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PART ONE

CONCEPT OF OPERATIONS

EMERGENCY STAFFING
On-site Emergency Organization
 (Available within sixty (60) minutes)

<u>Emergency Position</u>	<u>Minimum Number</u>	<u>Position Title or Expertise</u>	<u>Emergency Duties</u>	<u>Report to Location/Person</u>
Emergency Director	1	Shift Supervisor or Shift Foreman or Plant Manager or Senior Site Operations Management Person.	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
Communicator	1	Technical Analyst	Provides current information and direction to the communications assistants, ensures communications records are kept and activates the operational line for technical data transmission.	Shift Supervisor's Office/ Emergency Director
Communications Assistants	2	Technical Analyst	Responsible for maintaining communications with the NRC, make additional notifications as required and receiving incoming calls.	Shift Supervisor's Office/ Communicator
Technical Support Center Coordinator	1	Senior Lead Engineer	Directs the TSC engineers in plant technical assistance and acts as liaison between Parsippany Technical Functions and the Emergency Director.	TSC/Emergency Director until Group Leader Technical Support takes charge.
Technical Support Center Engineers		Assorted Discipline Engineers (i.e.: Nuclear, Electrical, Mechanical, I&C)	Activate TSC and provide technical support in the areas of core, electrical, mechanical, I&C and computers.	TSC/TSC Coordinator
Operations Coordinator	1	Shift Supervisor or Senior Operations Person (SRO)	Coordinates plant operations, maintenance, Radiological Controls and chemistry through the Shift Supervisor and Operations Support Center Coordinator.	ECC/Emergency Director

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EMERGENCY STAFFING
 On-site Emergency Organization
 (Available within sixty (60) minutes)

Emergency Position	Minimum Number	Position Title or Expertise	Emergency Duties	Report to Location/Person
(+) Shift Supervisor	1	Shift Supervisor (SRO)	Initially assumes the duties of Emergency Director and upon relief will be responsible for maintaining control over plant operations.	ECC/Operations Coordinator
(+) Shift Foreman	1*	Shift Foreman (RO)	Directs Control Room Operators	ECC/Shift Supervisor
(+) Shift Technical Advisor	1*	Assorted Discipline Engineer	Advises and assists Shift Supervisor on plant conditions.	ECC/Shift Supervisor
(+) Operations Shift Personnel	CRO 3* AO 4	Control Room Operators (CRO) Auxiliary Operators (AO)	Operate primary plant and secondary plant as directed, make initial notifications, support operations, emergency repair or assigned as a Fire Brigade member.	OSC and ECC/Shift Foreman
Operations Support Center Coordinator	1	Senior Maintenance, Operations or Radiological Controls Technician/Foreman	Assigns personnel to support operations in the areas of radiological controls, chemistry and maintenance.	OSC/Operations Coordinator
Emergency Maintenance Coordinator	1	Maintenance Technician/Foreman	Coordinates and directs emergency maintenance repair and corrective actions.	OSC/Operations Support Center Coordinator
(+) Maintenance Personnel	5	Maintenance Personnel	Perform all emergency maintenance repair and corrective actions. May be called on for search and rescue and drivers for Radiation Monitoring teams.	OSC/Emergency Maintenance Coordinator

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EMERGENCY STAFFING
 On-site Emergency Organization
 (Available within sixty (60) minutes)

Emergency Position	Minimum Number	Position Title or Expertise	Emergency Duties	Report to Location/Person
Radiological Assessment Coordinator	1	Senior Radiological Controls Technician/Foreman	Responsible for providing all radiological assessment to the Emergency Director and maintaining communications with the BRP. He will direct all radiation monitoring teams until relieved by the EAC. The EAC, upon relief, will direct radiation monitoring teams, environmental teams, calculate dose projections and inform the EOF and the RAC of the results. The RAC will then be responsible for in-plant radiological controls and updating the BRP on dose readings and plant conditions.	ECC/Emergency Director
Radiological Analysis Support Engineers	2	Radiological Controls Engineering Personnel	Assist the Radiological Assessment Coordinator in performing dose calculations, supervising radiological waste processing and interfacing with the Chemistry Coordinator and Group Leader Chemistry Support on Radiological Waste Monitoring.	OSC or ECC/RAC
Onsite/Offsite Radiological Monitoring Teams	1	Radiological Controls Personnel as Monitors and Site Personnel as Drivers	Responsible for picking up emergency kits, obtaining vehicle and radiologically surveying the areas that they are dispatched to.	OSC/RAC until Rad Monitoring duties are assumed by the EAC.

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EMERGENCY STAFFING
 Off-site Emergency Organization
 (Available within six (6) hours)

Emergency Position	Minimum Number	Position Title or Expertise	Emergency Duties	Report to Location/Person
Emergency Support Director	1	Senior Management Representative	Responsible for directing all emergency management responsibilities and directs the response of the offsite organization functional groups in support of the onsite emergency organization.	EOF/Office of President
Emergency Staff Support	1	Site Management Personnel	Assists the Emergency Support Director by interfacing with the offsite emergency organization leaders and providing status reports.	EOF/Emergency Support Director
Emergency Support Communicators	2	Site Engineering Personnel	Responsible for the operation of the communications systems at the Near Site 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/Emergency Support Director
Public Affairs Representative	1	Public Information Department Duty Personnel	Responsible for the implementation of the Emergency Public Information Plan, for the preparation of technically accurate information for media release and for setting up news conferences.	EOF/Emergency Support Director

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EMERGENCY STAFFING
 Off-site Emergency Organization
 (Available within six (6) hours)

<u>Emergency Position</u>	<u>Minimum Number</u>	<u>Position Title or Expertise</u>	<u>Emergency Duties</u>	<u>Report to Location/Person</u>
Group Leader Radiological Controls Support	1	Radiological Controls Engineer	Responsible for radiological controls support for the onsite and offsite organization in the areas of manpower, personnel monitoring and radiological equipment. He interfaces with RAC and monitors communications on the Operational and Radiological Lines to determine emergency status, manpower and equipment needs.	AEOF/ESD
Group Leader Chemistry Support	1	Chemistry Supervisor or Engineer	Assists in the determination of in-plant sampling requirements, manpower and equipment needs based on plant conditions, and establishing a monitoring and controlling program for potentially contaminated systems.	EOF/ESD
Group Leader Maintenance Support	1	Maintenance Foreman	Responsible for Maintenance Support for onsite and offsite organizations. Provides additional maintenance personnel and equipment as needed.	AEOF/Maintenance and Construction Manager
Group Leader Administrative Support	1	Senior Administrative Department Person	Responsible for all administrative and logistics functions required to support the onsite and offsite emergency organization. These services include: General Administration, Transportation, Personnel Administration and Accommodations, Commissary, Safety and Human Resources.	AEOF/ESD

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EMERGENCY STAFFING
 Off-site Emergency Organization
 (Available within six (6) hours)

<u>Emergency Position</u>	<u>Minimum Number</u>	<u>Position Title or Expertise</u>	<u>Emergency Duties</u>	<u>Report to Location/Person</u>
Environmental Assessment Coordinator	1	Environmental Assessment Supervisor or Engineer	Responsible for the Radiological Environmental Monitoring Program. Once the EACC is activated, assumes control of offsite radiological monitoring and environmental assessment from the Radiological Assessment Coordinator. Communicates with monitoring teams via radio and with the Assistant EAC at the Near Site EOF and the Radiological Assessment Coordinator.	EACC/ESD
Assistant Environmental Assessment Coordinator	1	Environmental Assessment Engineer	Provides the Emergency Support Director updates on radiation releases, dose assessment activities and estimates.	EOF/EAC
Emergency Planning Representative	1	Emergency Preparedness Department Engineer	Provides ESD with logistical information relating to onsite, offsite and state emergency facilities, communications, personnel and resources availabilities and procedure requirements.	EOF/ESD
Environmental Assessment Group	2	Environmental Assessment Scientist	Activate the EACC, establish communications, maintain records, and provide radiological and environmental assessment support as directed.	EACC/EAC
Security Support Staff	--	Site Security Personnel	Assist the Group Leader Security Support in performing his duties.	AEOF/Group Leader Security Support
Administrative Support Staff	2	Administration Department	Assist the Group Leader Administrative Support in performing his duties.	AEOF/Group Leader Administrative Support

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PART TWO

COMMUNICATIONS PLAN

UNIT 1 COMMUNICATIONS PLAN
FOR
THREE MILE ISLAND NUCLEAR STATION

1.0 PURPOSE

The purpose of the Three Mile Island Nuclear Power Station Communication Plan is to provide a description of the communications systems network available to ensure the reliable, timely flow of information and action directives between all parties having jurisdiction and/or a function to fulfill in the mitigation of declared emergencies at Three Mile Island. The network of communications available consists of telephone systems, two-way radios, in-plant paging and radio-controlled receiver (beeper) devices.

2.0 DESCRIPTION

- 2.1 Normal plant communications, i.e. telephone systems, in-plant paging, etc., are in use daily and are therefore verified operational by use. Systems that are for emergency use are so designated and are specifically tested on a periodic schedule.
- 2.2 The telephone system is comprised of Pennsylvania Bell System Lines, dedicated lines for direct-line connections to other agencies/facilities, leased tie lines for inter and intra company use, and on-site systems for plant operations functions.

2.3 Two-way radio communications equipment is used by TMI/GPU systems employees extensively in normal daily operations. TMI utilizes a utility frequency that provides communication capability between the Operation's Department and Mobile Operations Stations on-site for day-to-day work dispatches. The TMI Security force utilizes a separate frequency to maintain security control and accountability throughout the island. In addition, area-wide dispatching of mobile units and operations communications is available through the Metropolitan Edison System dispatching office located in Lebanon, Pa. (with remote transmitting capability from the TMI Control Room), which has a microwave transmission system capable of contacting the entire GPU system.

2.4 The In-Plant Paging System provides direct communication among TMI staff personnel allowing paging, answering, and communication utilizing phone stations and remote speakers throughout the owner controlled area of the site. These systems are not interfaced into off-site systems and are not interfered with by non-technical messages. A back-up circuit (Red Gaitronics Intercom System) is provided in the event of failure of the Intra-Plant Communications Subsystem.

There are three independent circuits that serve for maintenance and instrumentation traffic from specific plant areas. In addition to phone/paging systems, various emergency alarms are incorporated that provide distinctive sounds that all Station Personnel, i.e. Met-Ed/GPU Systems and contractors are trained to recognize and respond to.

2.5 Radio-controlled receiver (beeper) devices are provided for key personnel to allow notification of these personnel where needed. This system is linked to Telephone Company Systems with ~~the~~ communications links in Harrisburg, Reading, and Lancaster areas. Parsippany beepers, provided to key personnel for notification, are linked to the Jersey Central Power and Light Radio System. By dialing the user assigned "beeper" telephone number, an automatic transmitter is actuated and the proper signal is emitted actuating the "beeper" if within the operating zone (approximately 35-40 miles from the appropriate zone). The "beeper" is operationally tested when the unit is turned on. Doing this causes an internal circuit to emit a series of tones indicating operability and performing a battery check.

3.0 ATTACHMENTS

- 3.1 Attachment I - Communications System Interface.
- 3.2 Attachment II - Emergency Communication Network.
- 3.3 Attachment III - Use of TMI Nuclear Power Station Telephone System.
- 3.4 Attachment IV - Telephone Assignments for TMI Nuclear Power Station Emergency Organization and Off-site Assistance Organizations.

4.0 COMMUNICATIONS SYSTEMS NETWORK

- 4.1 The TMI Communication system is designed to provide reliable, timely flow of information and action directives between all parties having jurisdiction and/or a function to fulfill in the mitigation of emergencies at the TMI Nuclear Station. Reliability

is provided via (1) extensive redundancy, (2) alternative communications methods, (3) dedicated communication equipment to preclude delays due to system swamping, and (4) routine use of many of the systems which lowers the probability of undetected system failures. Timeliness of information flow is achieved by (1) prompt notification, (2) predefined lines of communications, (3) predefined emergency action levels, and (4) predefined levels of authority and responsibility.

Attachment I is a series of diagrams showing the physical relationship and fundamental communications paths among all parties involved in accident mitigation. The primary source of plant information is the Unit Control Room. Information originating in the Control Room can be classified into two major categories: operational and radiological data. The communications network is formulated around this basic concept, designed to channel information directly to key personnel having closely related functions thus eliminating errors often associated with second hand information. By providing well defined and dedicated communication links, better accident management from physically separate control and support centers can be achieved.

