regular basis in accordance with applicable procedures. Storage locations of emergency supplies can be found in the site implementing documents. Typical equipment available can be found in Table 8.

7.10 Emergency Equipment Readiness

To insure that the necessary emergency equipment is maintained and available for use during emergency situations, readiness checklists have been developed and incorporated in Administrative Procedures. These checklists facilitate detailed inventory and calibration/functional checks of equipment contained in the emergency kits/lockers. The inventory checklists will be performed on a quarterly basis and to insure interim readiness, all kits/lockers are sealed or locked as appropriate.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title		Revision No. 7
Three Mile Island Emergency Plan		

8.0 MAINTAINING EMERGENCY PREPAREDNESS

Although this plan is considered to be part of the Final Safety Analysis Reports (FSAR), TMI will maintain, as separate documents, this Emergency Plan and site-specific Emergency Plan Implementing Documents.

Efforts will be made to assure continuous emergency preparedness and operational readiness among TMI personnel and the offsite response agencies and organizations. The Vice President, TMI Unit 1 has been assigned overall responsibility and accountability for providing the human and material resources to carry out the provisions of this plan and implementing procedures, to accomplish training and qualification of the Emergency Response Organization, and to meet performance expectations for emergency preparedness at the site. Specific responsibilities of the Vice President, TMI Unit 1 are delineated in section 8.1.3 of this plan.

8.1 Responsibilities

- 8.1.1 Senior Management - In accordance with the requirements of the Emergency Plan and Implementing Procedures shall:
 - 8.1.1.1 Designate essential personnel to be assigned to positions within the On-Shift, Initial Response, and Emergency Support Organizations as specified in Table 15.
 - 8.1.1.2 Ensure that personnel designated for assignment to emergency response organizations satisfy the prescribed prerequisites as identified in the TMI Administrative Procedures.
 - 8.1.1.3 Ensure that assigned responsibilities for maintaining emergency preparedness are accomplished in a timely and effective manner in accordance with relevant procedures and that required documentation is prepared and maintained to reflect accomplishment of such activities, i.e., surveillance, audit, inventory, calibration and corrective actions, as appropriate.
 - 8.1.1.4 Provide technically qualified personnel to support the Emergency Preparedness department in the development of drill/exercise scenarios and review of scenarios for technical accuracy and content.
 - 8.1.1.5 Provide technically qualified observer/controller personnel to assist in the conduct and evaluation of drills and exercises.
- 8.1.2 Director, Site Engineering - In addition to the requirements specified in Paragraph 8.1.1 above, shall:
 - 8.1.2.1 Provide technically qualified personnel to participate in the development and conduct of appropriate portions of the specified training courses.
- 8.1.3 Vice President, TMI Unit 1 - In addition to the requirements specified in Paragraph 8.1.1 above, shall:
 - 8.1.3.1 Ensure development and implementation of a TMI Emergency Preparedness Training Program which is in accordance with the requirements of the Emergency Plan.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

- 8.1.3.2 Provide technically qualified personnel to participate in the development and/or conduct of specified training courses as listed in Table 13.
- 8.1.3.3 Provide for the review/concurrence of all Emergency Plan Implementing Procedures and training courses.
- 8.1.3.4 Provide for proper and timely development, implementation and maintenance of dose projection methodology including computer software with concurrence from the Emergency Preparedness Department and review for concurrence proposed changes to the methodology.
- 8.1.3.5 Provide and maintain the necessary portable radiation survey instruments, assigned vehicles and radio for use by both on site and offsite survey teams and computer equipment used to run dose projection software.
- 8.1.4 Exelon Nuclear Manager, Communications and Public Affairs - In addition to the requirements specified in Paragraph 8.1.1 above, shall:
 - 8.1.4.1 Provide an Emergency Public Information Implementing Procedure, and a staff to handle all public information aspects (media inquiries, news releases and briefings, public official notifications, and rumor control) of an emergency at the nuclear station.
 - 8.1.4.2 Provide and maintain in readiness a Joint Information Center to handle, as necessary, the public information aspects of an emergency at the nuclear station.
- 8.1.5 Director, Training - Shall assume overall responsibility for the development, implementation, and administration of the Emergency Preparedness Training Program including Emergency Preparedness Training. Specific responsibilities shall include:
 - 8.1.5.1 The development, scheduling, presentation, documentation and administration of training, consistent with the training scope referenced in the Emergency Preparedness Training Program, the instructor responsibility assignments of Table 13 and the periodic training requirements of Table 14 of this plan.
 - 8.1.5.2 The review by the cognizant Radiological and Environmental Affairs Department, for concurrence, of emergency preparedness training content records dealing with radiological or environmental controls, procedures and concerns.
 - 8.1.5.3 The review by the Emergency Preparedness Department, for concurrence, of emergency preparedness training content records.
 - 8.1.5.4 The development, coordination and publication of training schedules of supporting training facilities to satisfy program requirements.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

8.1.5.5 Documentation of training, to include, as a minimum, attendance records and the status of training related to emergency preparedness. Emergency Preparedness training conducted by other than the Training Department shall be documented to the Training Department by the organizations conducting that training, in accordance with Training Department processes.

8.1.5.6 Providing qualified instructor personnel to conduct specified training consistent with Table 14.

8.1.5.7 Development, implementation and maintenance of the Emergency Plan and Implementing Documents.

8.1.5.8 Development, implementation and coordination of the Emergency Preparedness Surveillance Program.

8.1.5.9 Determining, in coordination with affected departments, which categories of personnel are to receive what emergency preparedness training. This includes reviewing, for concurrence, the emergency preparedness Training Content Records to ensure (1) compliance with regulatory requirements and with the provisions of the Emergency Plan, and (2) that the emergency plan-related technical content is current, correct and appropriate.

8.1.5.10 Providing technically qualified Emergency Preparedness personnel to conduct specified training in accordance with Table 13.

8.1.6 The Plant Manager - Shall be responsible for the administration and maintenance of the TMI Emergency Preparedness Program including providing qualified personnel to conduct specified training in accordance with Table 13.

8.1.6.1 The Manager Emergency Preparedness shall be responsible for the development of the following:

- Emergency Plan
- Emergency Plan Implementing Procedures
- Surveillance Program
- Drill/Exercises

8.2 Organizational Preparedness

8.2.1 Training

All personnel at the Three Mile Island site take part in a formal training program under the direction of the Director, Training. In general, this training program provides for the indoctrination of TMI employees and contractors in addition to providing specialized training for licensed operators, health physics/radiation protection personnel, and personnel assigned specific responsibilities in the emergency organization.

The Director, Training is responsible to ensure that personnel in each department receive the appropriate training. He may delegate specialty training responsibilities to personnel qualified to perform such training.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

The training program for the TMI site includes the following:

- ① All staff personnel are required to attend the General Employee Training Program annually. With regard to emergency planning, the objectives of these programs are to:
 - a. Familiarize personnel with the scope, applicability, and the concept of implementation of the Emergency Plan.
 - b. Familiarize all personnel with the station alarms and appropriate personnel response.
 - c. Familiarize those personnel who do not have pre-assigned emergency response duties (i.e., non-essential personnel) with their required actions during emergencies which include paying attention to instructions, responding to alarms, assembly, accountability, and evacuation.

- ② TMI station and station support organization personnel assigned to the emergency organization with specific Emergency Plan duties and responsibilities (i.e., essential personnel) are required to attend specific emergency preparedness training. The training is designed to prepare these essential personnel to perform their assigned duties in accordance with the Emergency Plan and Implementing Documents.
 - a. The scope of training for essential personnel is delineated in Table 14.
 - b. Essential personnel shall reverify their assigned emergency preparedness training preferably every 12 months but at least every 15 months.

- ③ In addition to state and county sponsored training, TMI will invite the emergency management organizations listed below on an annual basis, to participate in a training program.

The program will also include a review of recent changes to the TMI Emergency Plan and Implementing Documents with particular emphasis given to the classification of emergencies; reporting requirements; assessment, protective, and corrective actions; and communications networks that may affect interface with offsite agencies.

 - Pennsylvania Emergency Management Agency
 - Bureau of Radiation Protection, DEP

NOTE

Training for the Pennsylvania State Police and risk counties is provided by the Pennsylvania Emergency Management Agency.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

- ④ TMI will offer training for hospital personnel, ambulance and rescue, police and fire departments. This training shall include the procedures for notification, basic radiation protection and their expected roles. For those support organizations that must enter the site, training shall also include site access procedures and the identity (by title) of the individual in the site emergency organization who will control the organizations' support activities. While it is expected that offsite support organizations would take advantage of the training, an organization that habitually fails to participate in training programs will be dropped from the list of relied upon offsite support agencies.

8.2.2 Drills and Exercises

Periodic drills and exercises will be conducted in order to test the state of emergency preparedness. The prime objective of this form of training is to verify the emergency preparedness of all participating personnel, organizations, and agencies. Each drill or exercise will be conducted to: (1) ensure that the participants are familiar with their respective duties and responsibilities, (2) verify the adequacy of the Emergency Plan and the methods used in the Emergency Plan Implementing Documents, (3) test communications networks and systems, (4) check the availability of emergency supplies and equipment, and (5) verify the operability of emergency equipment. In addition, repair and damage control shall be included in one major drill/exercise on an annual basis.

The Emergency Preparedness Manager is responsible for the planning, scheduling, and coordinating of all emergency planning related drills and exercises. The EP Manager in consultation with site management, will approve all drills and exercises. The Manager, Plant Training will assist the Emergency Preparedness Manager in carrying out these responsibilities.

Annually a major drill or exercise will be conducted. The Emergency Preparedness Manager will:

- ① Coordinate the assignment of personnel to prepare a scenario.
- ② Coordinate efforts with other participating emergency personnel, organizations, and agencies.
- ③ Obtain required approvals (refer to applicable Administrative Procedures).
- ④ Coordinate a date for drill execution and arrange for qualified observers.
- ⑤ Critique the results of the drill.
- ⑥ Assign personnel to correct any deficiencies.
- ⑦ Ensure that deficiencies are corrected.
- ⑧ Ensure that proper documentation is retained.

Scheduled drills and exercises will be held involving appropriate offsite as well as onsite emergency personnel, organizations, and agencies. These drills and exercises will be conducted to simulate as closely as possible actual emergency conditions and may be scheduled such that one or more drills or exercises can be conducted simultaneously.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

Drill scenarios will be prepared that involve participation of several emergency teams and all or specific parts of the onsite and offsite emergency organizations including varying degrees of participation of Federal, State and County agencies and organizations and local services support personnel and organizations.

The Emergency Preparedness Manager will notify the offsite emergency response organizations and agencies in advance of the scheduled date of the drill or exercise.

A critique shall be scheduled and held as soon as practical after completing a drill or exercise. Observer and participant comments will be given to the Emergency Preparedness Manager for evaluation and/or resolution by assignment to appropriate individuals. A formal report will be prepared from each drill or exercise. Appropriate action items will be generated and tracked to completion. A file will be maintained on each drill listed below.

❶ Medical Emergency Drill

At least one drill shall be conducted annually for the TMI site. The drill will involve the participation of local medical support personnel and organizations (e.g., physician, ambulance service, hospital), and will involve simulated (injured) contaminated personnel.

❷ Fire Emergency Drill

Fire drills shall be conducted in accordance with the site Fire Protection Plan.

❸ Communications Links Test

- a. The communication links with state and county governments within the Plume Exposure Pathway EPZ shall be exercised at least once per month for the TMI site.
 - b. The communication links with Federal emergency response organizations and states within the Ingestion Pathway EPZ shall be exercised in accordance with State procedures.
 - c. The communication links between the nuclear facility, State and local emergency operations centers and field assessment teams shall be exercised at least annually for the TMI site.
- In addition, emergency phone numbers shall be verified and updated on a quarterly basis.
- d. The communications link between the nuclear facility and the NRC shall be exercised at least once per month for the TMI site.

❹ Radiological Monitoring Drill

At least one drill shall be conducted annually for the TMI site. The drill shall include collection and analysis of all appropriate sample media for both onsite and offsite locations.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

⑤ Radiological Controls Drill

At least one drill shall be conducted semi-annually. The drill will involve response to, and analysis of, simulated elevated airborne and liquid samples and direct radiation measurements. The drill shall include analysis of inplant liquid samples with simulated elevated activity levels.

⑥ Hazardous Material Spill Drill

Hazardous Material Spill Drills shall be conducted as required by the Environmental Control Plan.

⑦ Biennial Site Exercise

- a. The Emergency Plan shall be tested biennially at the TMI site to include a scenario appropriate to a Site Area or General Emergency. State and local government emergency plans will be included biennially with full or partial participation by state and local governments within the Plume Exposure Pathway EPZ as required by federal regulations.
- b. Conduct of the exercise shall include mobilization of onsite and offsite emergency response personnel and resources in order to verify their capability to respond to an emergency. Communications with State and County agencies will be included. The scenario will be varied from year to year such that all major elements of these plans and preparedness organizations are tested within a five year period. Federally evaluated exercises will be conducted in accordance with NRC and FEMA approved objectives.