4.2 The TMI Communications Systems Network consists of telephone systems, two-way radios, in-plant paging and radio-controlled receiver devices. These systems are interfaced in the following manner:

4.2.1 Operational Line - The Operational Line is a special (dedicated) line located in the Shift Supervisor's Office that is connected with (1) Babcock & Wilcox Company in Lynchburg, Va., (2) Technical Support Center, (3) Operations Support Center, (4) the Near-Site Emergency Operations Facility, and (5) the alternate Near-Site EOF. This line permits the unimpeded flow of plant parameters, system status data, core conditions, and other pertinent information required by all involved personnel to resolve problems during accident conditions. The Operational Line allows conference capabilities permitting discussions involving all personnel and timely decisions on subsequent plant operations. The Communicator is responsible for establishing and controlling this line (Attachment II, Number 1)

4.2.2 Radiological Line - The Radiological Line is a special (dedicated) line located in the Control Room that is connected with (1) the State Bureau of Radiation Protection, (2) Operations Support Center, (3) the Near-site Emergency Operations Facility and (4) the Alternate EOF. This line permits the transmission of plant conditions, dose projections, off-site monitoring results, and liquid effluent release data to all personnel involved in radiological assessment and environmental impact. The Radiological Line allows

conference capabilities permitting discussions involving all personnel. The Radiological Assessment Coordinator is responsible for establishing and controlling this line (Attachment II, Number 2).

4.2.3 NRC Emergency Notification System (ENS) - The NRC Emergency Notification System is a dedicated telephone system that connects TMI with NRC headquarters in Bethesda, Maryland. The NRC office in Bethesda can patch into the Region I office. This line is to be used for reporting emergencies with commercial lines used for backup communications. The purpose of this line is to provide reliable communications between TMI and the NRC. The ENS phones are located in the Control Room, the Shift Supervisor's Office, Technical Support Center, NRC Inspector's Office (Site), and the Near-Site Emergency Operations Facility. The Emergency Director, Emergency Support Director and, the Technical Support Center Coordinator are responsible for utilization of this line (Attachment II, Number 3).

4.2.4 Health Physics Network Line (HPN) will be activated by the NRC Operations Center, Bethesda, Maryland, in the event of a declared site emergency. This system includes all nuclear power plants, NRC Regional Offices (King of Prussia, Pa.) and NRC Operations Center in Bethesda, Md. The HPN is a restricted network and shall not be used by non-NRC personnel at any time except to report a

significant event when both the Emergency Notification System and all commercial lines are out of service. This is a dedicated system for NRC Representatives on-site to transmit radiological data to NRC personnel in the regional office and operations center. The HPN telephones are located in the Control Room, Operations Support Center, the Site NRC Inspector's Office and the Near-site Emergency Operation's Facility (Attachment II, Number 4).

NOTE: If HPN phone rings, site personnel are obligated to answer phone.

4.2.5 Environmental Assessment Line is a dedicated telephone line that connects the Radiological Assessment Coordinator in the Control Room, dose assessment area, the Environmental Assessment Coordinator at the Environmental Assessment Command Center and the Asst. EAC at Near-Site EOF. The Radiological Assessment Coordinator, the Environmental Assessment Coordinator and the Asst. EAC will utilize this line to transmit radiological data. The Environmental Assessment Coordinator is responsible for control of this line (Attachment II, Number 12).

4.2.6 Parsippany/B&W is a dedicated line connecting GPU Nuclear Technical Functions Group in Parsippany, N.J. with the Babcock-Wilcox Technical Function Group in Lynchburg, Va. This line provides a means of reliable communication for in-depth diagnostic and corrective engineering assistance between the operator and the supplier of the nuclear steam supply system (Attachment II, Number 9).

- 4.2.7 Parsippany-TMI Line is a dedicated line connecting TMI Near-Site EOF and Tech Support Center with GPU Nuclear Technical Functions Group in Parsippany, N.J. This line provides a means of reliable communication for exchange of technical data about plant systems (Attachment II, Number 10).
- 4.2.8 National Warning System Line (NAWAS) is a dedicated radio-telephone connecting the Control Room directly to the Pennsylvania Emergency Management Agency Operations Center in Harrisburg, Pennsylvania, ensuring a reliable means of prompt notification of an emergency and, as appropriate, the subsequent exchange of information.
- NOTE: The NAWAS System is monitored by PEMA during working hours (0800-1600). During non-working hours, NAWAS is monitored by the Pennsylvania State Police. (Attachment II, Number 5).
- 4.2.9 Emergency Director's Auto Dialer Phone located in the Shift Supervisor's Office, is a commercial phone equipped with an automatic dialing system. The following essential numbers are listed on the auto dialing log: PEMA duty officer, the five county Emergency Operations Center, Pa. State Police, Department of Energy Radiological Assistance Program (RAP team), Hershey Medical Center, NRC in Bethesda, Harrisburg Hospital, Duty Supervisors, and essential staff members. This system will allow notification of all essential personnel and

organizations in the emergency response network. Back-up communications to the five counties (Dauphin, York, Lebanon, Lancaster and Cumberland) is provided by utilizing Dauphin County EOC to relay appropriate message to the other four counties. (Attachment II, Number 11).

- 4.2.10 Parent (Dauphin) County Emergency Operations Center Communication System is coded from the Control Room, TMI. A radio transmitter (red button located in Control Room, by the scanner) will activate the Dauphin County EOC scanner on the TMI Operation's Frequency. Radio communications can then proceed with TMI transmitting on the Met-Ed Operation Frequency and receiving on a scanner which monitors the Dauphin County EOC frequency. (Attachment II, Number 6).
- 4.2.11 Inter-Control Room Line is a direct line connecting Unit 1 and Unit 2 Control Rooms providing a reliable path for communications. This allows the unaffected Unit to be fully cognizant of the affected unit conditions (Attachment II, Number 8).
- 4.2.12 Emergency Director's Line located in the Control Room, is a dedicated line established between the Emergency Control Center and the Near-Site EOF. This line is for use by the Emergency Director and the Emergency Support Director for person-to-person communications (Attachment II, Number 7).

- 4.2.13 Radiological Controls Auto Dialer Phone - located in the Operations Support Center, is a commercial phone equipped with an automatic dialing system. This telephone will contain numbers of Radiological Controls Supervision, foreman, senior and junior technicians. This system will allow notification of all essential personnel in the event of an emergency. Backup communication shall be provided by the Pennsylvania Bell systems (Attachment II, Number 16).
- 4.2.14 Pennsylvania Bell System serves TMI for normal telephone service. This system should function during emergency conditions as it does during normal plant operations. GPU Nuclear leases tie lines that ensure reliable access to other locations. These tie lines preclude local phone activity from swamping calls into and out of the TMI Nuclear Power Station.
- 4.2.15 Microwave System maintains telephone communications between TMI and the entire GPU system. Access to this method of communication is made by use of the normal plant dimension telephone system.
- 4.2.16 Radio Communications equipment used in normal plant operations will be used in emergency conditions to communicate with mobile units and to provide backup to the telephone system if needed. Radio capability includes the following:

- A. TMI Operation's Frequency - utilizing 451.125 and 456.125 MHz with a base repeater of 60 W.
- B. TMI Security Frequency - utilizing 451.050 and 456.050 MHz with a base repeater of 60 W.
- C. Met-ED System (Lebanon Frequency) - utilizing 37.50, 37.52, 37.54, and 37.56 MHz with a base repeater of 75 W.

Radio transmission capabilities are as follows:

- A. GPU (Met-Ed) Security transmits from (1) Central Alarm Station in the Service Building, (2) Secondary Alarm Station in the Processing Center, (3) Operations Support Center, (4) Emergency Control Center, (5) Near-Site Emergency Operations Facility (portable), and (6) the Environmental Assessment Command Center (portable).
- B. GPU (Met-Ed) Operations frequency transmits from the (1) Emergency Control Center, (2) Operations Support Center, (3) Near-Site Emergency Operations Facility, (portable) and (4) Environmental Assessment Command Center (portable).
- C. Met-Ed Frequency transmits from (1) Central Alarm Station, and (2) Control Room.

The environmental and radiological field assessment teams will use the Operations Frequency during emergency operations connecting the field assessment teams to the Radiological Assessment Coordinator.

4.2.17 Plant Paging System will provide immediate warning or advice to the on-site personnel in the event of an emergency. The plant paging system has two subsystems: the Intraplant Communications Subsystem linking permanent plant structures through a network of phone stations and speakers, and the Redundant Communication Subsystem providing four channels of communication, one page channel and three party line channels. The Redundant Communication Subsystem serves as a separate, independent system in the event of failure of the Interplant Communications Subsystem. Phone stations (gray colored phones) and speakers of this subsystem are located in vital plant areas.

4.2.18 Maintenance and Instrumentation Phone System (M&I) consists of three essentially independent circuits:

- A. The Nuclear Subsystem
- B. The Turbine Subsystem
- C. The Fuel Handling Subsystem

The M&I system is inter-connected to the Operation Support Center which is for use between two or more locations during operations when direct communication between operators and/or maintenance personnel is required. Handsets and headsets are provided and are operable when plugged into the various stations of the three subsystems (Attachment II, Number 15).

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

- A. Radiation Emergency Alarm (pulse tone)
- B. Fire Alarm (wailing siren tone)
- C. Reactor Building Evacuation Alarm (steady tone)

Each alarm provides a distinctive sound that all TMI Nuclear Power Station personnel and contractors are trained to recognize.

4.2.20 Code-A-Phone Telephone Answering Machine provides a means to the Emergency Director in determining who has responded to the call-out of emergency personnel. If contact is made by use of the "beeper", then the "beeped" party will call 948-8686, listen to the message, and at the tone leave his name, and position to which he is reporting. (Attachment II, Number 17)

4.3 Testing of the communications systems shall be performed to verify operationality of the system and to allow for repairs to be completed in a timely manner.

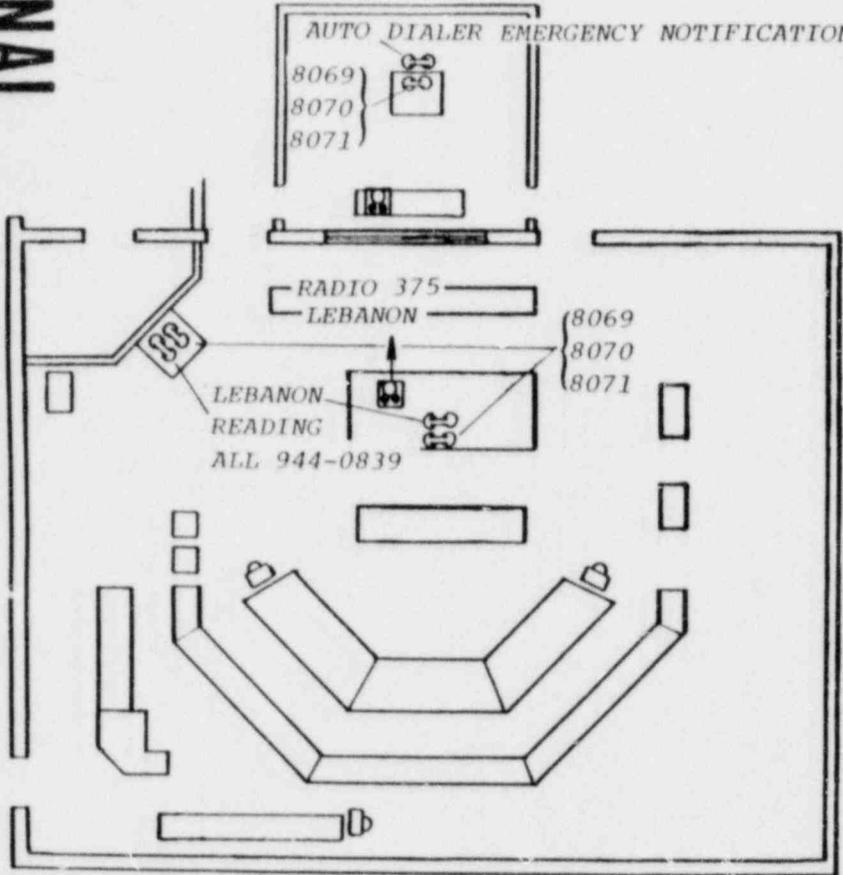
4.4 Essential communications are a key to effectively manage personnel, equipment, data transfer, recommendations to and from key organizations and personnel and decisions that affect the ameliorization of a declared emergency at Three Mile Island Nuclear Power Station.