8.2.3 Emergency Preparedness Department

The responsibilities of the Emergency Preparedness Department shall include, but are not necessarily limited to:

- ① Ensuring the coordination of the Emergency Plan with State, County and local emergency plans, the site Security Plan and the site Emergency Public Information Implementing Procedure.
- ② Ensuring that the information, data, and procedures detailed in the Emergency Plan Implementing Document are consistent with the guidance provided in the Emergency Plan.
- ③ Ensuring that the Emergency Plan Implementing Documents are coordinated and interfaced properly with other procedures (e.g., Administrative Procedures, Emergency Operating Procedures).
- ④ Assisting the Training Department in coordinating and/or providing emergency preparedness related specialty training.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

- ⑤ Coordinating emergency planning drills and exercises as previously described.
- ⑥ Coordinating the review and updating of the Emergency Plan and Implementing Document.
- ⑦ Ensuring the maintenance and inventory of emergency equipment and supplies.
- ⑧ Maintaining current with respect to changes in federal regulations and guidance that impact emergency planning activities.

8.3 Review and Updating of the Emergency Plan and Implementing Document

The Emergency Plan and Implementing Documents will be reviewed on an annual basis.

In accordance with 10 CFR 50.54 (t) at least once every twelve (12) months, the Emergency Plan and Implementing Document will be reviewed to verify compliance with the Operational Quality Assurance Plan, the Fire Protection Program Plan, internal rules and procedures, federal regulations, and operating license provisions. This audit will be conducted pursuant to the procedures and methods set forth in the Operational Quality Assurance Plan. This audit will focus on the state of emergency readiness (i.e., review of emergency drills, exercises, capabilities and adequacy of interfaces). In addition, the Emergency Preparedness Manager will, by virtue of his involvement with the Emergency Preparedness Program, provide an ongoing review.

This Emergency Plan is considered a part of the TMI-1 and TMI-2 SARs. Revisions to the Plan shall be administratively controlled consistent with Administrative Procedures.

The site Emergency Plan Implementing Document will be incorporated into the Emergency Preparedness procedures program. As such, the Implementing Document will be prepared, reviewed, approved, controlled, distributed, and revised in accordance with applicable corporate and division procedures. Document holders (e.g., AmerGen, Federal, State and County agencies) will receive revisions to the Emergency Plan Implementing Document in a controlled manner as they are issued.

The Emergency Preparedness Manager is responsible for coordinating the periodic reviews and audits of the Emergency Plan and Implementing Documents. In addition, he shall, through letters, meetings, seminars, or other means available, ensure that all elements of the total emergency organization (e.g. TMI, Federal, State and County) are informed of the Emergency Plan, the Implementing Documents and revisions thereto.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan	Revision No. 7	

8.4 Maintenance and Inventory of Emergency Equipment and Supplies

Designated emergency equipment and supplies and their storage locations will be listed in the Emergency Plan Implementing Documents. Such equipment and supplies will be maintained, inventoried, inspected and calibrated in accordance with approved site procedures. Equipment, supplies, and parts having shelf-lives will be checked and replaced as necessary.

Any deficiencies found during the inventory and inspection will be either cleared immediately or documented for corrective action. A report of each inventory and inspection, including documented deficiencies, will be prepared and submitted to the Emergency Preparedness Manager. He will ensure that cognizant department heads assign personnel to correct deficiencies and shall ensure that identified deficiencies are corrected in a reasonable period of time.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

9.0 RECOVERY

The Emergency Director and Emergency Support Director have the joint responsibility for determining and declaring when an emergency situation is stable and has entered the recovery phase. They will evaluate the status of the emergency by observing monitoring instrumentation and reviewing all current and pertinent data available from emergency response and/or monitoring teams. They shall consider the emergency under control and in the recovery phase only when the following general guidelines are met:

- ❶ Radiation levels in all in-plant areas are stable or are decreasing with time.
- ❷ Releases of radioactive materials to the environment from the plant are under control or have ceased.
- ❸ Containment pressure is at normal levels.
- ❹ Reactor plant is stable and in a long term safe shutdown condition.
- ❺ Any fire, flooding, or similar emergency conditions are controlled or have ceased.

If the above conditions are met, the Emergency Director/Emergency Support Director (ED/ESD) may establish the long term Recovery Organization or close out the emergency. Information pertaining to emergency close-out is typically discussed with the State and NRC.

If all of the above criteria are not met but the plant is proceeding in an orderly fashion towards meeting the above criteria, the ESD/ED may implement a two or three section watchbill, and maintain the emergency response capability at the fully-staffed level; or implement a reduced staffing of the emergency organizations commensurate with plant conditions until recovery or close-out is appropriate. As a minimum, for an Alert all of the onsite emergency response facilities (i.e., ECC, TSC, and OSC) and EACC must remain staffed. As a minimum, for a Site Area or General Emergency all the onsite and offsite emergency response facilities must remain staffed.

Although planning for recovery will vary according to the specific nature of the emergency situation, a long-term recovery organization that is general in nature has been defined based on the normal organization.

During recovery operations, the radiation exposure limits of 10 CFR 20 shall apply. Compliance with those limits shall be the responsibility of the Vice President, TMI Unit 1.

At the time of declaring that an emergency has entered the recovery phase, the ED/ESD shall be responsible for providing notification to all applicable agencies (e.g., Federal, State, and County agencies) that the emergency has shifted to a recovery phase.

Recovery actions that plan for, or may result in, radioactive release will be evaluated by the Vice President, TMI Unit 1 and his staff as far in advance of the event as possible. Such events and data pertaining to the release will be reported to the appropriate offsite emergency response organization and agencies.

	TMI - Unit 1 Administrative Procedure	Number 1092
title		Revision No. 7
Three Mile Island Emergency Plan		

10.0 REFERENCES

- 10.1 Title 10, Code of Federal Regulations
 - 10.1.1 Part 20, Standards for Protection Against Radiation
 - 10.1.2 Part 50, Licensing of Production and Utilization Facilities
 - 10.1.3 Part 50, Appendix E, Emergency Plans for Production and Utilization Facilities.
 - 10.1.4 Part 73, Physical Protection of Plants and Materials
 - 10.1.5 Part 100, Reactor Site Criteria
- 10.2 US NRC Order and Notice of Hearing, Docket No. 50-289, dated August 9, 1979
- 10.3 Section 13.3, Emergency Planning, of Regulatory Guide 1.70, Revision 3, Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants
- 10.4 NUREG-75/087, Revision 1, US NRC Standard Review Plan
 - 10.4.1 Section 9.5.1, Fire Protection Program
 - 10.4.2 Section 13.3, Emergency Planning
- 10.5 Regulatory Guide 1.97, Revision 1 dated August 1977, Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident
- 10.6 US Environmental Protection Agency Manual EPA-400-R-92-001, October 1991, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents
- 10.7 NUREG-0396, EPA 520/1-78-016, November 1978, Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants
- 10.8 Federal Radiation Council Report No. 7, May 1965, Background Material for the Development of Radiation Protection Standards
- 10.9 National Council on Radiation Protection Report No. 39, January 15, 1971, Basic Radiation Protection Criteria
- 10.10 ANS-3.2/ANSI N18.7-1976, Administrative Controls and Quality Assurance for the Operations Phase of Nuclear Power Plants
- 10.11 Regulatory Guide 1.120 Revision 1 dated November 1977, Fire Protection Guidelines for Nuclear Power Plants
- 10.12 Three Mile Island Nuclear Station Operating License No. DPR 50 (Docket No. 50-289 and 50-320), including:
 - 10.12.1 Appendix A, Technical Specifications (Safety)

	TMI - Unit 1 Administrative Procedure	Number 1092
title		Revision No. 7
Three Mile Island Emergency Plan		

- 10.13 Regulatory Guide 1.16, Revision 4 dated August 1975, Reporting of Operating Information - Appendix A, Technical Specifications
- 10.14 NUREG-0578 (extracts), July 1979, TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations
- 10.15 NUREG-0600 (extracts), Investigation Into the March 28, 1979 Three Mile Island Accident by Office of Inspection and Enforcement, August 1979
- 10.16 Three Mile Island Nuclear Station Unit 1 Final Safety Analysis Report
- 10.17 US NRC Information Report SECY-79-450, dated July 23, 1979, Action Plan for Promptly Improving Emergency Preparedness
- 10.18 NRC Emergency Planning Review Guideline Number One - Revision One - Emergency Planning Acceptance Criteria for Licensed Nuclear Power Plants, dated September 7, 1979
- 10.19 Commonwealth of Pennsylvania Emergency Operations Plan, Annex E, Radiological Response to Nuclear Power Plant Incidents, December 22, 1988 or as changed
- 10.20 Department of Environmental Resources, Bureau of Radiation Protection Plan for Nuclear Power Generating Station Incidents, January 1980 (updated October 1988) or as changed
- 10.21 Dauphin County Emergency Operations Plan, Annex E, 1989 or as changed
- 10.22 York County Emergency Operations Plan, Annex E, 1989 or as changed
- 10.23 Lancaster County Emergency Operations Plan, Annex E, 1989 or as changed
- 10.24 Cumberland County Emergency Operations Plan, Annex E, 1989 or as changed
- 10.25 NUREG-0728, NRC Incident Response Plan, Revision 1, April 1, 1983.
- 10.26 Lebanon County Emergency Operations Plan, Annex E, 1989 or as changed
- 10.27 Three Mile Island Nuclear Station Procedures
 - 10.27.1 Administrative Procedures
 - 10.27.2 Radiological Controls Procedures
 - 10.27.3 Emergency Procedures
 - 10.27.4 Security Procedures
 - 10.27.5 Alarm Response Procedures
- 10.28 NUREG-0654/FEMA-REP-1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, dated November 1980
- 10.29 Pennsylvania Department of Commerce, Bureau of Statistics, 1980 Population data

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

- 10.30 TMI Siren Alert System Performance Evaluation Update and Field Verification, dated March 1982
- 10.31 Evacuation Time Estimates for the Plume Exposure Pathway EPZ at Three Mile Island Nuclear Generating Facilities
- 10.32 Organization Plan, 1000-PLN-1000.01
- 10.33 Operational Quality Assurance Plan, 1000-PLN-7200.01
- 10.34 AIF National Environmental Studies Project Document No. AIF/NESP 022, Atmospheric Dispersion Modelling For Emergency Preparedness. October 1981
- 10.35 AP-EP-1, Amergen Emergency Preparedness Policy
- 10.36 NuMarc/NESP-007, Revision 2, "Methodology for Development of Emergency Action Levels"

TABLE 1

Page 1 of 1

Percent of Land Use by County

TABLE 1 PERCENT OF LAND USE BY COUNTY					
USE	DAUPHIN	YORK	LANCASTER	CUMBERLAND	LEBANON
Forest & Woodland	48.7	27.8	16.2	29.3	30.1
Crops	29.6	45.3	61.8	45.6	40.7
Livestock	N/A	N/A	N/A	N/A	N/A
Pasture	3.6	7.6	3.4	8.2	12.4
Urban	N/A	N/A	N/A	N/A	N/A
Business	N/A	N/A	N/A	N/A	N/A
Industrial	N/A	N/A	N/A	N/A	N/A
Public	N/A	N/A	N/A	N/A	N/A
Other	18.1	19.3	18.6	16.9	16.8
N/A Data Not Available					
References: Pennsylvania County Data Books (1983, 1984) PA Department of Commerce, Bureau of Statistics					

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan	Revision No. 7	

TABLE 2
TMI Emergency Action Summary

Page 1 of 9

I. UNUSUAL EVENT

State and/or Local Office
Response

TMI Response

- 1) Provide fire, rescue, ambulance or security assistance if required.

- 1) Promptly inform NRC, State and local offsite authorities of nature of unusual condition as soon as discovered.

FIRE

Fires of more than 15 minutes inside the protected area will receive the following off-site assistance as necessary.

- 2) Augment on-shift personnel as needed.
3) Assess and respond.
4) Provide periodic plant status updates to offsite authorities.

- ◆ Londonderry Volunteer Fire Co. - Dauphin County
- ◆ Rescue Hose Fire Co. - Middletown
- ◆ Liberty Volunteer Fire Co. - Middletown
- ◆ Union Hose Co. #1
- ◆ Lower Swatara Volunteer Fire Department
- ◆ Friendship Fire and Hose Co. #1 - Elizabethtown
- ◆ Bainbridge Volunteer Fire Co. - Lancaster Co.

- ◆ Site Security Force assisted by PA State Police
- 5) Provide notification for reclassification or closeout. Closeout with verbal summary to offsite authorities.