POOR ORIGINAL

ATTACHMENT I



SHIFT SUPERVISOR'S OFFICE

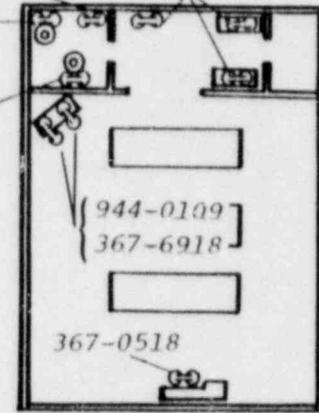


CONTROL BUILDING (EL 355')
EMERGENCY CONTROL CENTER

- PAGE 
- RADIO & INTERCOM 
- SCANNER 
- TELEPHONE 
- PHONE JACK 
- DIMENSION 
- PHONE

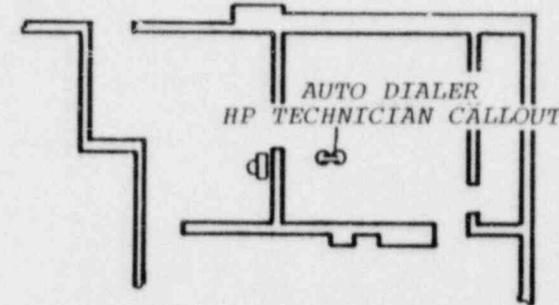
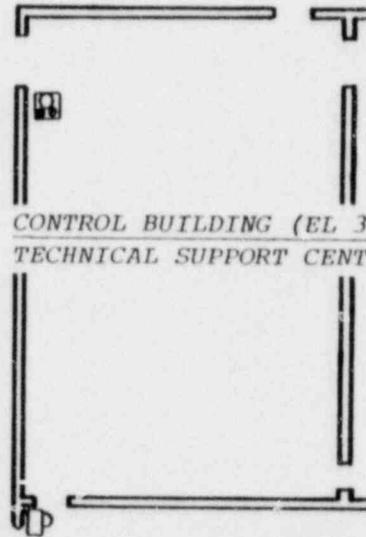
- Routing Switchboard
- 944-6600
- 944-1510
- 367-0511
- TMI 8587, 8588, 8589
- 944-0303
- 367-0518
- TMI 8587, 8588, 8589

- 367-0518 944-0940
- 944-1501 367-0475
- 367-0511 944-0303
- TMI 8587, 8588, 8589



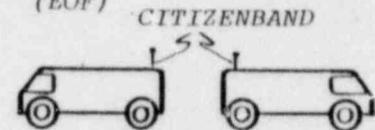
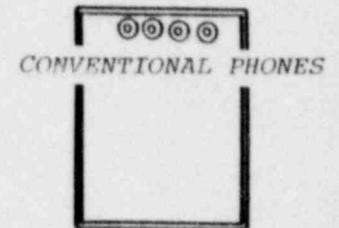
OBSERVATION CENTER
NEARSITE EMERGENCY OPERATIONS FACILITY (EOF)

CONTROL BUILDING (EL 322')
TECHNICAL SUPPORT CENTER



CONTROL BUILDING (EL 305')
OPERATIONS SUPPORT CENTER

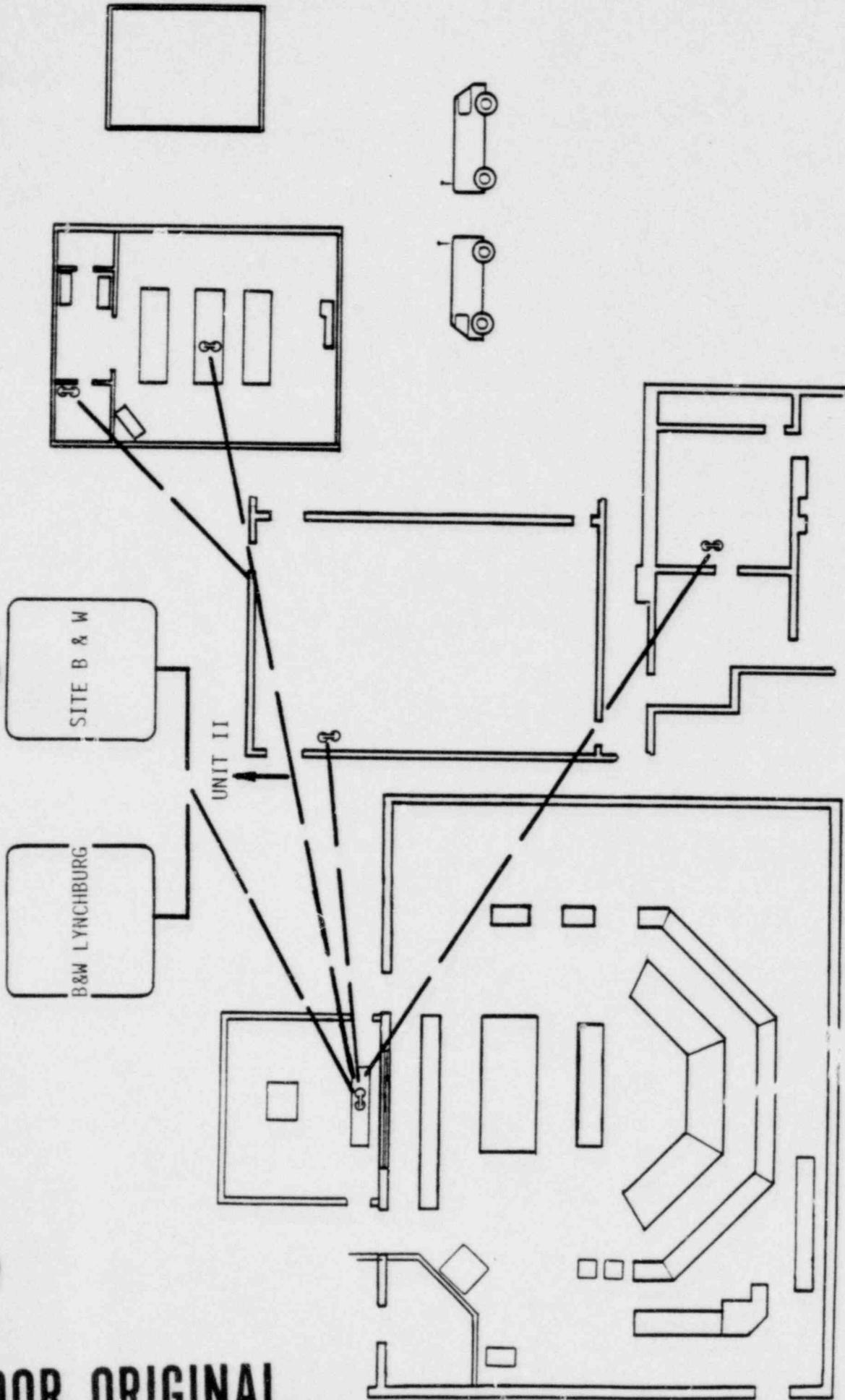
CRAWFORD STATION
ALTERNATE EMERGENCY OPERATIONS FACILITY (AEOF)



OFFSITE MONITORING ONSITE MO. NG

POOR ORIGINAL

ATTACHMENT I



OPERATIONS 3 PLANT 7500 3A

- PAGE 
- RADIO & INTERCOM 
- SCANNER 
- TELEPHONE 
- PHONE JACK 
- DIMENSION 
- PHONE 

- 15 -
UNIT I

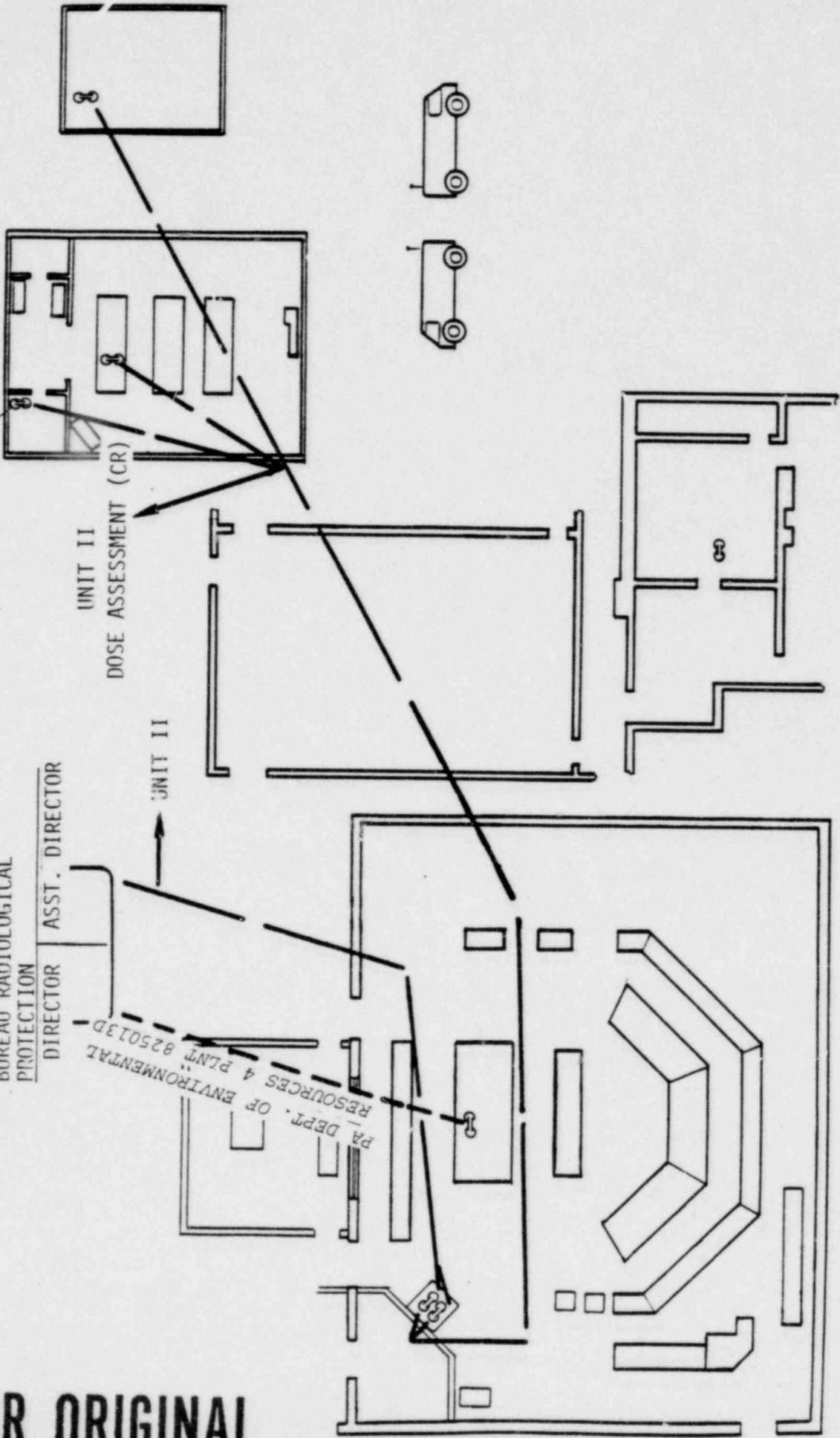
POOR ORIGINAL

ATTACHMENT I

0940, 1501, 0303
367-0518
TMI 8587, 8588, 8589

DER
BUREAU RADIOLOGICAL
PROTECTION
DIRECTOR ASST. DIRECTOR

PA DEPT. OF ENVIRONMENTAL
RESOURCES & PLNT 825013D

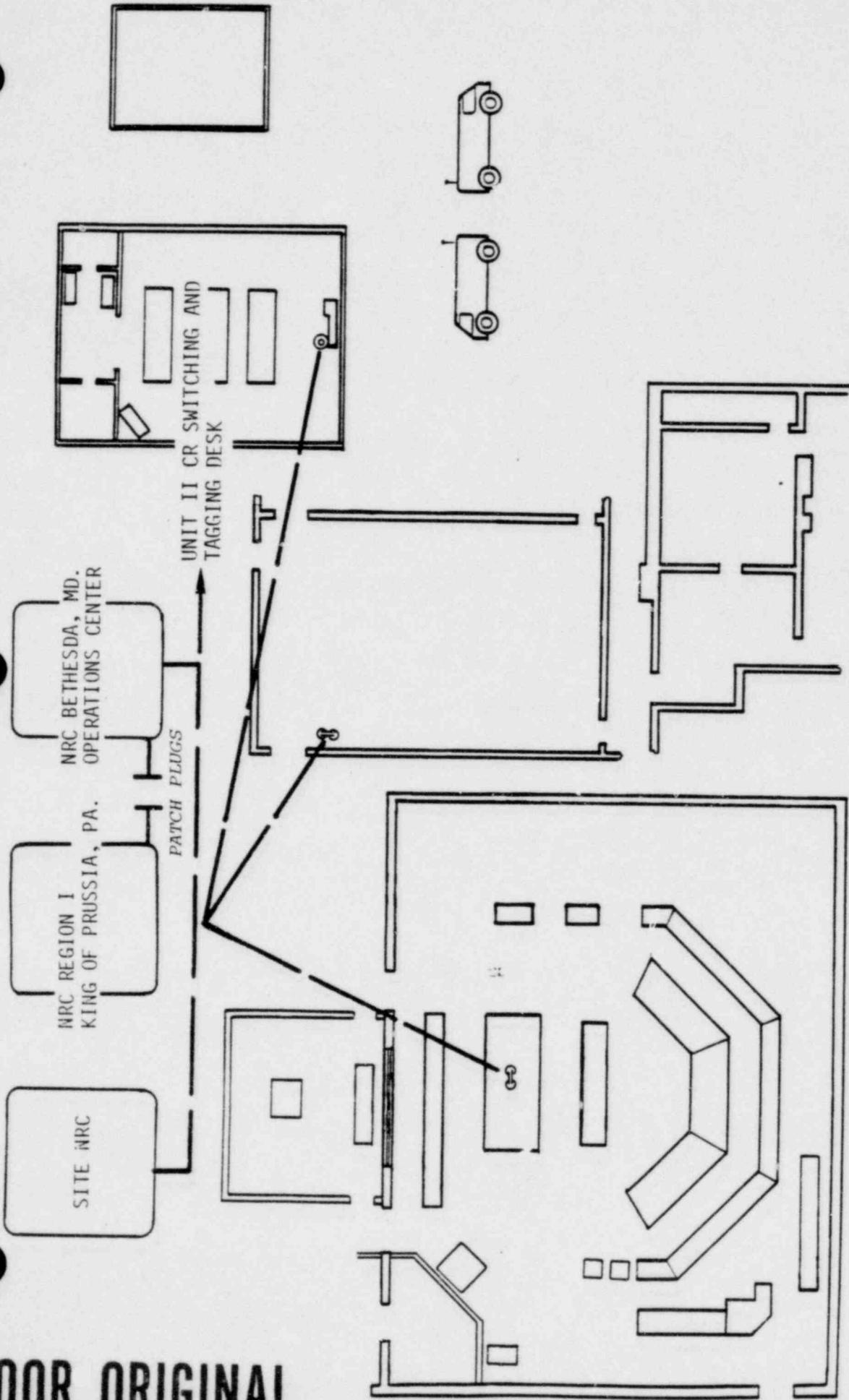


RADIATION

- 16 -
UNIT I

PAGE
RADIO &
INTERCOM
SCANNER
TELEPHONE
PHONE JACK
DIMENSION
PHONE

POOR ORIGINAL

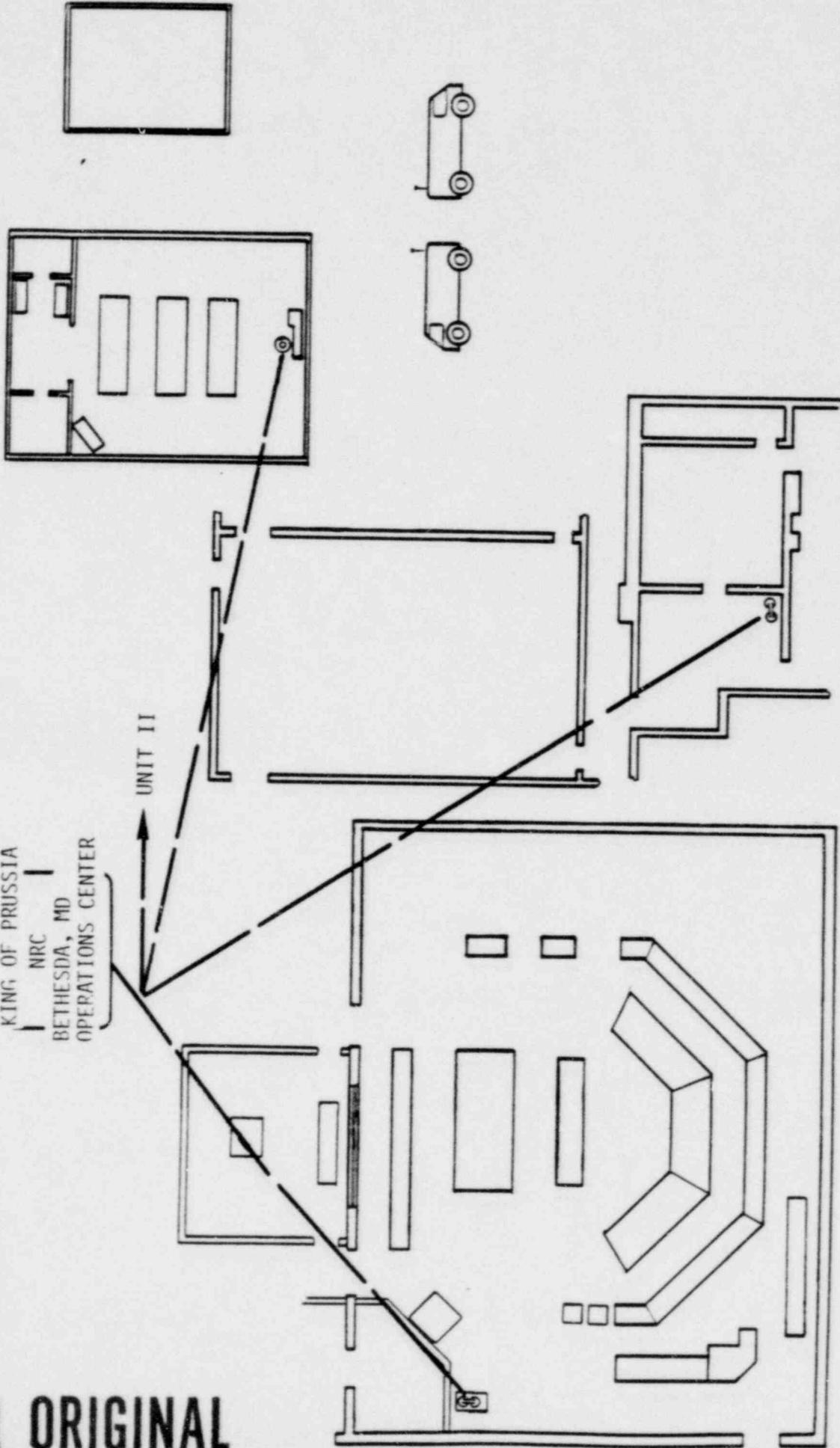


NRC, RED HOTLINE
GPO 1460 EMERGENCY NOTIFICATION SYSTEM

- PAGE [Symbol]
- RADIO & INTERCOM [Symbol]
- SCANNER [Symbol]
- TELEPHONE [Symbol]
- PHONE JACK [Symbol]
- DIMENSION [Symbol]
- PHONE [Symbol]

SITE NRC
 NRC REGION I
 KING OF PRUSSIA
 NRC
 BETHESDA, MD
 OPERATIONS CENTER

UNIT II

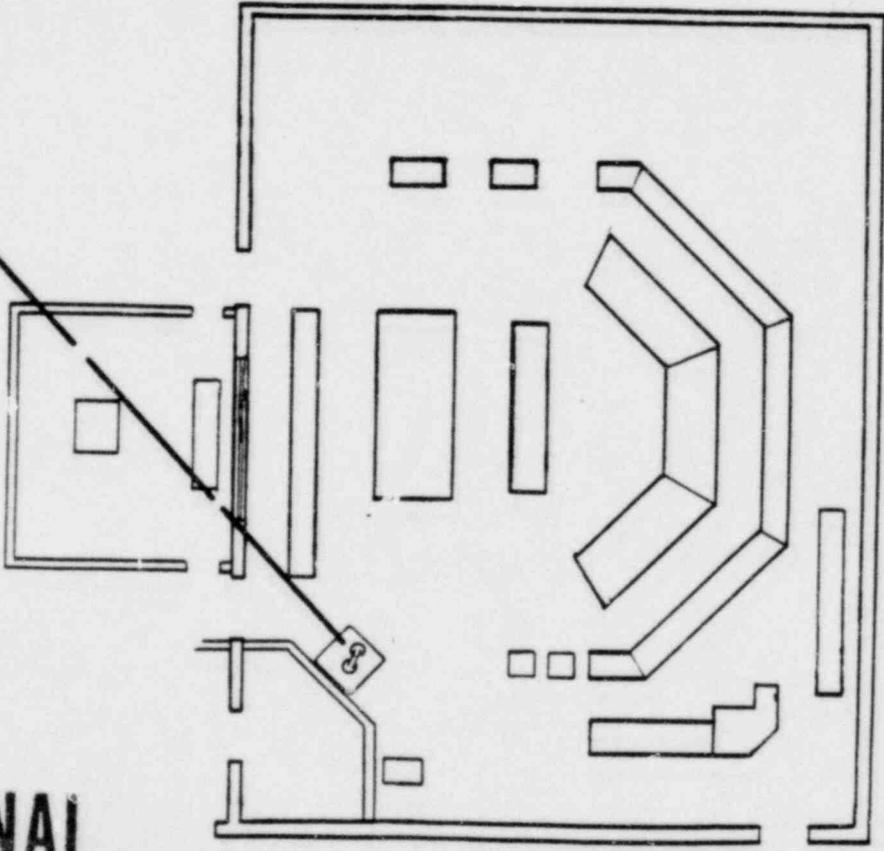
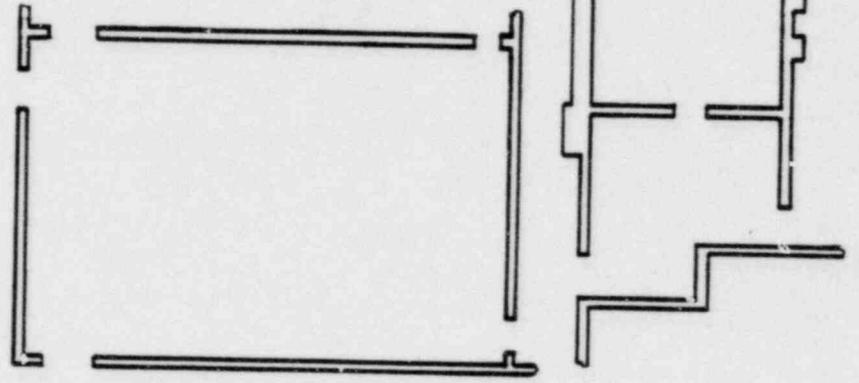
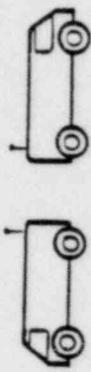
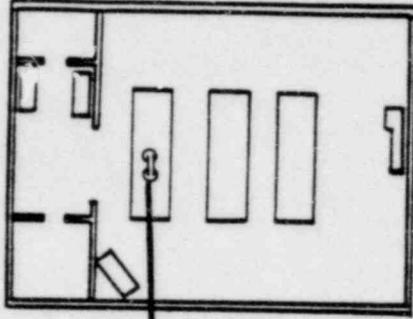


NRC BLACK HEALTH PHYSICS NETWORK (HPN)

POOR ORIGINAL

PAGE 1
 RADIO &
 INTERCOM
 SCANNER
 TELEPHONE
 PHONE JACK
 DIMENSION
 PHONE

ENVIRONMENTAL ASSESSMENT
COMMAND CENTER
(AIRPORT)

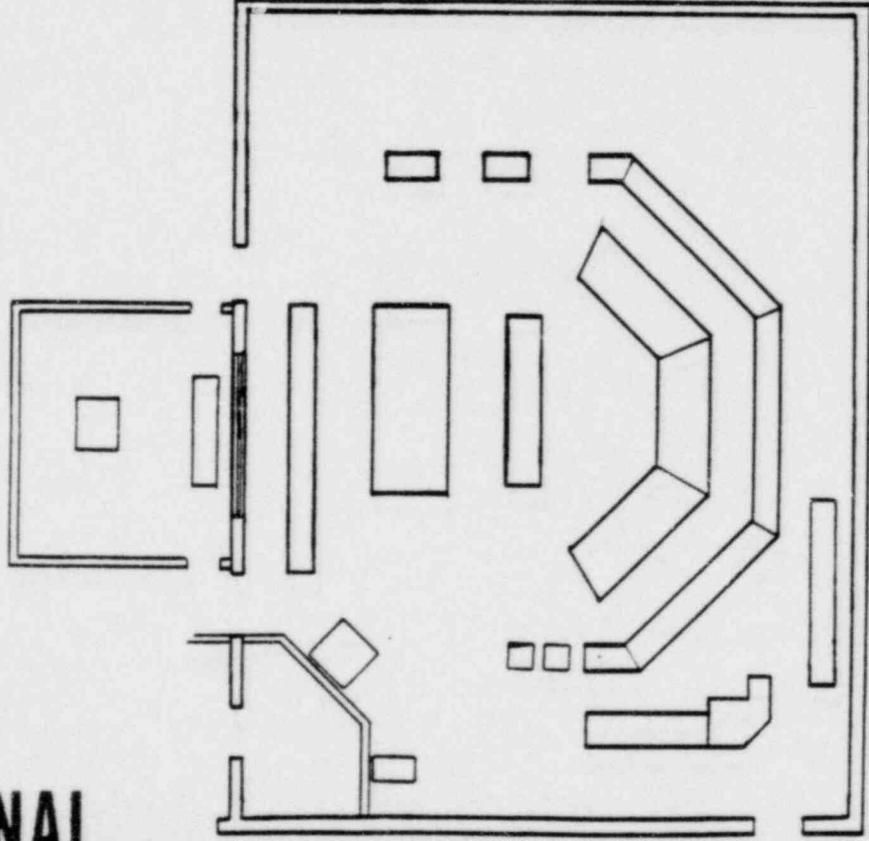
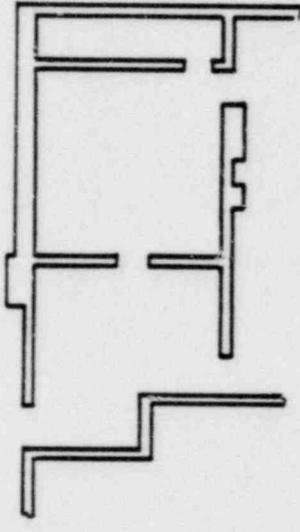
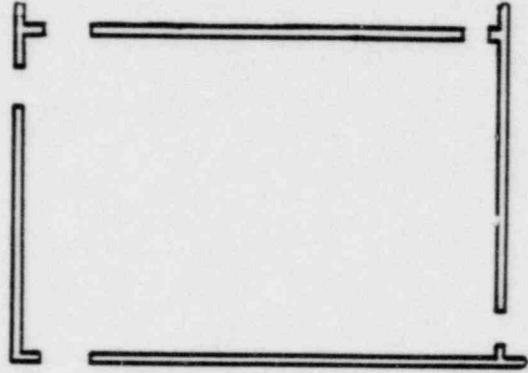
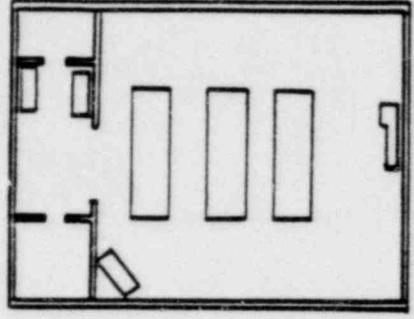
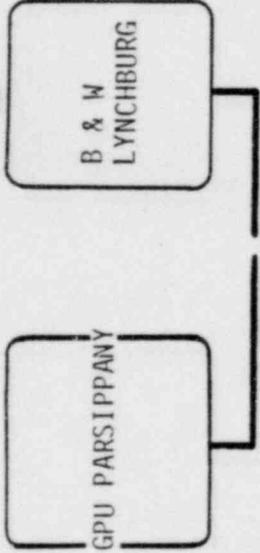