EMERGENCY MEDICAL SERVICES

- ◆ Londonderry Volunteer Fire Co. - Dauphin County
- ◆ Lower Swatara Emergency Medical Services
- ◆ Lancaster County Medic 5 (advanced life support)
- ◆ Bainbridge Fire Co. (Ambulance) - Lancaster County

- 2) Stand by for reclassification or closeout.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title		Revision No. 7
Three Mile Island Emergency Plan		

**TABLE 2 (Cont'd)
TMI Emergency Action Summary**

II. ALERT

State and/or Local Office
Response

TMI Response

(Same Actions as Unusual Event plus actions listed below:)

- | | |
|---|---|
| <p>1) Notify elected officials.</p> <p>2) Augment resources and bring primary response centers and Emergency Alert System to Standby Status.</p> <p>3) Alert to standby status key emergency personnel including monitoring teams and associated communications.</p> <p>The PA Bureau of Radiation protection (BRP) will provide assistance as outlined by the State Plan.</p> <p>4) Place route alert teams on advanced state of readiness.</p> <p>5) Provide confirmatory offsite radiation monitoring and ingestion pathway dose.</p> <p>As outlined in the State Plan, the BRP will provide independent monitoring data for comparison with TMI radiological/ environmental survey teams.</p> <p>6) Review resources and update "unmet needs" list.</p> <p>7) Maintain state of increased readiness for reclassification or closeout.</p> | <p>1) Activate ECC, TSC, OSC, EACC, JIC and other TMI emergency response personnel to standby status, as necessary; notify risk counties, PEMA and (using ENS) NRC Headquarters.</p> <p>◆ For incidents involving radioactive releases, the Radiological Assessment Coordinator will dispatch onsite and offsite Radiological/Environmental Survey teams to monitor for possible releases.</p> <p>◆ The Radiological Assessment Coordinator and the Environmental Assessment Coordinator shall provide for off-site radiation monitoring and plume or purge pathway dose projections.</p> <p>2) Assess and respond.</p> <p>3) Provide periodic plant status updates to offsite authorities.</p> <p>4) Provide periodic radiological assessments to offsite authorities and, if any releases are occurring, dose estimates for actual releases.</p> <p>5) Provide notifications for reclassification or closeout; initiate recovery response. Closeout or recommend reduction in emergency class by verbal summary to offsite authorities.</p> |
|---|---|

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

**TABLE 2 (Cont'd)
TMI Emergency Action Summary**

III. SITE AREA EMERGENCY

State and/or Local Office
Response

TMI Response

(Same Actions as previous emergency classes plus those listed below:)

- | | |
|--|---|
| <p>1) Provide any assistance requested.</p> <p>2) Activate immediate public notification of emergency status and provide public with periodic updates.</p> <ul style="list-style-type: none"> ◆ Provide public within at least about 10 miles periodic updates on emergency status. ◆ Upon receipt of report of a Site Area Emergency by PEMA from the TMI Emergency Control Center, the initial alert warning may be disseminated by PEMA to the five affected county EOCs. Actual activation of sirens will be performed by the affected counties. The National Weather Service will activate the tone alerts upon receipt of instruction to do so by the PEMA duty officer. The five risk counties will prepare and disseminate public information material on protective actions and event status updates. The National Weather Service alert radio and the Emergency Alert System (EAS) will be used by PEMA to disseminate protective actions and update bulletins, as necessary. <p>3) Augment resources by activating Emergency Operations Centers.</p> | <p>1) All emergency response facilities are activated; notifications are made to all risk Counties, PEMA and NRC Headquarters.</p> <p>2) Activate Joint Information Center and provide status updates to offsite authorities and periodic press briefings (perhaps joint with offsite authorities). TMI's role is described in detail in the Emergency Public Information Procedure.</p> <p>3) Make senior technical and management staff on site available for consultation with NRC and State on a periodic basis.</p> <p>4) Provide Radiological and dose estimates to offsite authorities for actual releases using a dedicated individual and automated data transmission.</p> <p>5) Provide release and dose projections based on available plant condition information and foreseeable contingencies.</p> <p>6) Provide notifications and reclassification or closeout; initiate recovery response.</p> <ul style="list-style-type: none"> ◆ Escalate to General Emergency class, if appropriate or closeout or recommend reduction of emergency class by briefing of offsite authorities at EOF and by phone. |
|--|---|

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

TABLE 2 (Cont'd)
TMI Emergency Action Summary

III. SITE AREA EMERGENCY (Cont'd)

State and/or Local Office
Response

TMI Response

- 4) Dispatch key emergency personnel, including monitoring teams, and activate associated communications. The BRP will provide assistance as outlined in the State Plan.

No Action

NOTE: The Local Services Support and the Coordination with Government Agencies sections of this Plan provide a detailed description of the interface of agencies providing coordinated assistance in the event of a Site Area Emergency.

- 5) Alert other emergency personnel (e.g., those needed for evacuation) to standby status and dispatch personnel to near-site duty stations.
- ◆ The five affected counties, under the direction of PEMA, will provide rapid notification in priority order to county and local government heads, key staff, emergency forces, volunteer organizations, schools, hospitals, nursing homes, business and industry of the incident and possible need for protective action. The affected counties will select locations for and dispatch emergency services to near-site duty stations, including first aid, wrecker, and fuel services.
 - ◆ Place EAS on standby status.
 - ◆ Issue dosimetry, KI and survey meters to emergency personnel.
 - ◆ Place reception and mass care center on standby status.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan	Revision No. 7	

**TABLE 2 (Cont'd)
TMI Emergency Action Summary**

III. SITE AREA EMERGENCY (Cont'd)

State and/or Local Office
Response

TMI Response

6) Continuously assess information from licensee and offsite monitoring with regard to changes to protective actions already for public and mobilizing evacuation resources.

No Action

- ◆ The Bureau of Radiation Protection will conduct incident assessment, consider protective actions and make recommendations to TMI for consideration. The BRP Incident Manager will direct all response team activities, assess and document offsite federal response team data and provide for continued communication to all assessment information to licensee. Further details are available in the State Plan.
- ◆ The BRP responsibilities include maintaining contact with the licensee, supplementing environmental sampling and analyses and providing situation updating for appropriate state, county and local agencies. It will further be the responsibility of the BRP to alert and advise PEMA Emergency Operations Center through the Bureau representative of the need to take protective action, the actions to be taken, the geographic area at risks, and pertinent facility conditions having influence on incident income, as well as to recommend withdrawal of protective actions. These alerts and advisories will be issued by PEMA to the five affected counties. The counties will advise local agencies of any further actions to be taken.
- ◆ Provide offsite monitoring results to licensee, DOE and others and jointly assess them.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan	Revision No. 7	

**TABLE 2 (Cont'd)
TMI Emergency Action Summary**

III. SITE AREA EMERGENCY (Cont'd)

<u>State and/or Local Office Response</u>	<u>TMI Response</u>
<p>7) Recommend placing milk-producing animals within 2 miles of the site on stored feed and assess need to extend distance.</p> <ul style="list-style-type: none"> ◆ The PA Department of Agriculture will advise PEMA, BRP and affected counties on protective actions for livestock including controlled feeding, sheltering and collection and disposal of contaminated farm products. 	<p>No Action</p>
<p>8) Provide press briefings, perhaps with TMI.</p> <ul style="list-style-type: none"> ◆ The Communications Director (Press Secretary to the Governor) will establish a press office as principal point of contact in the vicinity of Emergency Operations personnel from appropriate state agencies. In addition, the Press Secretary will serve as a spokesperson who will have access to all necessary information and who will establish arrangements for timely exchange of information between PEMA, TMI and all other appropriate information sources. 	
<p>9) Maintain Site Area Emergency status until closeout or reclassification.</p>	

	TMI - Unit 1 Administrative Procedure	Number 1092
title		Revision No. 7
Three Mile Island Emergency Plan		

TABLE 2 (Cont'd)
TMI Emergency Action Summary

IV. GENERAL EMERGENCY

<u>State and/or Local Office Response</u>	<u>TMI Response</u>
1) Provide any assistance requested.	1) Promptly inform State and offsite authorities of general emergency status and reason for emergency as soon as discovered (Parallel notification of a State/Local).
2) Activate process immediate public notification of emergency status and provide public periodic update.	2) Augment resources by activating all facilities.
<ul style="list-style-type: none"> ◆ Upon receipt of a report of a General Emergency by PEMA from the BRP, the initial alert warning will be disseminated by PEMA to the five affected counties. EOC's actual activation of sirens will be performed by the affected county EOC. ◆ The National Weather Service will activate the tone alerts upon instruction to do so by the PEMA duty officer. The five risk counties will prepare and disseminate public information material on protective actions and event status updates. The National Weather Service alert radio and the Emergency Alert System (EAS) will be used by PEMA as a medium for dissemination, protective actions, counties on protective actions and update bulletins. 	3) Assess and respond. 4) Dispatch onsite and offsite monitoring teams and associated communications. 5) Activate Joint Information Center and provide updates to offsite authorities and periodic press briefings (perhaps joint with offsite authorities). 6) Make senior technical and management staff onsite available for consultation with NRC and State on a periodic basis. 7) Provide meteorological and dose estimates to offsite authorities for actual releases using dedicated individual or automated data transmission. 8) Provide release and dose projections based on available plant condition information and foreseeable contingencies.
3) It is the responsibility of the BRP to alert and advise PEMA of the need to take protective action, actions to be taken, the geographic area at risk and pertinent facility conditions having influence on incident outcome. Alerts and advisories will be issued by PEMA to state agencies, county and local government.	Recommend a Protective Action Recommendation of evacuation for 5 miles radius unless it is known sheltering will offer greater protection and assess need to extend distances. Consider advisability of evacuation (projected time available vs. estimated evacuation time). 9) Closeout of emergency by briefing of offsite authorities at EOF and by phone.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan	Revision No. 7	

**TABLE 2 (Cont'd)
TMI Emergency Action Summary**

IV. GENERAL EMERGENCY (Cont'd)

State and/or Local Office
Response

TMI Response

- 4) Augment resources by fully activating all emergency forces and activities.
 - ◆ The five affected counties, under the direction of PEMA, will provide for dispatch of emergency personnel as outlined in each of the five county plans attached as appendices to the State Plan. PEMA will act as the emergency requirements broker by satisfying unmet needs with state resources and by requesting the Federal Emergency Management Agency to assist in meeting those "unmet needs".

- i) Dispatch key emergency personnel including monitoring teams and associated communications. Dispatch other emergency personnel to duty stations within 5 mile radius and alert all others to standby status.
 - ◆ PEMA has established the procedure for the rapid dissemination of information, the assembly of key personnel and the distribution of equipment. Upon instruction from PEMA the director of the affected county EOC will advise all patrol units of the existing condition. Secondly, the EOC communications center will activate Fire and Ambulance Alert tones and sirens and advise these personnel of the emergency condition in effect.

Response of emergency personnel to designated duty stations and standby status will be as outlined in the county plans submitted to PEMA.

- 6) Provide off-site monitoring results to licensee, DOE and others and jointly assess them.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title		Revision No. 7
Three Mile Island Emergency Plan		

**TABLE 2 (Cont'd)
TMI Emergency Action Summary**

IV. GENERAL EMERGENCY (Cont'd)

State and/or Local Office
Response

TMI Response

- 7) Continuously assess information from licensee and offsite monitoring with regard to changes to protective actions already initiated for public and mobilizing evacuation resources.
- 8) Recommend placing milk animals within 10 miles on stored feed and assess need to extend distance.
 - ◆ The PA Department of Agriculture will provide advice to PEMA, BRP and affected counties on protective actions for livestock including controlled feeding and sheltering and will assist in the collection and disposal of contaminated farm products.
- 9) Provide press briefings, perhaps with licensee.
- 10) Maintain **General Emergency** status until closeout.

	TMI - Unit 1 Administrative Procedure	Number 1092
title	Three Mile Island Emergency Plan	Revision No. 7

TABLE 3

Emergency Classification Of Postulated Accidents

<p>CAUTION: The matrix below does not suggest that the Accident necessarily results in the Emergency Level shown. Be advised that the accident could reach the stated Emergency Level, assuming the worst case conditions are encountered. This matrix is provided to enable you to quickly determine a theoretical worst case outcome.</p> <p>The Accidents listed are the events stated in Chapter 14, Safety Analysis, of the Updated TMI-1 FSAR.</p> <p>The Emergency Classification listed use the criteria of the TMI-1 EALs, which are based on NUMARC/NESP-007. The results of each accident have been compared to the EAL conditions to determine the appropriate classification. This does not infer that every event meets the Chapter 14 criterion to warrant emergency declaration (e.g., Every steam generator (OTSG) tube leak does not necessarily meet the FSAR assumptions and therefore does not meet the Emergency Classification listed in the table).</p>	
ACCIDENT	EMERGENCY CLASS TMI-1
1) Unanticipated Criticality	None
2) Failure to Achieve 1% SDM	None
3) Loss of Coolant Flow	None
4) Stuck-Out, Control Rod Accident	None
5) Loss of Electric Power	Unusual Event
6) Steam Line Failure	General Emergency
7) Rod Ejection Accident	General Emergency
8) Small Break Loss of Coolant Accident	Alert
9) Steam Generator Tube Rupture	Site Area Emergency
10) Fuel Handling Accident	Site Area Emergency
11) Large Break Loss of Coolant Accident	General Emergency
12) Loss of Feedwater	Alert
13) Fuel Cask Drop Accident	Site Area Emergency
14) Maximum Hypothetical Accident	General Emergency
15) Waste Gas Tank Rupture	General Emergency