ENVIRONMENTAL ASSESSMENT COMMAND CENTER

- PAGE 
- RADIO & INTERCOM 
- SCANNER 
- TELEPHONE 
- PHONE JACK 
- DIMENSION 
- PHONE 

POOR ORIGINAL

ATTACHMENT I



PARSIPPANY B & W

- PAGE 
- RADIO & INTERCOM 
- SCANNER 
- TELEPHONE 
- PHONE JACK 
- DIMENSION 
- PHONE 

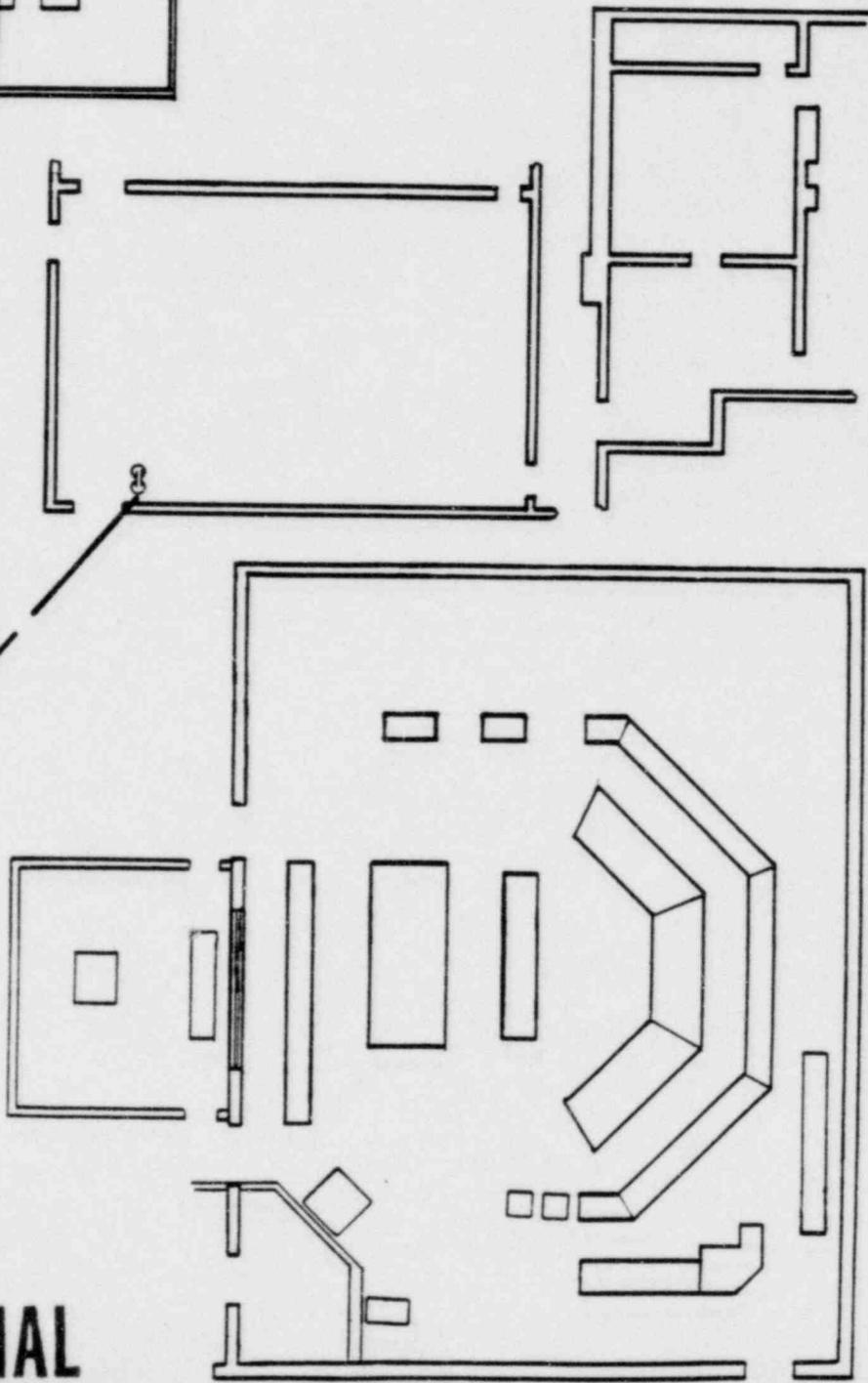
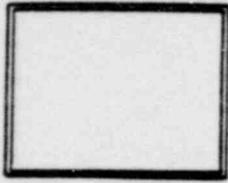
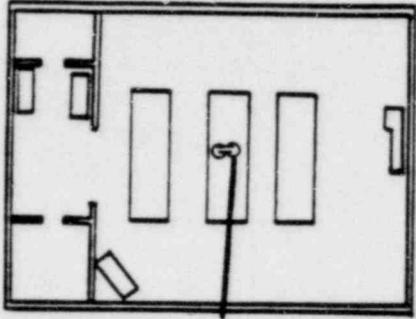
- 20 -
UNIT I

POOR ORIGINAL

ATTACHMENT I

GPU PARSIPPANY

UNIT II



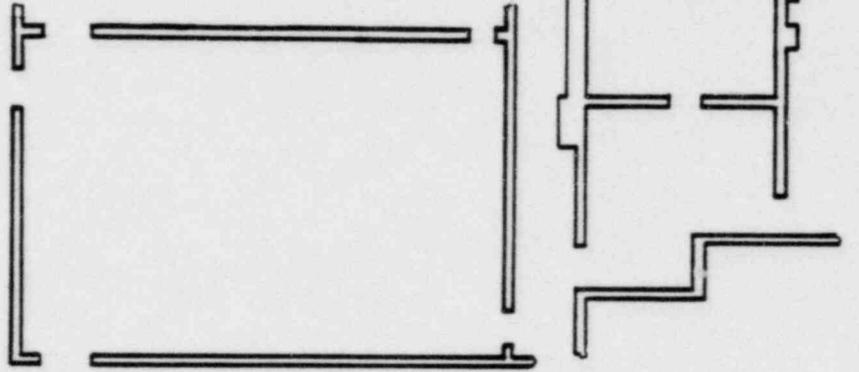
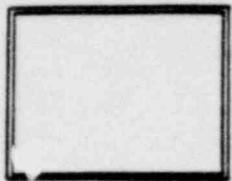
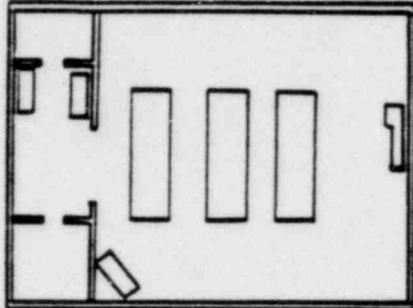
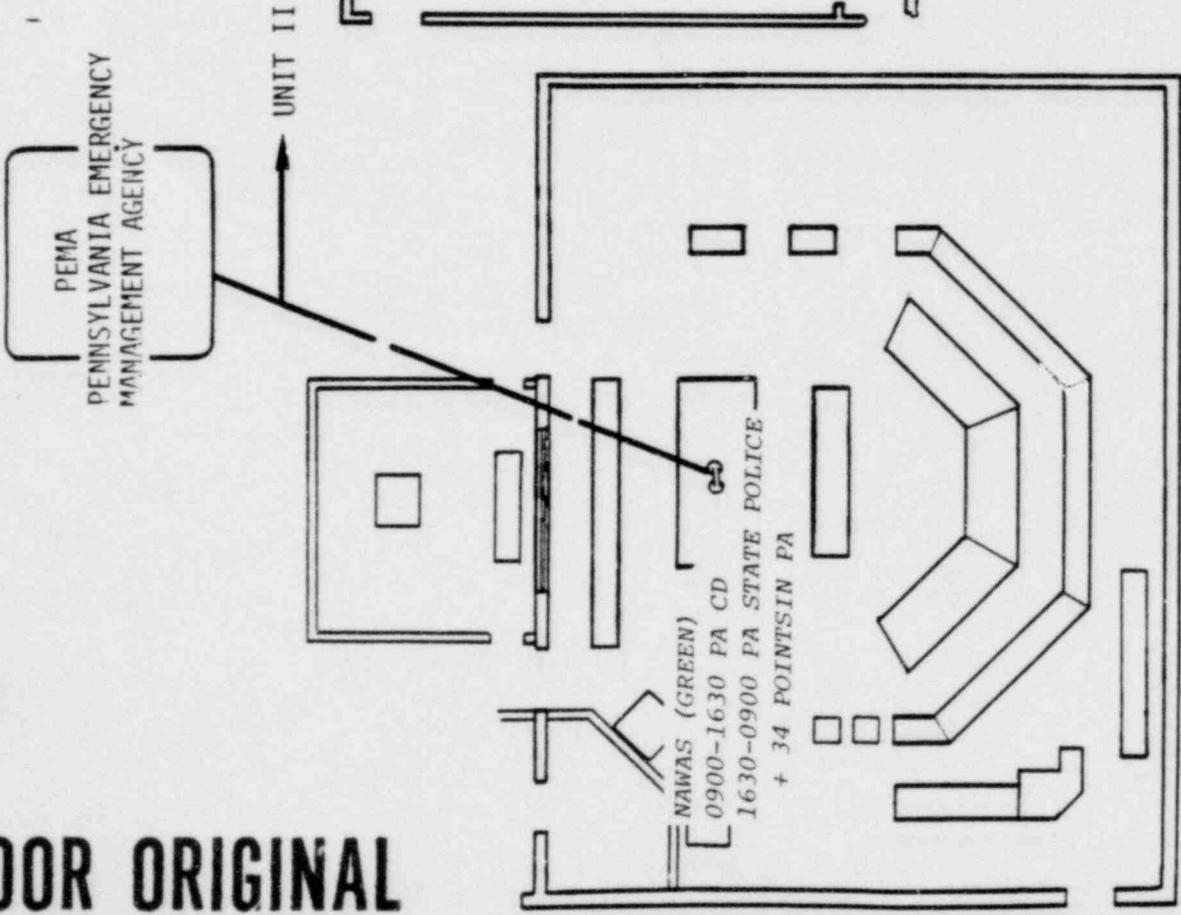
PARSIPPANY TMI

- 21 -
UNIT I

- PAGE
- RADIO & INTERCOM
- SCANNER
- TELEPHONE
- PHONE JACK
- DIMENSION
- PHONE

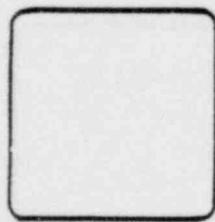
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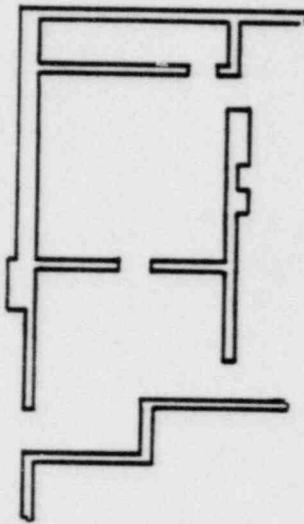
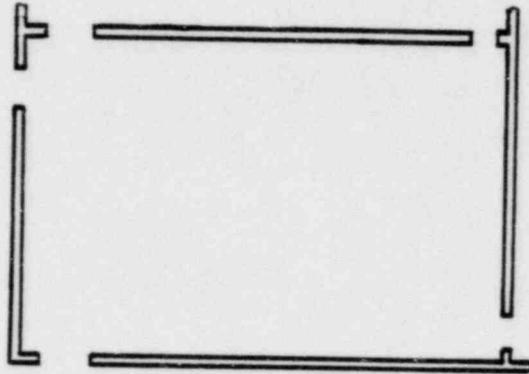
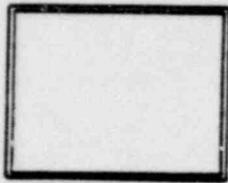
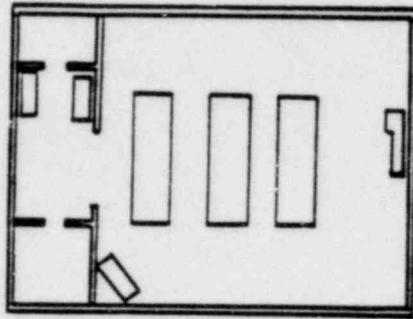


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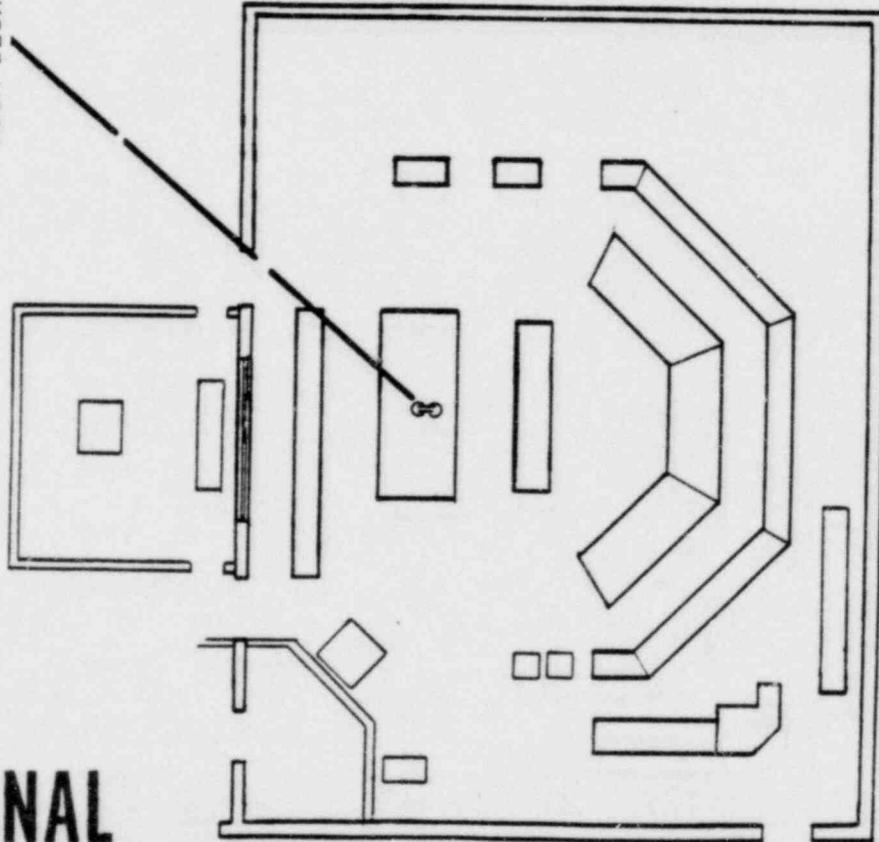
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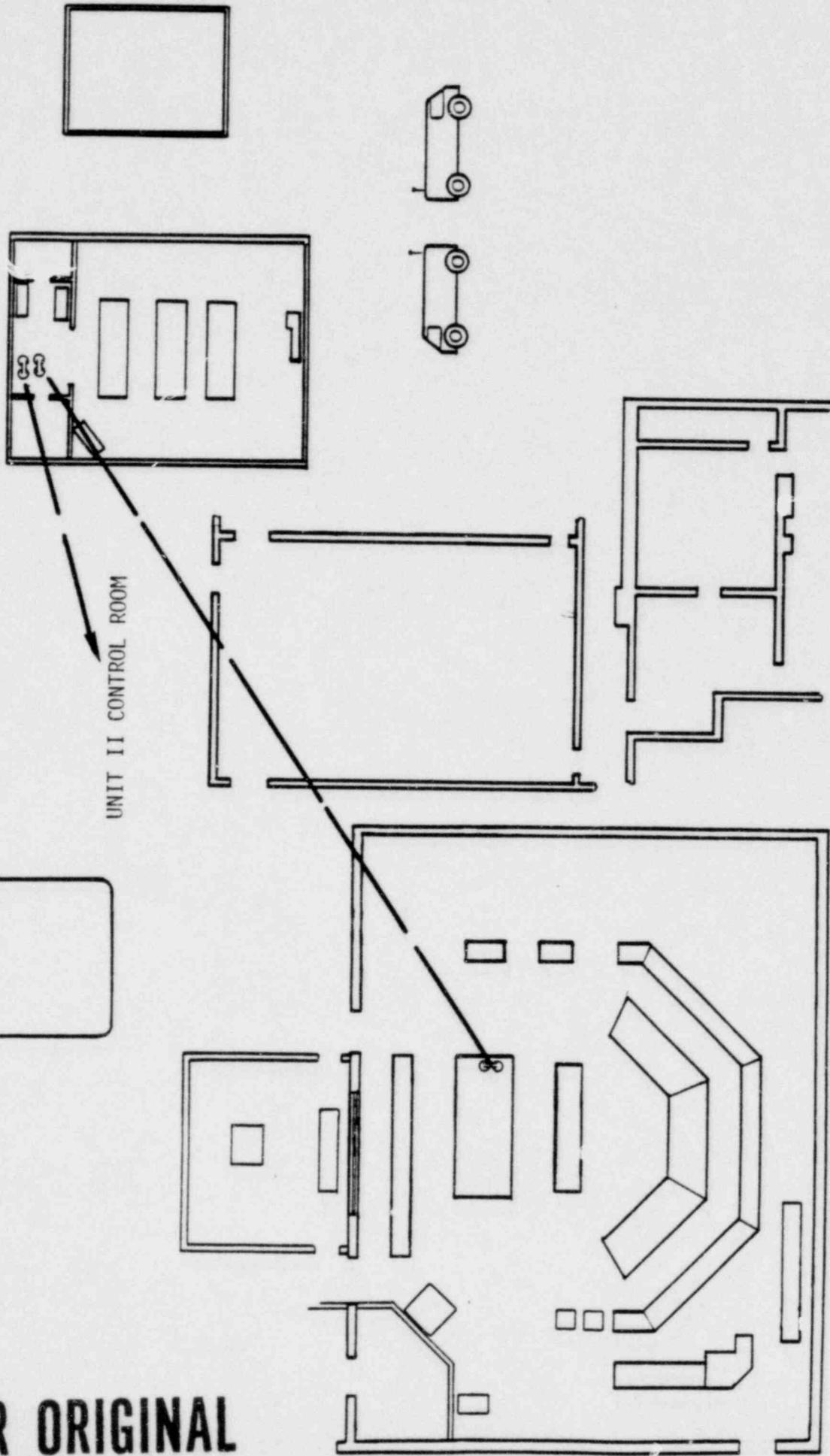
UNIT II CONTROL ROOM DESK



INTER CONTROL ROOM LINE



- PAGE 
- RADIO & INTERCOM 
- SCANNER 
- TELEPHONE 
- PHONE JACK 
- DIMENSION 
- PHONE 



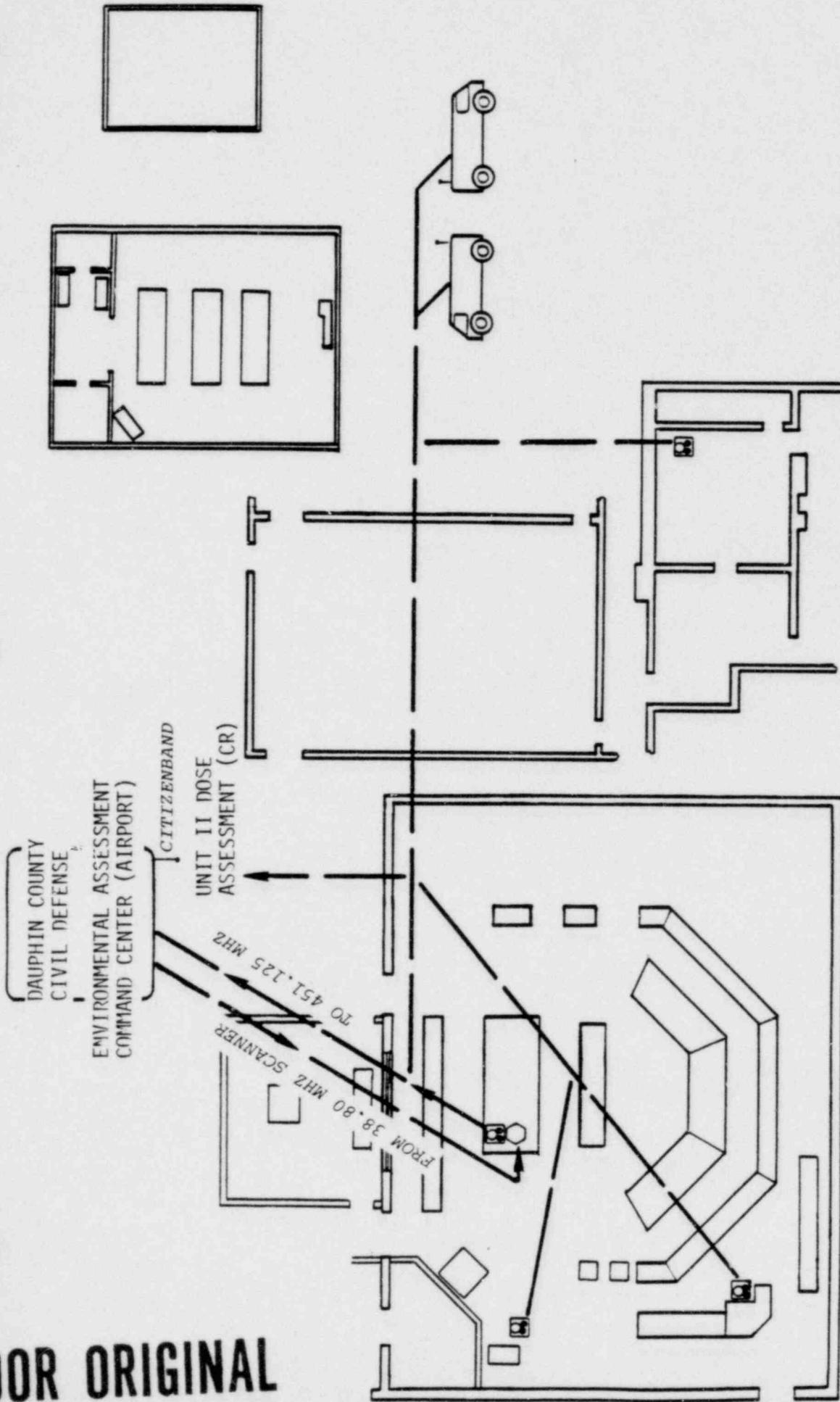
UNIT II CONTROL ROOM

EMERGENCY DIRECTORS HOTLINE

POOR ORIGINAL

- PAGE ▽
- RADIO & INTERCOM □
- SCANNER ○
- TELEPHONE ☎
- PHONE JACK Ⓢ
- DIMENSION Ⓢ
- PHONE ☎

POOR ORIGINAL



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- PHONE JACK
- DIMENSION

ATTACHMENT II
EMERGENCY COMMUNICATIONS NETWORK

Circuit Designation	Plan Reference	Location	Communicator	Extension(s)	Information Transmitted	Backup/ Alternative
1) Operational Line	Plan 4.7.5.1	a) Shift Supervisor's Office	The Communicator (ECC) Technical Support Staff Member	pushbutton switching a) Babcock & Wilcox b) Technical Support Center c) Operations Support Center d) Near-site EOF & alternate (Crawford Station)	Plant parameters, systems status data, reactor core conditions, emergency engineering for accident mitigation, & conference consultation capacity	a) Technical Function B&W Line b) Conventional phone
2) Radiological Line	Plan 4.7.5.2	a) Emergency Control Center 1- on Room Center Console 1- In Dose Assessment Area	RAC (ECC) EAC (EOF)	pushbutton switching a) Bureau of Radiological Protection b) Operations Support Center c) Near-site EOF and alternate (Crawford Station)	plant conditions, dose projections, offsite monitoring results & liquid effluent release data	a) Conventional phones b) operators radio base station and portable c) radio operators pager