TABLE 4

Plant Instrumentation for Accident Detection

ACCIDENT		INSTRUMENTATION	
I. TMI-1			
1.	Unanticipated Criticality	◆	Equipment Status Lights (i.e., Valve Position)
		◆	Reactor Average Temperature
		◆	Hot Leg Temperature
		◆	Cold Leg Temperature
		◆	Power Range Monitor/Source Range
		◆	Reactor Coolant Pressure
		◆	Pressurizer Level
2.	Loss of Shutdown Margin	◆	Source Range Monitor
		◆	Reactor Average Temperature
		◆	Reactor Coolant Pressure
		◆	Hot Leg Temperature
3.	Loss of Coolant Flow	◆	Total Reactor Flow
		◆	Loop Flow
4.	Stuck-Out, Control Rod	◆	Power Range Monitor
		◆	Reactor Average Temperature
		◆	Reactor Pressure
		◆	Control Rod Position Indication
5.	Loss of Electric Power	◆	In-Plant Bus Voltmeters
		◆	Switchyard Bus Voltmeters
6.	Steam Line Failure	◆	Main Steam Pressure
		◆	Steam Generator Level
		◆	Reactor Coolant Pressure
		◆	Power Range Monitor
7.	Rod Ejection Accident	◆	Power Range Monitor
		◆	Reactor Coolant Pressure
		◆	Pressurizer Level
		◆	Reactor Building Pressure
8.	Small Break Loss of Coolant	◆	Reactor Coolant Pressure
		◆	Reactor Building Hi Range Radiation Monitor
		◆	Reactor Building Stack Atmospheric Monitor
9.	Steam Generator Tube Failure	◆	Reactor Coolant Pressure
		◆	Steam Generator Level
		◆	Condenser Exhaust Atmospheric Monitor

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan		Revision No. 7

TABLE 4

ACCIDENT	INSTRUMENTATION
I. TMI-1	
10. Fuel Handling Accident	<ul style="list-style-type: none"> ◆ Fuel Handling Bridge Aux. Radiation Monitor ◆ Fuel Handling Bridge Main Radiation Monitor ◆ Fuel Handling Building Atmospheric Monitor ◆ Aux. & Fuel Handling Building Stack
11. Large Break Loss of Coolant	<ul style="list-style-type: none"> ◆ Reactor Building Pressure ◆ Reactor Coolant Pressure ◆ Reactor Building Hi Range Radiation Monitor ◆ Reactor Building Stack Atmospheric Monitor
12. Loss of Feedwater	<ul style="list-style-type: none"> ◆ Reactor Coolant Pressure ◆ Reactor Average Temperature ◆ Pressurizer Level ◆ Steam Generator Pressure ◆ Steam Generator Level
13. Fuel Cask Drop	<ul style="list-style-type: none"> ◆ Fuel Handling Building Atmospheric Monitor ◆ Aux. & Fuel Handling Building Stack
14. Maximum Hypothetical Failure	<ul style="list-style-type: none"> ◆ Reactor Building Pressure ◆ Reactor Building Stack Atmospheric Monitor ◆ Reactor Building Hi Range Radiation Monitor
15. Waste Gas Tank Rupture	<ul style="list-style-type: none"> ◆ Area Gamma Monitor - Aux. Building Entrance Elevation 305 Ft. ◆ Auxiliary Building Atmospheric Monitor ◆ Waste Gas System Exhaust Monitor

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan		Revision No. 7

TABLE 5

**On-Shift Emergency Organization Staffing
(Available Immediately)**

SHIFT POSITION	MIN. No.	ASSUMES DUTIES OF	EMERGENCY DUTIES	REPORT TO LOCATION/PERSON
Shift Manager	1	Emergency Director	Initially assumes the duties of the Emergency Director which includes the initial assessment and evaluation of any abnormal or emergency situation and for directing appropriate response in accordance with the emergency plan implementing procedures. (Upon being properly relieved, he may assume the Operations Coordinator position).	ECC/Plant Management ECC/Duty Roster Operations Coordinator upon relief
*Control Room Supervisor	1	Operations Coordinator	Retains his normal duties of directing the Control Room Operators in maintaining control over the plant.	ECC/ED (ECC/Shift Manager upon relief)
*Shift Technical Advisor	1	Shift Technical Advisor	Retains his normal duties of advising and assisting the Emergency Director on plant conditions.	ECC/ED
Control Room Operator (CRO)	2	Control Room Operator	Retains his normal duties of operating and controlling the Plant as directed.	ECC/Operations Coordinator
*CRO #2	1	ECC Communications Coordinator	Assumes the duties of the ECC Communications Coordinator . This position is responsible to make notification to off-site agencies. (Actual notifications to off-site agencies may be delegated to the ECC Communicator). Once properly relieved, he will be used to support the emergency.	ECC/Emergency Director (CRO-ECC/Ops Coordinator upon relief)
Selected Shift Maintenance Personnel	1	ECC Communicator	Assumes the duties of ECC Communicator which includes callout of emergency personnel. (This position may be requested to make notifications to off-site agencies).	ECC/ED
Auxiliary Operators	4	Auxiliary Operators	Will be used to support the emergency.	ECC/Control Room Supervisor - Coordination through OSC upon activation
On-Shift Radiological Assessment Coordinator	1	Radiological Assessment Coordinator (RAC)	Assumes the duties of the RAC . This includes providing all radiological assessment reports (onsite and offsite) to the Emergency Director and coordinating the in-plant radiological controls support for access control, emergency repair, search and rescue, fire fighting, personnel monitoring and dosimetry. The on-shift Radiological Assessment Coordinator will turn over the duties to the IREO RAC when relieved.	ECC/Emergency Director (OSC/RAC - upon relief)
Radiological Controls Technicians	2	Radiological Controls Technicians	Retain their duties for radiological controls support in the areas of access control, emergency repair, search and rescue, first aid, firefighting, personnel monitoring and radiological monitoring as directed.	OSC/RAC

* Required in accordance with Tech. Specs.
 ** These personnel may be assigned other functions.

TMI - Unit 1
Administrative Procedure

Number

1092

title

Revision No.

7

Three Mile Island Emergency Plan

TABLE 5

Page 2 of 2

SHIFT POSITION	MIN. No.	ASSUMES DUTIES OF	EMERGENCY DUTIES	REPORT TO LOCATION/PERSON
Chemistry Technician	1	Chemistry Coordinator	Responsible for providing chemistry sampling and analysis to support the existing plant conditions and if appropriate to initiate activities to obtain and analyze post accident samples. Assumes the duties of Chemistry Coordinator until properly relieved.	OSC/OSC Coordinator (OSC/Chemistry Coordinator - upon relief)
Maintenance Team Leader	1	Operations Support Center (OSC) Coordinator	Assumes the duties of the OSC Coordinator which includes supporting emergency operations in the areas of emergency repair, search and rescue, chemistry, firefighting and maintenance.	OSC/Operations Coordinator (OSC/OSC Coordinator - upon relief)
Senior Maintenance Technician	1	Senior Maintenance Person	Assumes the duties of the Senior Maintenance Person . Provides support to the OSC Coordinator for emergency maintenance repair and corrective actions.	OSC/OSC Coordinator
Maintenance Personnel	3	Emergency Maintenance Team	Retain their duties of performing all emergency maintenance repair and corrective actions. May be called on for search and rescue and as drivers for Radiation Monitoring teams. In addition maintenance personnel will be used to make callouts of emergency response personnel.	OSC/Emergency Maintenance Coordinator
Site Protection Shift Supervisor/Designated Senior site Protection Officer	1	Security Coordinator	Assumes the duties of the Security Coordinator which includes directing the security force accountability, access control and interfaces with the Local Law Enforcement Agencies/EOD.	Central Alarm Station.
Site Security Force	Per Sec. Plan	Security Personnel	Retain their duties of maintaining site security and implementing accountability, site evacuation and support search and rescue functions.	As Directed/Security Coordinator
**Fire Brigade	Per T.S.		Respond to all fire alarms and report to fire locations with assigned equipment to combat the fire and assess the need for offsite firefighting support.	Fire Scene/Fire Brigade Leader
**First Aid and Rescue Team	2		Provide emergency first aid and assist in rescue operations.	OSC/OSC Coordinator
**Emergency Maintenance Team			(As stated Above)	
**Radiological/ Environmental Survey Teams)	2		Obtain emergency equipment and vehicle and proceed to areas designated by the RAC/EAC to perform radiological and environmental surveys.	Onsite - OSC/RAC Offsite - EACC/EAC

- * Required in accordance with Tech. Specs.
- ** These personnel may be assigned other functions.

	TMI - Unit 1 Administrative Procedure	Number 1092
title		Revision No. 7
Three Mile Island Emergency Plan		

TABLE 6

Initial Response Emergency Organization Staffing
(Available Within One Hour)

EMERGENCY POSITION	MIN. NO.	MINIMUM LEVEL OF EXPERTISE	EMERGENCY DUTIES	REPORT TO LOCATION/PERSON
Emergency Director	1	Senior Management Personnel	Responsible for initial assessment and evaluation of any abnormal or emergency situation and for directing appropriate response in accordance with the Emergency Plan Implementing Procedures.	ECC/Emergency Support Director
ED Assistant	1	Engineer or individual with equivalent combination experience/education.	Advises and assists the Emergency Director in matters pertaining to communications, onsite personnel assembly, security and public information.	ECC/Emergency Director
Operations Coordinator	1	Current or previously qualified Senior Reactor Operator	Coordinates plant operations, maintenance and chemistry through the Control Room Supervisor* and Operations Support Center Coordinator.	ECC/Emergency Director
Technical Support Center Coordinator	1	Engineer or individual with equivalent combination engineering experience/ education.	Directs the TSC engineers in plant technical assistance and acts as liaison to the Emergency Director.	TSC/Emergency Director
Radiological Assessment Coordinator	1	Senior Radiological Controls experienced person.	Coordinates and directs all Rad Con support and operations.	ECC, Emergency Director
Radiological Engineering Support	1	Radiological Controls Experienced Personnel	Assist the Radiological Assessment Coordinator in performing his duties. Insure communications with the BRP until the EOF staff assumes that function.	ECC /RAC
ECC Communications Coordinator	1	Site Personnel	Provides current information and direction to the ECC Communicators; ensures proper records and logs are maintained.	ECC/ED Assistant
ECC Communicators	2	Site Personnel	Responsible for maintaining communications with the NRC on the ENS line; makes follow-up notifications to offsite agencies; maintains primary emergency communications using the Operations Line; monitors other emergency circuits as directed by the ECC Communications Coordinator.	ECC/ ECC Communications Coordinator
Technical Support Center Engineer	4	Assorted Discipline Engineer or equivalent engineering experience/ education (e.g., I&C, Mechanical, Electrical)	Activate TSC, assess plant status, recommend mitigation actions, and provide technical support in the areas of core, electrical, mechanical, and I&C.	TSC/TSC Coordinator
Operations Support Center Coordinator	1	Senior Maintenance or Operations Experienced Person.	Coordinates and directs emergency logistic activities to support Operations in the area of Chemistry, Rad Con and Maintenance.	OSC/Operations Coordinator
Emergency Maintenance Coordinator	1	Senior Maintenance Tech. or Maintenance Team Leader.	Assigns personnel and directs emergency maintenance repair and corrective actions.	OSC/OSC Coordinator
Radiological Controls Coordinator	1	Radiological Controls Technician	Responsible for supervising Radiological Controls Technicians and coordinating the on-site and in-plant radiological controls support for activities such as access control, emergency repair, search and rescue.	OSC/RAC

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan		Revision No. 7

TABLE 6

EMERGENCY POSITION	MIN. NO.	MINIMUM LEVEL OF EXPERTISE	EMERGENCY DUTIES	REPORT TO LOCATION/PERSON
Chemistry Coordinator	1	Chemistry Technician	Responsible for coordinating chemistry activities to support the existing plant conditions, and, if appropriate, for ensuring that all post-accident samples are obtained and analyzed.	OSC/OSC Coordinator
Emergency Assembly Area Coordinator	1	Site Personnel	Directs assembly and sign-in of site personnel at the onsite emergency assembly area.	Emergency Assembly Area (EAA)/ED Assistant
Security Coordinator	1	Site Protection Shift Supervisor/designated Senior Site Protection Officer	Responsible for the overall security response during an emergency. Coordinates the activities of the Site Protection Shift Supervisor and Local Law Enforcement Agencies/EOD.	Command Center./ED Assistant
Public Information Representative	1	Media Trained Personnel	Responsible for getting emergency information from the ECC personnel for ultimate dissemination to the public in coordination with public information personnel assigned to other locations.	ECC/ED Assistant

TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan	Revision No. 7

TABLE 7

Page 1 of 2

Emergency Support Organization Staffing

EMERGENCY POSITION	MIN. NO.	MINIMUM LEVEL OF EXPERTISE	EMERGENCY DUTIES	REPORT TO LOCATION/PERSON
+ Emergency Support Director (ESD)	1	Senior Management Representative	Responsible for overall management of emergency response and directs the response of the offsite organization functional groups in support of the onsite emergency organization.	EOF/TMI Unit 1 Chief Nuclear Officer
+ ESD Assistant	1	Management or Senior Staff Personnel	Advises and assists the Emergency Support Director in matters pertaining to communications, technical support, implementation of the Emergency Plan and public information.	EOF/ESD
+ Group Leader-Radiological and Environmental Controls (R&EC)	1	Radiological and Environmental Controls Management Personnel	Functions as the " point of contact " for radiological and environmental controls information for the ESD; collects information from the RAC and EAC and, presents that information to ESD; overall-in-charge of R&EC effort.	EOF/ESD
Group Leader Administrative Support	1	Management Personnel	Responsible for administrative and logistic functions required to support the emergency organization. These services include: General Administration, Communications, Security, Accommodations, Commissary, Safety and Human Resources.	EOF/ESD
+ Emergency Preparedness Representative	1	Management or Staff Personnel	Provides ESD with information relating to onsite, offsite and state emergency facilities, communications, personnel and resources availability's and procedure requirements.	EOF/ESD Assistant
+ EOF Communications Coordinator	1	Site Personnel	Responsible for the operation of the communications systems at the EOF and the coordination of requests for outside assistance. Ensure that the primary and back-up communications systems are activated and operational. Maintains records of communication and status boards.	EOF/ESD Assistant
+ EOF Communicators	2	Site Personnel	Responsible to maintain communications with the site and offsite agencies, as needed, make additional notifications, as necessary and receive incoming calls.	EOF/EOF Communications Coordinator
+ Public Information Representative	1	Media Trained Personnel	Responsible for getting emergency information from the EOF personnel for ultimate dissemination to the public in coordination with public information personnel assigned to other locations.	EOF/ESD Assistant
+ Technical Support Representative	1	Operations or Engineering Experienced Person	Provides technical liaison to the ESD and the onsite Technical Support Center Coordinator. Monitors the Operations Line and/or Technical Functions Line in order to obtain real time operational status from the ECC Communicator and relays this information to the ESD.	EOF/ESD

- + This position will report to the EOF within one (1) hour upon notification of a Site Area or General Emergency or when requested.
- ++ This position will report to the EOF/EACC within (1) hour upon notification of an Alert, Site Area or General Emergency.
- Note: Staff and group members will be assigned by their respective Group Leaders/Coordinators who will also assign their training and ensure their availability during an emergency.

TMI - Unit 1
Administrative Procedure

Number

1092

Title

Three Mile Island Emergency Plan

Revision No.

7

TABLE 7

Page 2 of 2

EMERGENCY POSITION	MIN NO.	MINIMUM LEVEL OF EXPERTISE	EMERGENCY DUTIES	REPORT TO LOCATION/PERSON
++ Environmental Assessment Coordinator (EAC)	1	Environmental Controls Manager or Scientist/Management Person with Radiological Controls Experience	Responsible for the Radiological Environmental Monitoring Program. When the EACC is activated, assumes control of radiological monitoring and environmental assessment from the Radiological Assessment Coordinator. Communicates with the Radiological Assessment Coordinator and reports findings and projections to the Group Leader-R&EC at the EOF.	EOF/Group Leader-R&EC
++ Met/Dose Coordinator	1	Environmental Controls Scientist/Management Person with Radiological Controls Experience	Coordination collection of meteorological data for use in developing dose projections and/or weather forecast, and advises EAC regarding implications these may have on protective action recommendations. Coordinates the movement of radiological and environmental monitoring teams. Communicates with the teams. Reports results to the EAC.	EOF/EAC
Joint Information Center Presiding Media Briefer	1	Media Trained Personnel	Leads and coordinates news media briefings and the release of information on an emergency.	Media Center/Coordinates with Director of Communications or Designee per Implementing Document. Communications at Joint Information Center.

- + This position will report to the EOF within one (1) hour upon notification of a Site Area or General Emergency or when requested.
 - ++ This position will report to the EOF/EACC within (1) hour upon notification of an Alert, Site Area or General Emergency.
- Note: Staff and group members will be assigned by their respective Group Leaders/Coordinators who will also assign their training and ensure their availability during an emergency.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan	Revision No. 7	

TABLE 8

Page 1 of 2

Inventory of Three Mile Island Emergency Kits By General Category

I. RADIATION MONITORING

A. Typical Contents

1. Full Face Respirators with Canisters
2. Survey Instruments - Radiation Survey Meters, Countrate Meters
3. Dosimetry Equipment - Dosimeters/Chargers
4. Protective Clothing
5. Air Sampler and Cartridges
6. Support Materials - Paper, Pencils, Envelopes, Maps, Procedures, Etc.

II. FIRST AID

A. Minor Injury

1. Contain items typically needed for minor injuries.
2. Placed throughout Plant.

B. Employee Kits

1. Contain sufficient quantities to serve expected needs of approximately 100 employees.
Note: Locations as determined by Medical Department.
 - a. Stretchers
 - b. Employee size first aid kits

C. First Aid and Medical Facility

1. Equipment inventory to support professional medical treatment.
2. Contains equipment necessary for examination of patients.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan		Revision No. 7

TABLE 8

INVENTORY OF THREE MILE ISLAND EMERGENCY KITS BY GENERAL CATEGORY

III. DAMAGE CONTROL

A. Typical Equipment Available

1. Hand tools
2. Cutting/Welding equipment
3. Patching materials
4. Portable blowers
5. Submersible pumps
6. Electrical equipment
7. Rigging equipment

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

TABLE 9

Page 1 of 1

Typical Environmental/Radiological Monitors

I. THREE MILE ISLAND		
	INSTRUMENTATION	PURPOSE
a.	Pressurized Ionization Chamber (PIC)	Gamma Radiation
b.	Thermoluminescent Dosimeters (TLD)	Beta, Gamma Radiation
c.	Geiger Mueller Detectors	Beta, Gamma Radiation
d.	Gamma Detectors	Gamma Isotopic Analysis
e.	Meteorological Tower	Wind Speed and Direction, Temperature
f.	Air Samplers	Analysis for Airborne Radioiodine and Particulates
g.	Environmental Sampling Equipment	Environmental Media Sampling

	TMI - Unit 1 Administrative Procedure	Number 1092
Title	Three Mile Island Emergency Plan	Revision No. 7

TABLE 10

TMI Emergency Response/Additional Support Facilities

FACILITY	SITE	LOCATION *	SPECIAL FEATURES
ECC	TMI	TMI-1 Control Tower, 355.0' El.	HEPA Filtered Vent. System w/Recirc. Capability Cont. Air Monitor
TSC	TMI	TMI-1 Control Bldg. 355' El.	Located within control room ventilation system boundary. A CRT to monitor plant status is available.
OSC	TMI	TMI-1 Control Tower 306' El.	Located within control tower ventilation system boundary
EAA	TMI	Warehouse #1 and Warehouse #3	-----
EOF	TMI	Commerce Park, Harrisburg, PA	Nearby helicopter landing capability, location for BRP and NRC liaison representatives, provisions for other state and county representatives as needed; CRT capability similar to TMI TSC; located approximately 12 miles from the site.
Media Center/ JIC	TMI	Commerce Park, Harrisburg, PA	Co-located with EOF.
RAA	TMI	Training Center and EOF	-----
EACC	TMI	Co-located in the Emergency Operations Facility.	-----

* In unusual situations, operations at an emergency response facility may be moved to another location provided that location allows the original functions and objectives of the facility to be met. Unusual situations include, but are not limited to adverse radiological or environmental conditions, security restrictions, other situations hazardous to the staff, or significant facility renovations in progress.

	TMI - Unit 1 Administrative Procedure	Number 1092
title		Revision No. 7
Three Mile Island Emergency Plan		

TABLE 11

Page 1 of 1

County, State and Federal Emergency Operations Centers

SITE	EOC LOCATION
TMI	Dauphin County - Steelton
TMI	Lancaster County - Manheim
TMI	York County - York
TMI	Cumberland County Prison - Carlisle
TMI	Lebanon County - Lebanon County Court House, Lebanon
TMI	State PEMA Headquarters, Harrisburg
TMI	State Farm Show Complex, Harrisburg (Federal Disaster Field Office (DFO))

TABLE 12

TMI Emergency Communications Network

CIRCUIT	CIRCUIT TYPE	*COMMUNICATOR	INFORMATION TRANSMITTED	ALTERNATE COMMUNICATIONS
TMI/Bur. of Radiation Protection Line	Touch Tone	a) TMI ECC (RAC) b) EOF c) BRP	Plant status and radiological information	Conventional Telephones
Emergency Director's Line	Auto-Ring	a) TMI ECC b) EOF	ED/ESD communications and consultation	Emergency Management line, conventional telephones
Emergency Management Line	Touch Tone	a) TMI ECC b) TMI TSC c) TMI OSC d) EOF	ED/ESD communications with all emergency response facilities	Conventional Telephones
Environmental Assessment Line	Touch Tone	a) TMI ECC (RAC) b) EACC	Source term, in-plant radiological conditions, dose projections	Radiological line, BRP line, Conventional Telephones
In-Plant Rad Con Line	Auto-Ring	a) TMI ECC (RAC) b) TMI OSC	In-Plant radiological controls dispatch of Rad Con personnel	Radiological line, Conventional Telephones
Notification Line	Touch Tone	a) TMI ECC b) EOF	Official Notifications (e.g., initial notifications, reclassifications, termination of the event)	Conventional Telephones
NRC Intra-Communications Line	Touch Tone	a) TMI ECC b) TMI TSC NRC c) TMI OSC d) EOF	Exclusive use by NRC	Conventional Telephones
Operations Line	Touch Tone	a) TMI ECC b) TMI TSC c) TMI OSC d) EOF	ED/Ops Coordinator inplant response and status reports	Conventional Telephones
TMI - Framatome Lines	Framatome System, Touch Tone	a) TMI ECC b) TMI TSC c) Framatome - Lynchburg	Nuclear steam supply system response and recovery	Conventional Telephones
Radiological Line	Touch Tone	a) TMI ECC (RAC) b) EOF c) TMI OSC	In-Plant radiological conditions and concerns	Conventional Telephones
Engineering Line	Touch Tone	a) TMI ECC b) TMI TSC c) EOF	Technical Engineering discussions	Conventional Telephones
NRC Emergency Notification System (ENS)	Touch Tone	a) TMI ECC b) TMI TSC c) EOF d) NRC Operations Center	Plant Status information	Conventional Telephones
Off-site Notification Auto-dialer	Touch Tone	a) TMI ECC	Emergency notifications	Conventional Telephones

* Communications are assigned duty roster personnel and facility staff designated by the Facility Coordinator/Group Leader.

	TMI - Unit 1 Administrative Procedure	Number 1092
Title Three Mile Island Emergency Plan		Revision No. 7

TABLE 12

Page 2 of 2

CIRCUIT	CIRCUIT TYPE	*COMMUNICATOR	INFORMATION TRANSMITTED	ALTERNATE COMMUNICATIONS
Radio Communications		a) Certain onsite locations b) Mobile units	Communications to mobile units and backup to telephone system	
EOF/BRP Line	Auto-Ring	a) EOF b) BRP	Radiological conditions/PARs	Conventional Telephones
NRC Health Physics Network (HPN)	Touch Tone	a) TMI ECC (RAC) b) EOF c) NRC Operations Center d) NRC Region 1	Radiological Information	Conventional Telephones

Communications are assigned duty roster personnel and facility staff designated by the Facility Coordinator/Group Leader.

Three Mile Island Emergency Plan

TABLE 13

Department Commitments to Provide Instructions

	TRAINING DEPARTMENT	EMERGENCY PREPAREDNESS	OPERATIONS	ENGINEERING	SECURITY
TRAINING					
Cyclic Training Positions					
Shift Manager		X			
Control Room Supervisor		X			
CROs	X				
Auxiliary Operators	X				
Maintenance Foreman	X				
Maintenance Workers	X				
Rad Con Foreman	X				
Rad Con Technicians	X				
Chemistry Technicians	X				
Site Protection Force			X		X
Training Focus					
Emergency Management		X			
ERF-ECC	X				
ERF-OSC	X		X		
ERF-TSC	X			X	
ERF-EOF	X			X	
Dose Projection Assessment	X				
Onsite/Offsite Radiological Survey	X				
Site Protection/Assembly/Accountability					X
Emergency Radiological Controls	X				
Emergency Chemistry	X				
Emergency Teams	X				
Contaminated Injured and Decontamination	X				
Radiological Survey Support	X				
Emergency Notification and Callouts	X				

TABLE 14

Periodic Training for TMI Emergency Response Personnel

NOTE: This table identifies the broad subject areas to be included in Emergency Plan Training for personnel assigned to the Emergency Response Organization. Emergency Plan Training does not include training in the skills that are prerequisite for assignment to these positions.