ATTACHMENT II
EMERGENCY COMMUNICATIONS NETWORK

Circuit Designation	Plan Reference	Location	Communicator	Extension(s)	Information Transmitted	Backup/ Alternative
3) NRC Emergency Notification (ENS) Hot Line	Plan 4.7.5.3	a) Emergency Control Center b) Shift Supervisor's office c) Technical Support Center d) Near-Site EOF e) NRC Inspector's office (site) f) Operations Support Center	An Assistant Communicator	a) NRC Headquarters (Bethesda) NOTE: Bethesda can patch line to Region I office-King of Prussia	To report plant emergencies to NRC	a) Conventional phones b) Health Physics Network
4) Health Physics Network (HPN)	Plan 4.7.5.4	a) Shift Supervisor's office b) Near-Site EOF c) Site NRC Inspector's Office	NRC Personnel only UNLESS otherwise designated	a) NRC HP in Bethesda, Md. b) NRC Region I-King of Prussia	Transmission of radiological information by NRC personnel on site to headquarters	a) Conventional phones
5) National Warning System (NAWAS) Line	Plan 4.7.5.8	a) Emergency Control Center	Assistant Communicator unless emergency action recommendation (then the Emergency Director	a) Pennsylvania Emergency Management Association (PEMA)	Prompt notification of an emergency & as appropriate, the subsequent exchange of information	a) Conventional phones b) Emergency notification auto-dialer c) radio operated pager with oper operator's frequency

ATTACHMENT II
EMERGENCY COMMUNICATIONS NETWORK

Circuit Designation	Plan Reference	Location	Communicator	Extension(s)	Information Transmitted	Backup/ Alternative
6) Dauphin Co. Radio-Scanner Monitor Program	Plan 4.7.5.13	a) Emergency Control Center	Assistant Communicator	a) Dauphin Co. E.O.C.	Prompt notification of an emergency & as appropriate, the subsequent exchange of information	a) FEMA as per state plan b) Emergency notification auto-dialer c) Conventional phone
7) Emergency Director's Hot Line	Plan 4.7.5.15	a) Shift Supervisor's Office	Emergency Director (ECC) Emergency Support Director (EOF)	a) Near-Site EOF	Emergency situation status update, plant technical information & other information as required	a) Operational line b) conventional phone c) operator's radio base station and portables
8) Inter Control Room Line	Plan 4.7.5.14	a) Unit I Control Room	Control Room Operators	a) Unit II Control Room	Plant technical & emergency information exchange	a) Operator's radio base station and portables b) Conventional phones
9) Parsippany/B-W line	Plan 4.7.5.6	a) GPU Nuclear Parsippany Technical Functions Group	Technical functions/engineering staff members	a) Babcock-Wilcox Lynchburg, VA	Exchange of in-depth diagnostic & constructive assistance	a) Conventional phones

ATTACHMENT II
EMERGENCY COMMUNICATIONS NETWORK

Circuit Designation	Plan Reference	Location	Communicator	Extension(s)	Information Transmitted	Backup/ Alternative
10) Parsippany/ TMI Line	Plan 4.7.5.7	a) GPU Nuclear Parsippany Technical Functions Group	Technical func- tions/engineering staff memebers	a) Near-Site EOF b) Technical Support Center	Exchange of tech- nical data	a) Conventional phones
11) Emergency Director's Auto-dialer (5 affected counties)	Plan 4.7.5.9	a) Shift Super- visor's Office	Emergency Director to appoint a Communicator	a) Connects 31 phones to Control Room Numbers List- ed: 1)PEMA duty officer 2)5-county EOC 3)State police 4) Medical facilities 5)Other as- sorted essen- tial staff	Emergency Notifi- cation System	a) NAWAS LINE PEMA b) Dauphin Scanner Monitor c) 5 Affected Counties provid- ed with tone operated open- channel on operators fre- quency d) Conventional phones
12) Environmen- tal Assess- ment Line	Plan 4.7.5.5	a) Near-Site EOF b) Control Room	EAC (EOF) Control Control Room (RAC) Senior Staff Member (Command Center)	a) Environmental Assessment Command Center	Environmental data collected from field moni- toring teams	a) Operator's base station & portable radios

ATTACHMENT II
EMERGENCY COMMUNICATIONS NETWORK

Circuit Designation	Plan Reference	Location	Communicator	Extension(s)	Information Transmitted	Backup/Alternative
13) Radiological Field Monitoring Radio Communications	Plan 4.7.5.12	a) Control Room Unit I b) Near-Site EOF Unit II c) Control Room	RAC (ECC) EAC (EOF)	a) field rad monitoring teams, via operator's portable radios in contact with base stations	Transmission of field radiological information for analysis. NOTE: Approx. 4-6 hrs. after initiation of the emergency response network all communications will be through the EA Command Center under the direction of the EAC (See Plan)	a) Conventional phones
14) Environmental Field Monitoring Radio Communications	Plan 4.7.5.12	a) Environmental Assessment Command Center	Senior Staff Member Command Center	a) Environmental field member monitoring teams via operators portable radios in contact with base stations	Transmission of environmental perturbation information for evaluation	a) Conventional phones b) C.B. radios

ATTACHMENT II
EMERGENCY COMMUNICATIONS NETWORK

Circuit Designation	Plan Reference	Location	Communicator	Extension(s)	Information Transmitted	Backup/Alternative
15) Maintenance & Instrumentation	Plan 4.7.5.18	Emergency Control Center	As appointed	Operations Support Center	Instructions for dispatch of emergency repair teams & radiological monitoring teams.	a) PA System b) Conventional phones
16) Radiological Controls auto dialer phone	Plan 4.7.5.9	a) Operations Support Center	As appointed	Connects RC management, supervision, foreman, Sr. & Jr. technicians home phones.	Technical data which could yield solutions to technical problems	a) PA Bell System
17) Code-A-Phone telephone answering machine		Shift Supervisor's Office	As appointed	N/A	Emergency Notification System	Pa. Bell

ATTACHMENT III

1) OPERATIONAL LINE

CONTROL PHONE: Located in the Shift Supervisor's Office - "A" Phone.

OPERATION: FOR ALL CALLS RECEIVED:

- A. Answer telephone, identify communicator by name and title. To create conference line, go to step C.

FOR ALL ORIGINATING CALLS:

- A. Depress the appropriate button on the 6-button telephone. Number will auto-ring.
- B. When called party answers, identify communicator by name and title and place call on hold.

TO CREATE CONFERENCE PARTY CALLS:

- C. Depress white button on telepatcher that corresponds to utilized phone line.
- D. Caller may then remain on line as conferee or dispatcher by returning handset to cradle.
- E. To disengage telepatcher, depress and release the lighted white button.
- F. To add additional parties to the conference, depress appropriate buttons on 6-button phone and follow steps B-D above.

PLAN REFERENCE: para. 4.7.5.1

MANNED BY: The Communicator (ECC), Technical Support Staff,
Operations Support Staff, Emergency Director, EOF, AEOF.

INFORMATION TRANSMITTED: Plant parameters, system status, data, reactor
core conditions, emergency engineering for
accident mitigation, and conference
consultation capacity.

BACK-UP ALTERNATIVES: Conventional telephone system.

ATTACHMENT III

2) RADIOLOGICAL LINE

CONTROL PHONE: Control Room (RAC), OSC, EOF, AEOF

OPERATION: (Dose Assessment Area Only)

- A. Lift handset, depress appropriate button 6-button telephone. Line will auto-ring.
- B. When called party answers, identify communicator by name and title.
- C. Relay message in concise terminology.
- D. To create conference calls on telepatcher system (Dose Assessment Area Phone), place call on hold.
- E. Depress white button that corresponds to utilized phone line.
- F. Caller may then remain on line or disengage by replacing handset in cradle.
- G. To disengage telepatcher, depress and release the lighted button on telepatcher.
- H. To add additional parties to conference, depress appropriate buttons on 6-button phone and follow steps D-G above.

MANNED BY: Radiological Assessment Coordinator (ECC)
Environmental Assessment Coordinator (NSEOF)

INFORMATION TRANSMITTED: Plant conditions, dose projections, offsite monitoring results and liquid effluent release data.

BACK-UP ALTERNATIVES: Conventional phones, operations radio base station and portables.

ATTACHMENT III

3) NRC EMERGENCY NOTIFICATION SYSTEM LINE (ENS) - RED PHONE

CONTROL PHONE: NRC Headquarters, Bethesda, MD.

OPERATION: A. Caller Lifts handset. The phone will auto-ring NRC Headquarters, Bethesda, MD.

B. NRC Headquarters have interface capabilities with Region I offices, King of Prussia, PA.

PLAN REFERENCE: para. 4.7.5.3

MANNED BY: Assistant Communicator.

INFORMATION TRANSMITTED: Reporting Plant Emergencies to the NRC.

BACK-UP ALTERNATIVES: Conventional phone, HPN Network.

ATTACHMENT III

4) NRC HEALTH PHYSICS NETWORK (HPN) LINE

WARNING: THIS LINE OF COMMUNICATION FOR USE BY NRC ONLY!

CONTROL PHONE: NRC Region I Office, King of Prussia, PA.

PLAN REFERENCE: para 4.7.5.4

MANNED BY: NRC personnel only, unless designated by NRC.

NOTE: If HPN phone rings, site personnel are obligated to answer.

INFORMATION TRANSMITTED: Radiological information by NRC personnel on site to Headquarters, Bethesda, MD.

BACK-UP ALTERNATIVES: Conventional phone.

ATTACHMENT III

5) NATIONAL WARNING SYSTEM LINE (NAWAS)

NOTE: THIS LINE OF COMMUNICATION CONNECTS THE UNITED STATES NATIONAL WARNING SYSTEM TO THREE MILE ISLAND

CONTROL PHONE: Emergency Control Center - Control Room

OPERATION:

- A. Caller Lifts handset and depresses button located in handset.
- B. Speak distinctly into mouthpiece and hold handset button.
- C. Release button, PEMA will respond.
- D. This is a voice actuated phone. Retain handset button in depressed position to talk, release button to listen.

PLAN REFERENCE: para 4.7.5.8

MANNED BY: Assistant Communicator unless emergency action recommendations are required to offsite agencies, then the Emergency Director will man the phone.

INFORMATION TRANSMITTED: Notification of an Emergency and, as appropriate, the subsequent exchange of information.

BACK-UP ALTERNATIVES: Conventional phones, emergency notification auto-dialer, radio operated pager with open channel on Operation frequency.

ATTACHMENT III

6) DAUPHIN COUNTY RADIO SCANNER MONITOR PROGRAM

CONTROL: Located in the Control Room. This system operates on the following frequencies:

- 1) 33.8 MHz (to receive from Dauphin County)
- 2) 451.125 MHz (to transmit to Dauphin County)

OPERATION: Activation of the tone actuated pushbutton on this two-way radio by the communicator will actuate and lock the Dauphin County Emergency Operations Center onto frequency. Dauphin County EOC is received on Channel #1 on the EOC scanner.

NOTE: The Dauphin County EOC radio transmissions are received on 33.8 MHz.

PLAN REFERENCE: para 4.7.5.13

MANNED BY: An assistant communicator can be appointed by the Emergency Director if necessary.

INFORMATION TRANSMITTED: Backup notification of an emergency and as appropriate, the subsequent exchange of information.

BACK-UP ALTERNATIVES: PEMA as per State Plan, Emergency Director's Auto-Dialer, Radio operated Pager with open channel on Operator's frequency.

ATTACHMENT III

7) EMERGENCY DIRECTOR'S HOT LINE

CONTROL PHONE: Located in Shift Supervisor's Office, Emergency Control Center.

OPERATION:

- A. Lift handset.
- B. Telephone will auto-ring to either extension.
- C. When called party answers, identify caller by name and title.
- D. Relay message in concise terminology.

PLAN REFERENCE: para 4.7.5.15

MANNED BY: Emergency Director and Emergency Support Director.

INFORMATION TRANSMITTED: Emergency situation status update, plant technical information, and other information as required.

BACK-UP ALTERNATIVES: Operational line, conventional phone, Operator's radio, base station and portables.

ATTACHMENT III

8) INTER-CONTROL ROOM LINE

CONTROL PHONE: Located in Unit II Control Room.

OPERATION: This telephone connects TMI Units I and II Control Rooms on a dedicated phone that has auto-dial capabilities. To use this line:

- A. The caller lifts the handset.
- B. Unit I Control Room will respond.
- C. Both parties should identify themselves by name and title promptly.

NOTE: This line should be used only by Control Room personnel.

PLAN REFERENCE: para 4.7.5.14

MANNED BY: Control Room Operators

INFORMATION TRANSMITTED: Plant technical and emergency information exchange.

BACK-UP ALTERNATIVES: Operator's radio base station and portables, conventional phones, plant page system.

ATTACHMENT III

9) TECHNICAL FUNCTION/B&W LINE

CONTROL PHONE: Located at GPU Nuclear Parappany Technical Functions Center.

OPERATION:

- A. Caller Lifts handset.
- B. Phone will auto-ring B&W, Lynchburg, VA.
- C. Both parties should identify themselves by name and title promptly.

PLAN REFERENCE: para 4.7.5.6

MANNED BY: Technical functions/engineering staff member.

INFORMATION TRANSMITTED: Exchange of in-depth diagnostic and constructive engineering assistance.

BACK-UP ALTERNATIVES: Conventional phones.

ATTACHMENT III

10) PARSIPPANY/TMI LINE

CONTROL PHONE: Located at GPU Nuclear, Parsippany Technical Functions Center.

OPERATION:

- A. Caller Lifts handset.
- B. Phone will auto-ring TMI Nuclear Station, Near-Site EOF and Technical Support Center.
- C. All parties should identify themselves promptly by name title when answering.