Position/Title	Scope of Training
<ul style="list-style-type: none"> ◆ Emergency Director ◆ Operations Coordinator ◆ Shift Manager ◆ Control Room Supervisor ◆ ED Assistant ◆ Emergency Support Director ◆ ESD Assistant ◆ Emergency Preparedness Representative ◆ Group Leader R&EC 	Emergency Organization, Emergency Facilities, Emergency Action Levels, Emergency Classifications, Concept of Operations, Emergency Communications, Dose Projection and Assessment Methodology, Protective Actions, and procedural responsibilities. The depth of training provided is a variable of the position held by the responsible member.
<ul style="list-style-type: none"> ◆ Control Room Operators 	Techniques and methodology in operating communications equipment, proper log keeping and formal communication. TMI-1 CRO's will also include notification of offsite agencies.
<ul style="list-style-type: none"> ◆ Radiological Controls Coordinator 	Emergency organization, emergency classification, communications, facilities, relevant EIPs, radiological controls during emergencies and interfacing with hospital, safety, security and rad con personnel.
<ul style="list-style-type: none"> ◆ On-Shift Radiological Assessment Coordinator 	Radiological controls during emergencies, dose projection and assessment, relevant EIPs, post-accident sampling systems, emergency organization, facilities, communications and interfacing with hospital, safety, security and operations personnel.
<ul style="list-style-type: none"> ◆ Public Information Representative ◆ JIC/Presiding Media Briefer ◆ Communications Personnel 	Emergency plan overview, media center activities and lessons learned.
<ul style="list-style-type: none"> ◆ Radiological Controls Technician 	Emergency organization, facilities, emergency classification, communications, emergency kit instrument use, relevant EIPs, radiological controls during emergencies and interfacing with hospital, safety, security and operations personnel concerning injuries and decontamination of personnel and vehicles.
<ul style="list-style-type: none"> ◆ Radiological/Environmental Survey Teams 	Emergency kit instrument use, relevant EIPs, formal radio communications, proper sampling techniques and practical exercises.
<ul style="list-style-type: none"> ◆ Radiological Assessment Coordinator ◆ Radiological Engineering Support 	Plant systems, RAC operations, RAC/EAC responsibilities, dose projection and assessments and Protective Action.
<ul style="list-style-type: none"> ◆ Environmental Assessment Coordinator ◆ Met-Dose Coordinator 	EACC Operations RAC/EAC responsibilities
<ul style="list-style-type: none"> ◆ TSC Coordinator ◆ TSC Engineers ◆ Technical Support Representative (EOF) ◆ OSC Coordinator ◆ Group Leader - Administrative Support 	Emergency organization, emergency response facilities, emergency classification and communications, facility activation, relevant EIPs, and concept of operations of the respective facilities.

TMI - Unit 1 Administrative Procedure	Number 1092
Three Mile Island Emergency Plan	Revision No. 7

TABLE 14

NOTE: This table identifies the broad subject areas to be included in Emergency Plan Training for personnel assigned to the Emergency Response Organization. Emergency Plan Training does not include training in the skills that are prerequisite for assignment to these positions.

Position/Title	Scope of Training
<ul style="list-style-type: none"> ◆ Maintenance Team Leader ◆ Emergency Maintenance Coordinator 	Emergency organization, facilities, communications, concept of operations, relevant EPIPs, and post-accident radiological controls.
<ul style="list-style-type: none"> ◆ Maintenance Worker 	Emergency organization, facilities, emergency classification, communication, concept of OSC operations, and relevant EPIPs. Selected TMI maintenance technicians will be trained in logkeeping, callout of personnel and notification to offsite agencies. TMI utility personnel will be trained in map reading and radio communications.
<ul style="list-style-type: none"> ◆ Auxiliary Operators 	This training will include concept of operations and radiological controls in a post-accident environment, relevant EPIPs, emergency organization, facilities and emergency radio communications.
<ul style="list-style-type: none"> ◆ Chemistry Technician ◆ Chemistry Coordinator 	Emergency organization, facilities, and communications equipment. Procedural guidance for gathering and analysis of chemistry samples.
<ul style="list-style-type: none"> ◆ ECC Communications Coordinator ◆ ECC Communicators ◆ EOF Communications Coordinator ◆ EOF Communicators 	Techniques and methodology in operating communications equipment, proper logkeeping and formal communications, notifications and callouts.
<ul style="list-style-type: none"> ◆ Security ◆ Security Coordinator ◆ Emergency Assembly Area Coordinator 	Emergency organization, facilities, concept and methodology for accountability and operation of the Emergency Assembly Area, relevant EPIPs. Emergency security processing.

TABLE 15

Emergency Response Organization Staffing Responsibilities

EMERGENCY RESPONSE ORGANIZATION POSITION	RESPONSIBILITY FOR STAFFING DESIGNATED POSITION(S)
ALL POSITIONS	Responsible for each discipline.
INITIAL RESPONSE EMERGENCY ORGANIZATION	
Emergency Director, (ED) Operations Coordinator ED Assistant Radiological Assessment Coordinator/Staff Radiological Engineering Support ECC Communications Coordinator/Communicators TSC Coordinator TSC Engineers Chemistry Coordinator OSC Coordinator Radiological Controls Coordinator Radiological/Environmental Survey Teams Emergency Maintenance Coordinator Security Coordinator ** Emergency Assembly Area Coordinator Public Information Representative	Vice President, TMI Unit 1 Vice President, TMI Unit 1 Director, Site Engineering Director, Site Engineering Vice President, TMI Unit 1 Vice President, TMI Unit 1 Plant Manager Director, Work Management Exelon Nuclear Manager, Communications and Public Affairs
EMERGENCY SUPPORT ORGANIZATION	
Emergency Support Director (ESD) ESD Assistant Group Leader - Rad. & Env. Controls Emergency Preparedness Representative Technical Support Representative	Vice President, TMI Unit 1 Vice President, TMI Unit 1 Vice President, TMI Unit 1 Vice President, TMI Unit 1 Director, Site Engineering

** This position does not require respiratory/radiation worker training (Level II) qualification or active participation in the dosimetry system (i.e., TLD assigned).

- ECC - Emergency Control Center
- TSC - Technical Support Center
- OSC - Operations Support Facility
- EOF - Emergency Operations Facility
- RAC - Radiological Assessment Coordinator

	TMI - Unit 1 Administrative Procedure	Number 1092
Three Mile Island Emergency Plan		Revision No. 7

TABLE 15

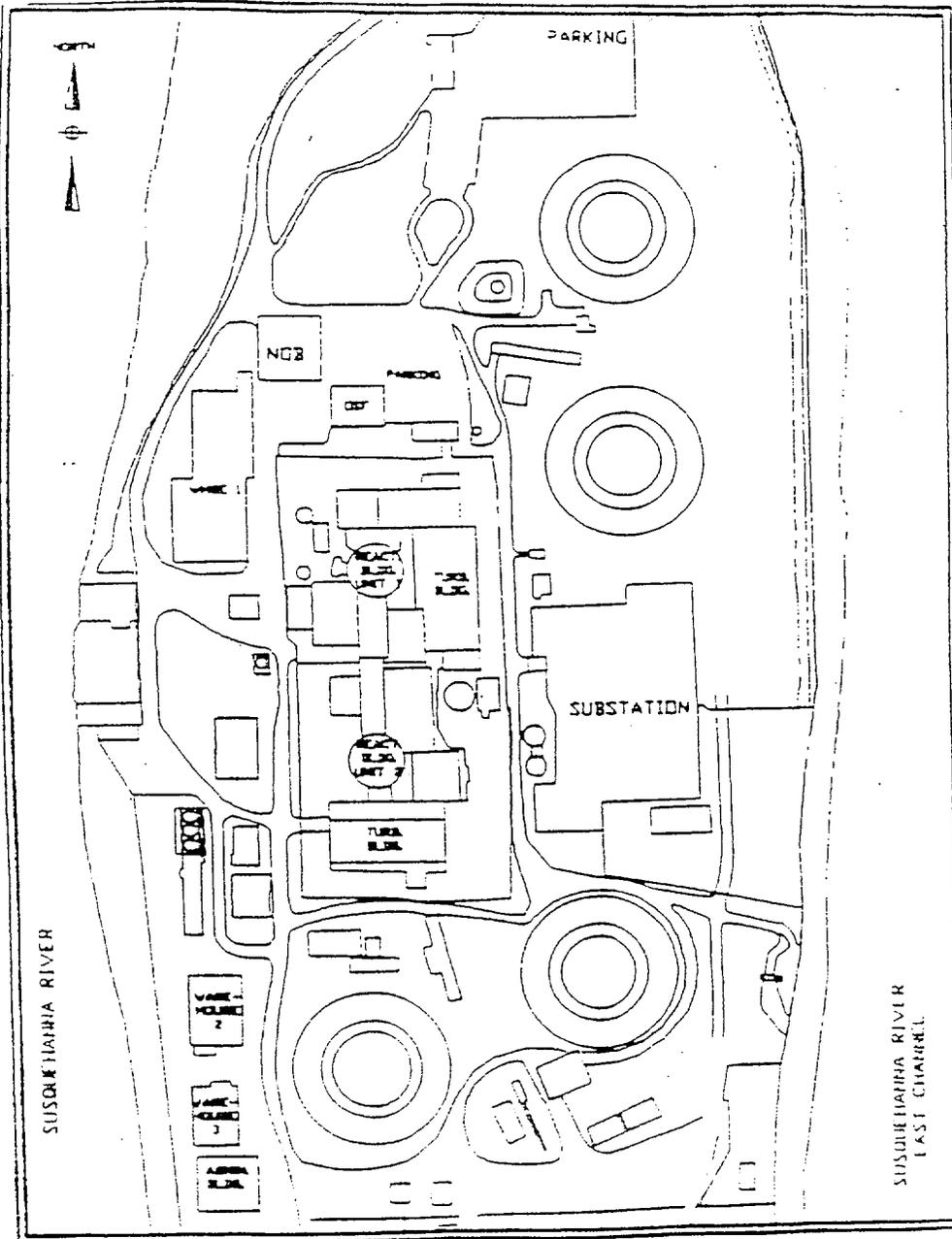
EMERGENCY RESPONSE ORGANIZATION POSITION	RESPONSIBILITY FOR STAFFING DESIGNATED POSITION(S)
EMERGENCY SUPPORT ORGANIZATION	
Technical Support Staff	Director, Site Engineering
Public Information Representative	Exelon Nuclear Manager, Communications and Public Affairs
EOF Communications Coordinator	Vice President, TMI Unit 1
EOF Communicators	Vice President, TMI Unit 1
Group Leader – Administrative Support/Staff	Vice President, TMI Unit 1
JIC/Media Center Briefers	Exelon Nuclear Manager, Communications and Public Affairs
Environmental Assessment Coordinator/Staff	Vice President, TMI Unit 1
Met/Dose Coordinator	Vice President, TMI Unit 1

Note:

Staff and group members will be assigned by their respective group leaders/coordinators who will also assign their training and ensure their availability during an emergency.

FIGURE 1

TMI Site Arrangement



Three Mile Island Emergency Plan

FIGURE 2

TMI Sites Relative Location

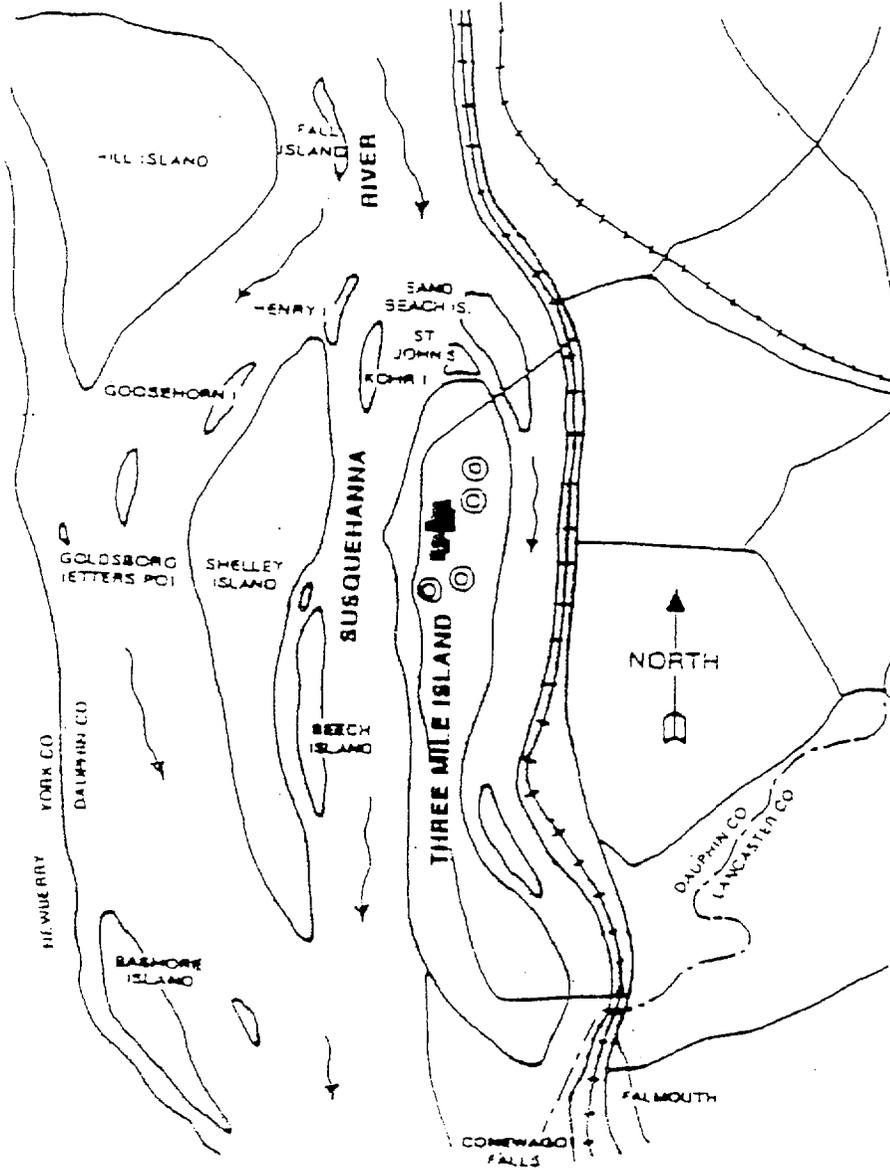


FIGURE 3

TMI Site Exclusion Area and Low Population Zone

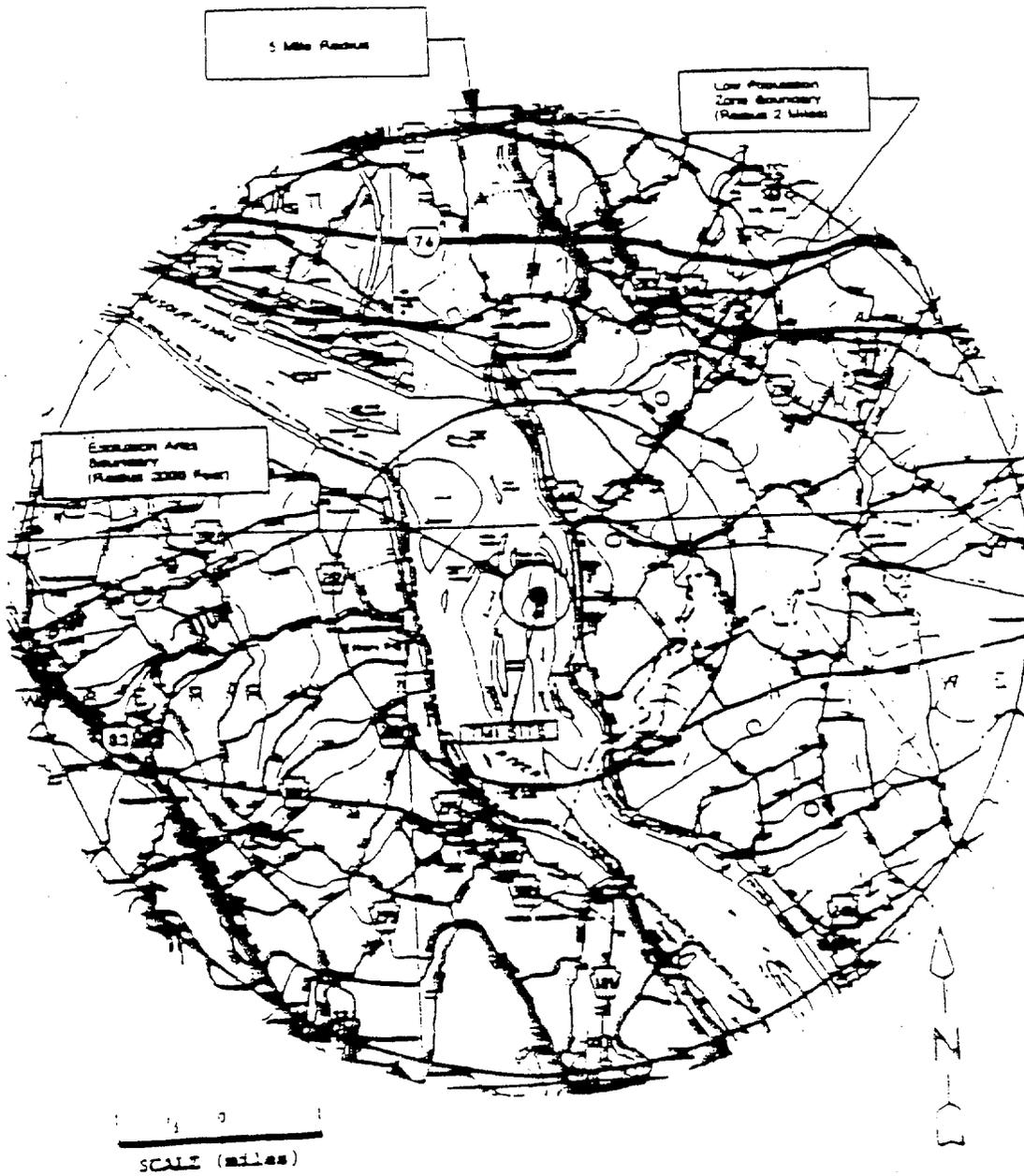
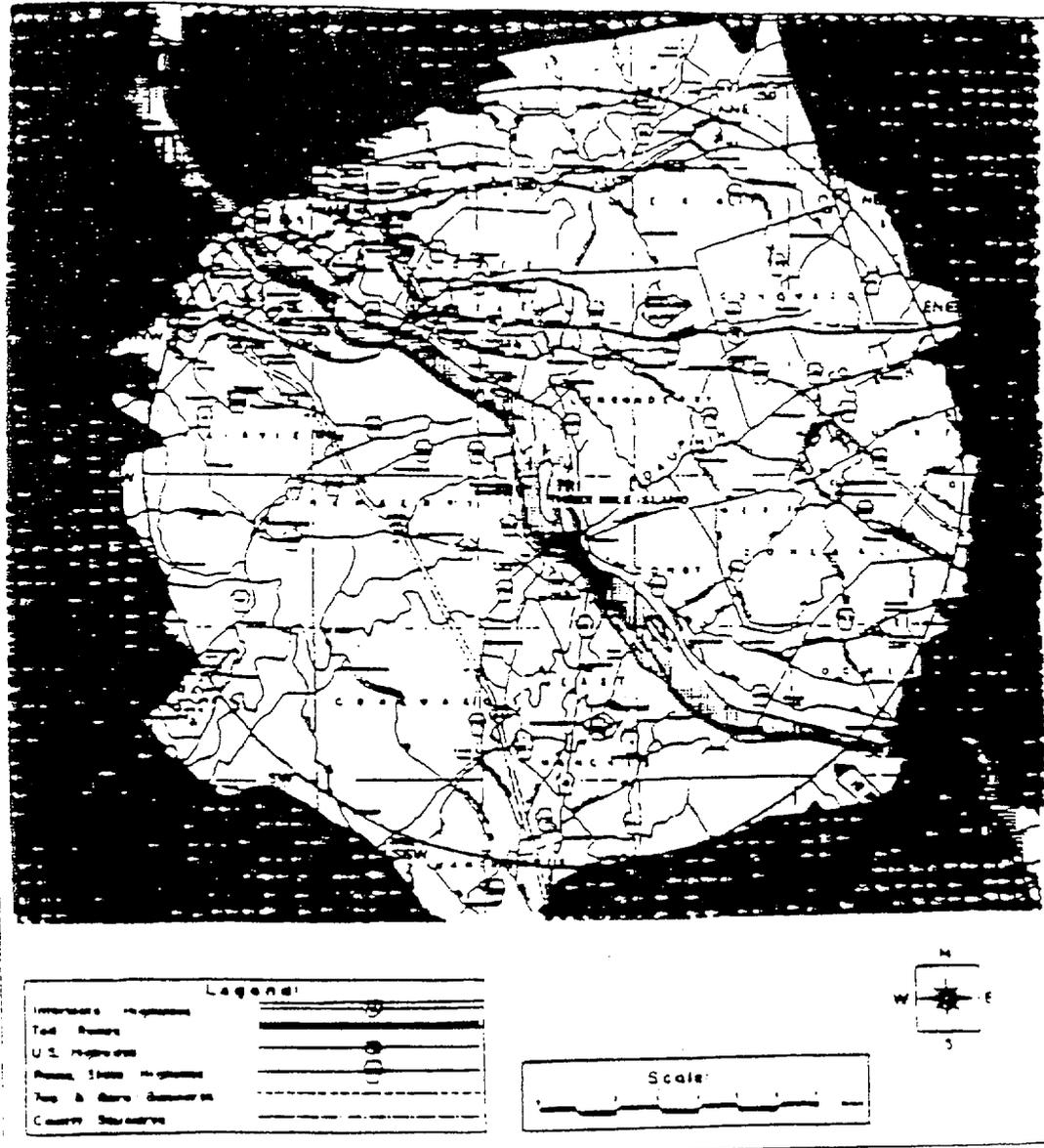


FIGURE 4

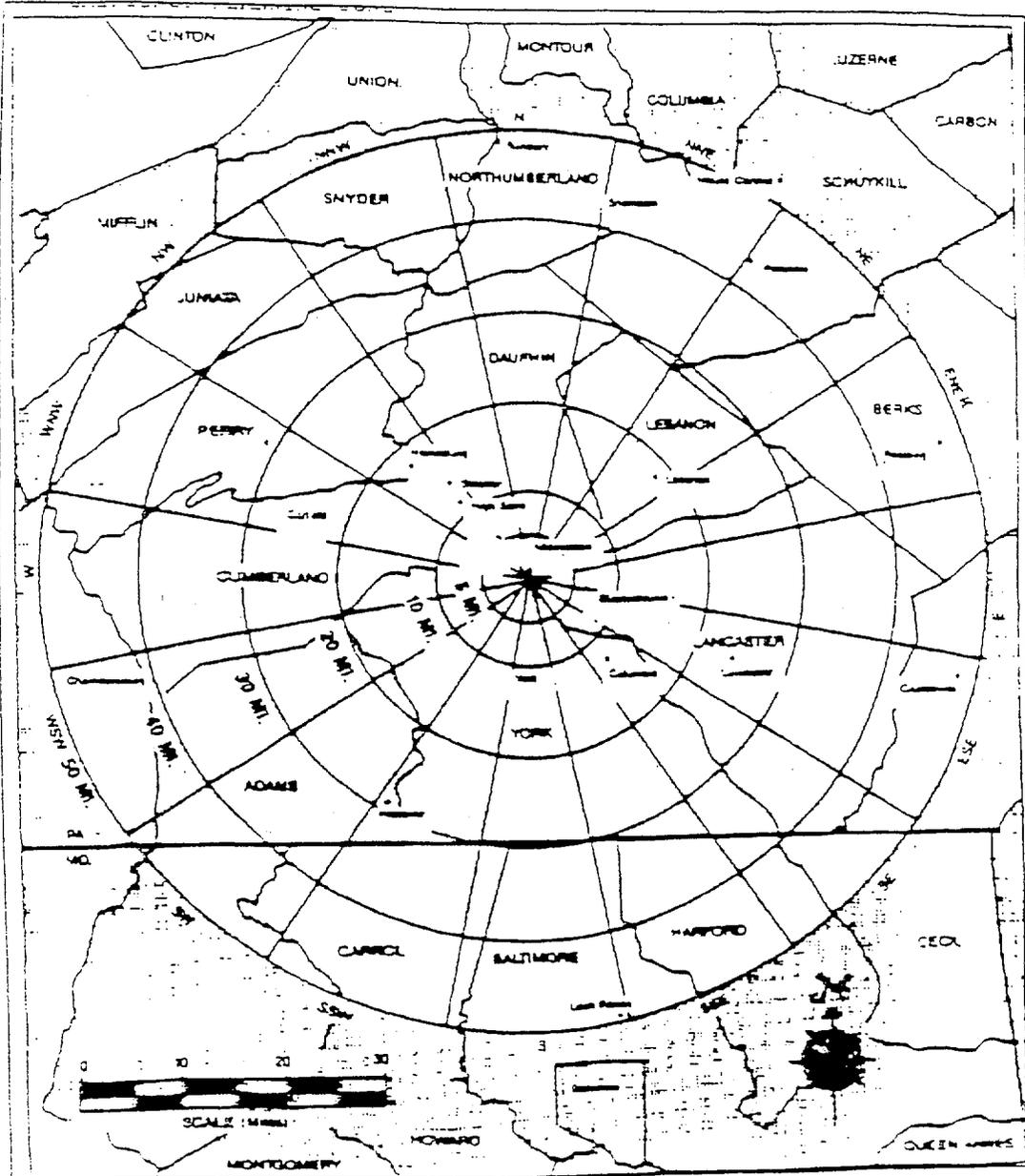
TMI Site Plume Exposure Pathway (10 Mile) Emergency Planning Zone



Lightened Area depicts
Plume Exposure Pathway EPZ

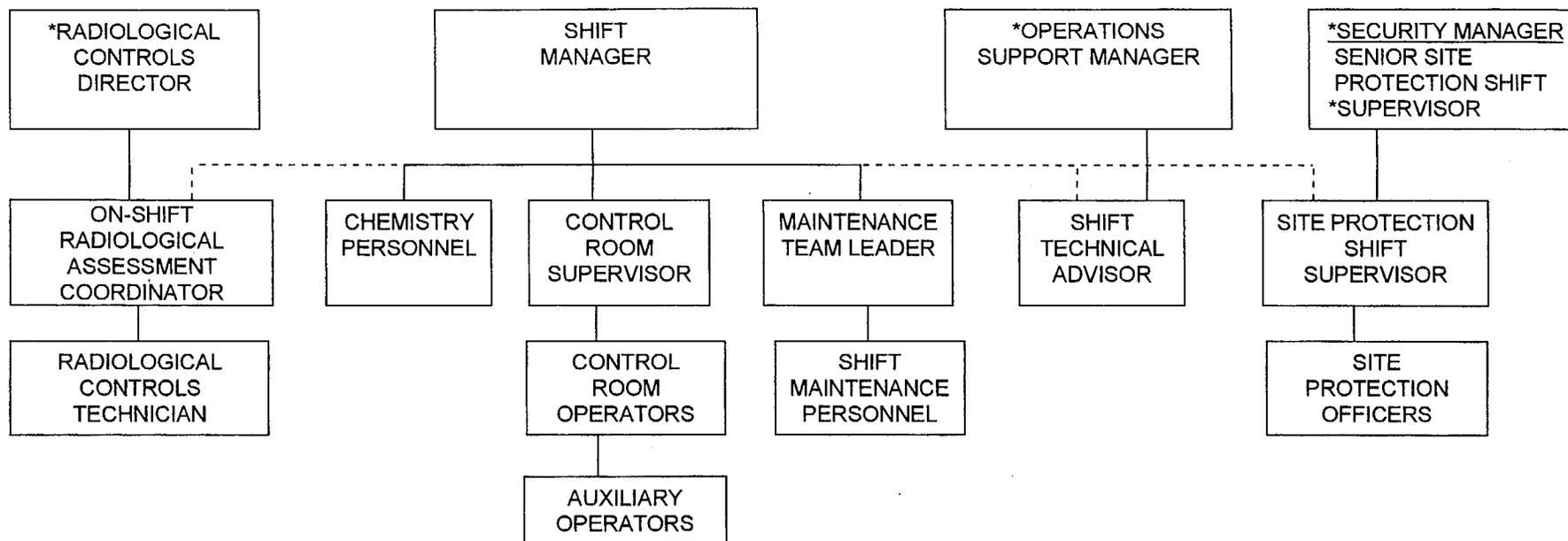
FIGURE 5

TMI Site Ingestion Pathway (50 Mile) Emergency Planning Zone



Lightened Area Depicts
Ingestion Pathway EPZ

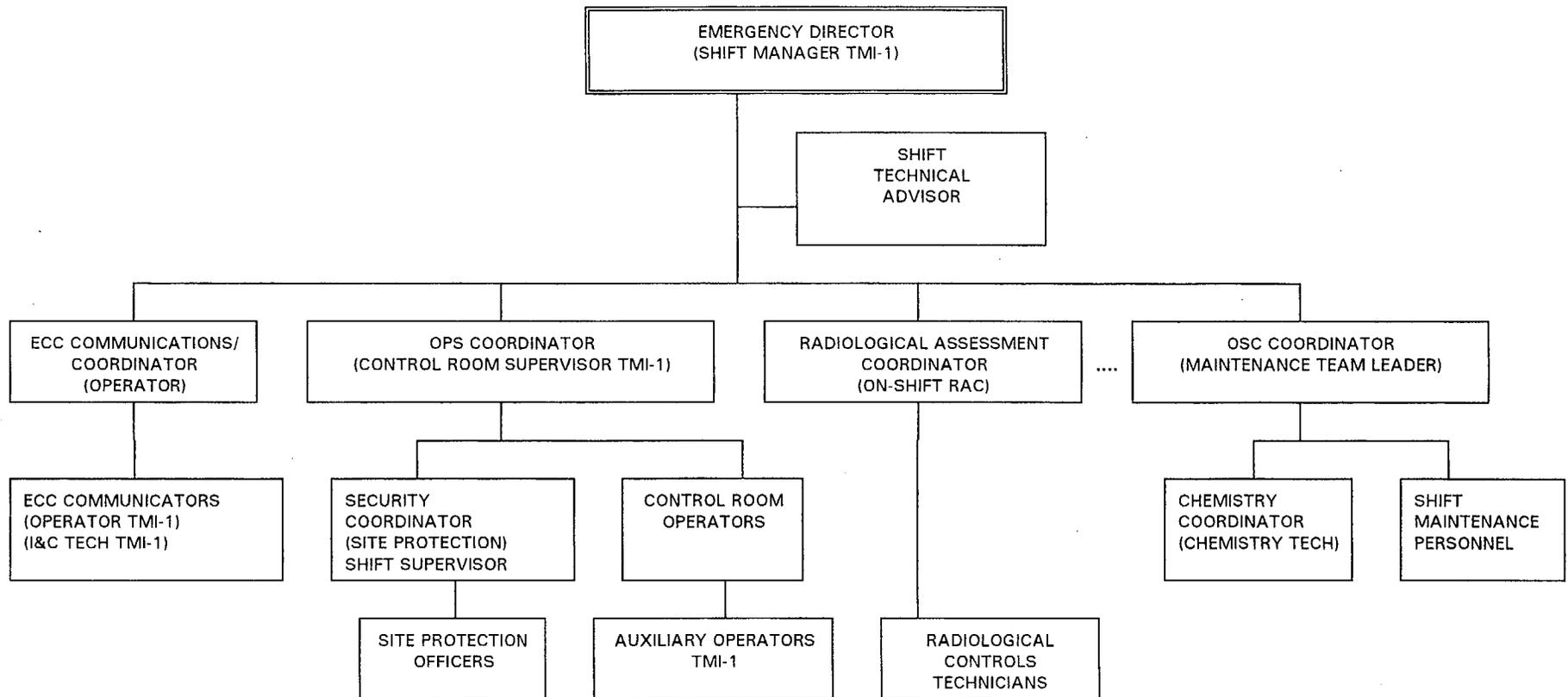
FIGURE 6
TMI Normal Shift Organization



———— Direction/Reporting
 - - - - - Liaison/Communications

*Note: These positions are not in the normal shift complement. They merely indicate the reporting scheme for certain shift positions.

FIGURE 7
TMI On-Shift Emergency Organization



NOTE: Fire Brigade, Search and Rescue, First Aid and Emergency Maintenance Teams will be staffed with On-Shift personnel that may be assigned other functions and will report to the OSC Coordinator. For security based events, the Security Coordinator has the capability of direct communications with the Emergency Director.

- () Normal Shift Position
- Direction/Reporting
- Liaison/Communications

FIGURE 8
TMI Initial Response Emergency Organization

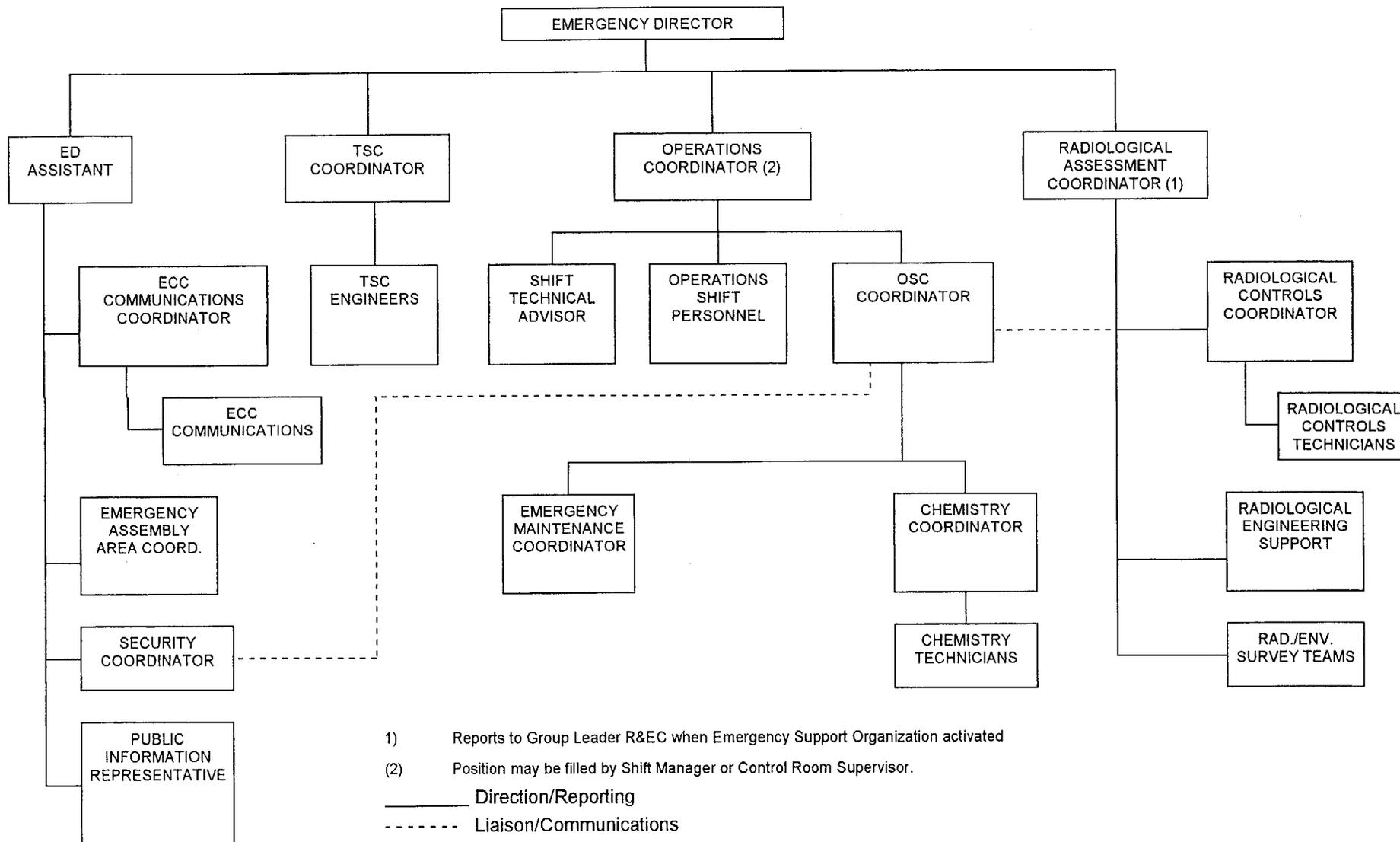
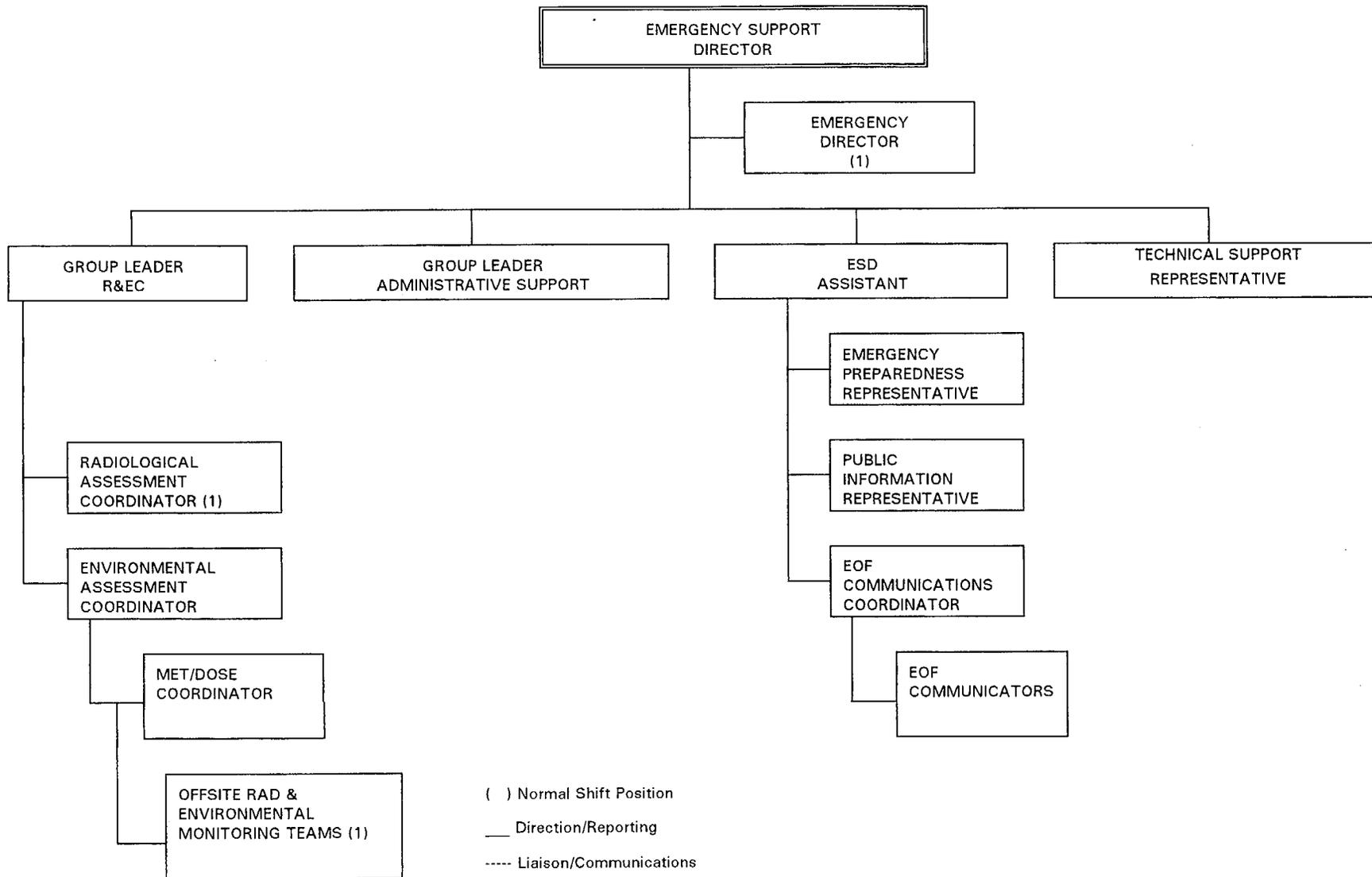


FIGURE 9
TMI Emergency Support Organization



() Normal Shift Position
 — Direction/Reporting
 ---- Liaison/Communications
 (1) Reporting Scheme Upon EOF Activation

FIGURE 10

TMI Notification Network