PLAN REFERENCE: para 4.7.5.7

MANNED BY: Technical functions/Engineering staff members.

INFORMATION TRANSMITTED: Exchange of technical data.

BACK-UP ALTERNATIVES: Conventional phones.

ATTACHMENT III

11) EMERGENCY DIRECTOR'S AUTO-DIALER PHONE

CONTROL PHONE: Located in the Shift Supervisor's Office. This is a standard desk set telephone with complete auto-dialer capabilities for connection to key personnel and agencies, including:

- A. PEMA Duty Officer.
- B. 5 County EOC.
- C. Pennsylvania State Police.
- D. Hershey and Harrisburg, PA. Medical Facilities.
- E. Section Superintendents.

OPERATIONS:

- A. The caller should decide who is to be called.
- B. Lift handset.
- C. Depress button beside appropriate person/agency.
- D. Phone will automatically dial number desired. If line is busy, depress switch-hook, depress either appropriate button again or, if number was manually dialed, depress button titled "Last Number Dialed".
- E. Depress switch-hook when message is complete and selecte new number as needed.

PLAN REFERENCE: para 4.7.5.9

MANNED BY: CRO or Primary/Secondary Communications Assistant.

INFORMATION TRANSMITTED: Emergency Notification System.

ATTACHMENT III

BACK-UP ALTERNATIVES: NAWAS Line PEMA, Dauphin County EOC Scanner Monitor, 5 County EOC's provided with tone activated, open channel on operator's frequency, Conventional phones.

ATTACHMENT III

12) ENVIRONMENTAL ASSESSMENT LINE

CONTROL PHONE: Located in Near-Site Emergency Operations Facility
Emergency Control Center (RAC).

OPERATIONS:

- A. Caller Lifts handset.
- B. Phone will auto-ring Environmental Assessment
Command Center.
- C. Both parties should identify themselves promptly
when answering.

PLAN REFERENCE: para 4.7.5.5

MANNED BY: Environmental Assessment Coordinator or phone talker,
Radiological Assessment Coordinator or phone talker, or
Assistant EAC.

INFORMATION TRANSMITTED: Environmental data collected from field
monitoring teams and Radiological Data from the
Plant.

BACK-UP ALTERNATIVES: Operator's Base station and portable radios.

ATTACHMENT III

13) RADIOLOGICAL FIELD MONITORING RADIO COMMUNICATIONS

Base station located in Control Room dose assessment area of control room center console, Near-Site Emergency Operations Facility.

(See #6, Dauphin County Radio Scanner Monitor Program for utilization of this line of communication.)

ATTACHMENT III

14) ENVIRONMENTAL FIELD MONITORING RADIO COMMUNICATIONS

Base station located at Environmental Assessment Command Center.

(See #6, Dauphin County Radio Scanner Monitor Program for utilization of this line of communication).

ATTACHMENT III

15) MAINTENANCE AND INSTRUMENTATION CIRCUIT

Control jacks located in Control Room on either end of Reactor Control Panels. This line of communication consists of headsets connected to one of three adjacent plugs, each labeled as follows:

- A. Nuclear Subsystem
- B. Turbine Subsystem
- C. Fuel Handling Subsystem

These headsets are voice activated and can be interfaced in Reactor Control Panel and in Instrument and Calibration Shop. The Emergency Director shall appoint a communicator to maintain this line of communication as needed.

ATTACHMENT III

16) RADIOLOGICAL CONTROLS AUTO DIALER PHONE

CONTROL PHONE: Located in Operations Support Center.

This is a Standard desk set with complete auto-dial capabilities for connection to radiological controls personnel.

OPERATION:

- A. Caller decides who is to be called.
- B. Lift handset.
- C. Depress button beside appropriate person.
- D. Phone will automatically dial number desired. If line is busy, depress switch hook, depress either appropriate button again, or if number was manually dialed, depress button titled "Last Number Dialed".
- E. Depress switch hook when message is complete and select new number as needed.

PLAN REFERENCE: para 4.7.5.9

MANNED BY: RC Coordinator or designee

INFORMATION TRANSMITTED: Notification System for Radiological Controls
Assistant

BACK-UP ALTERNATE: PA. Bell System

ATTACHMENT III

17) CODE-A-PHONE TELEPHONE ANSWERING MACHINE

CONTROL PHONE: Located in Shift Supervisor's Office

This is a telephone answering machine utilized to maintain a record of personnel responding to an emergency.

OPERATION:

A. To place out-going message on machine.

1. Position selector on machine front to "ANN-REC".
2. Pick-up handset.
3. Depress button on handset and begin recording message.

4. Upon completion of message, release button on handset and position selector on machine front to "ANS-REC".

B. To check announcement.

1. Position selector on machine front to "ANN-CHECK".
2. If speaker switch is not in the "out" position then pick-up handset and depress button. Outgoing message will be heard on handset. If speaker switch is in the "out" position, the outgoing message will be heard on the speaker.

- C. To check incoming calls.
 - 1. Set the selector on machine front to "Play".
 - 2. Rewind tape by placing rewind-fast forward lever to the rewind position (left). Once tape has been rewound, reposition the rewind-fast forward lever to the mid-position.
 - 3. To check incoming call proceede per 16B(2).

PLAN REFERENCE: para 4.7.5.19

MANNED BY: 1. Assistant Communicator
2. Designated maintenance personnel

INFORMATION TRANSMITTED: Verification of call-out

BACK-UP ALTERNATE: Pennsylvania Bell System

ATTACHMENT IV
EMERGENCY RESPONSE DIRECTORY

<u>NAME OF PERSON/PLACE</u>	<u>TELEPHONE NO.</u>
<u>POLICE</u>	
Pennsylvania State Police (24 Hours)	9-234-4051
Pennsylvania State Police Helicopters	9-783-5511
Middletown Police Department	9-944-4311
Police Forces in York County	73-1-843-5111
<u>FIRE</u>	
Londonderry Township Fire Department	9-911 or 9-236-7976
Middletown Fire Department - including:	9-944-6344
Union Hose Company	
Rescue Hose Company, No. 3	
Liberty Fire Company	
Bainbridge Fire Department (Lancaster Co.)	73-1-653-2046
York County Fire Departments	73-1-843-5111
<u>AMBULANCE</u>	
Londonderry Township Vol. Amulance	9-911 or 9-236-7976
Middletown Ambulance Service	9-944-6344
Bainbridge Ambulance Service	73-1-653-2001
<u>STATION MEDICAL CONSULTANTS</u>	
Dr. William Albright III	General 9-939-7831

ATTACHMENT IV

EMERGENCY RESPONSE DIRECTORY

NAME OF PERSON/PLACE

TELEPHONE NO.

HOSPITALS

Hershey Medical Center (Emergency Room)	9-534-8333
Harrisburg General Hospital	General 9-782-3131
	Emergency Room 9-782-3297

METROPOLITAN EDISON COMPANY AND GENERAL PUBLIC UTILITIES MANAGEMENT

Met-Ed - System Safety Director	73-1-215-921-6227
Met-Ed - Division Safety Director	Office 73-1-215-921-6023
	Home 73-1-215-777-3951
Met-Ed - Dispatcher, Lebanon	73-1-272-1281
	(Weekends, Holidays) 73-1-272-1281
Met-Ed - District Manager, Middletown	9-944-4621
General Public Utilities	
8:30 am.m - 5:00 p.m.	74-1-201-263-6500
(after 5 p.m.)	74-1-201-263-6111

ATTACHMENT IV

EMERGENCY RESPONSE DIRECTORY

<u>NAME OF PERSON/PLACE</u>	<u>TELEPHONE NO.</u>
<u>GOVERNMENTAL AGENCIES</u>	
Dept. of Energy (24 hours)	74-1-516-345-2200
NRC - Office of I&E, Region 1 (24 Hours)	73-1-215-337-5000
PA. Dept. of Env. Res. (BRP)	9-787-2480
EPA - Region III Office (24 Hours)	73-1-215-597-9898
Civil Defense Organization (24 Hours)	
Pennsylvania Emergency Management Agency	9-783-8150
Dauphin Co.	9-911 or 9-236-7976
Lancaster Co.	73-1-299-8373
York Co.	73-1-843-5111
Cumberland Co.	9-238-9676
Lebanon Co.	(0800-1630) 73-1-272-7621
U.S. Coast Guard (Harrisburg, PA.)	(General) 717-782-3737
	(Nights, Weekends) 212-668-7055
National Weather Service	9-782-3927

ATTACHMENT IV

EMERGENCY RESPONSE DIRECTORY

<u>NAME OF PERSON/PLACE</u>	<u>TELEPHONE NO.</u>
<u>METROPOLITAN EDISON COMPANY CONSULTANTS</u>	
Radiation Management Corp.	Office 73-1-215-243-2950
	Office Hours - Emergency 73-1-215-243-2990
Pickard, Lowe & Assoc. Washington, D.C.	74-1-202-296-8633
Gilbert Associates Inc. Reading, PA.	215-775-2600
Teledyne Isotopes, Westwood, NH	74-1-201-664-7070
Burns & Roe, Paramus, NJ	74-1-201-265-9500
MPR Associates Inc., Washington, D.C.	74-1-202-659-2320
Institutes of Nuclear Power Oper. (Emergency)	404-953-0904
Emergency Telecopier	404-953-0904
<u>DOWNSTREAM RIVER WATER USERS</u>	
Brunner Island (PP&L)	73-1-266-3691
Wrightsville Water Supply Company	73-1-252-3711
Columbia Water Company Plan (24 Hours)	73-1-684-2712
Lancaster Water Company (24 Hours)	73-1-684-5056
Safe Harbor Water and Power, Inc.	73-1-872-5541
Holtwood Generating Station	73-1-284-4101
Chester Water Authority (Exec. Manager)	73-1-215-876-8181
Baltimore Water Supply Auth.	(Bus. hrs.) 74-1-301-396-0310
	(Weekends, Holidays) 74-1-301-396-3179

ATTACHMENT IV
EMERGENCY RESPONSE DIRECTORY

<u>NAME OF PERSON/PLACE</u>	<u>TELEPHONE NO.</u>
<u>OTHER</u>	
Harrisburg International Airport Control Tower	9-944-4502
Middletown Line Department	8535 or 9-944-4621
York Company Office	73-1-846-7800
Lebanon Company Office (Business Hours)	73-1-272-5661
(Weekends, Holidays)	73-1-272-1281
Capital Trailways Bus Company	9-233-7673
Conrail Railroad Train Movement Coordinator	9-657-3552, 9-255-1414
Insurance - American Nuclear Insurers	74-1-203-677-7305
<u>UTILITIES</u>	
Pennsylvania Power and Light, Allentown, PA	73-1-215-821-5151
Philadelphia Electric - Peach Bottom (Gen.) (Operations Dept.)	73-1-215-456-7014 ext. 223, 423
Baltimore Gas and Electric	74-1-301-234-5000
Dusquesne Light/Beaver Valley (Control Room)	73-1-412-643-8002
Dusquesne Light (Corporate)	73-1-412-456-6000
Nine Mile Point Unit I (Business Hours)	74-1-315-343-2110
(Control Room)	74-1-315-342-3046
Power Authority State of NY (General)	74-1-315-342-3840
(James A. Fitzpatrick Plant)	ext. 311

PART THREE

ADMINISTRATIVE PROCEDURES LIST

EMERGENCY PLAN ADMINISTRATIVE PROCEDURES LIST

- AP 1051 EMERGENCY PLANNING DRILLS
- AP 1052 EMERGENCY PLANNING TRAINING
- AP 1053 EMERGENCY EQUIPMENT READINESS
- AP 1014 ADMINISTRATION OF THE TMI 1 ONSITE AND OFFSITE DUTY ROSTER

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1014
Revision 5
01/07/81

THREE MILE ISLAND NUCLEAR STATION

UNIT #1 ADMINISTRATIVE PROCEDURE # 1014
ADMINISTRATION OF THE TMI-1 ONSITE AND OFFSITE
EMERGENCY DUTY ROSTER
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25.0			50.0			75.0		

Unit 1 Staff Recommends Approval

Approval NA Date _____
Cognizant Dept. Head

Unit 2 Staff Recommends Approval

Approval _____ Date _____
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

M. A. Nelson Date 1/6/81
Chairman of PORC

Unit 2 PORC Recommends Approval

_____ Date _____
Chairman of PORC

Unit 1 Superintendent Approval

R. J. Toole Date 1-7-81

Unit 2 Superintendent Approval

_____ Date _____

Manager Generation Quality Assurance Approval _____ Date _____

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THREE MILE ISLAND NUCLEAR STATION
UNIT NO. I ADMINISTRATIVE PROCEDURE 1014
ADMINISTRATION OF THE TMI-I ON-SITE AND OFF-SITE
EMERGENCY DUTY ROSTER

1.0 GENERAL

1.1 Purpose

The purpose of this procedure is to establish the administration and maintenance of the TMI-I On-Site and Off-Site Emergency Duty Roster.

1.2 Scope

This procedure establishes responsibilities of the Unit I Manager, Supervisor - Emergency Preparedness, Duty Section Superintendent and the Unit I Shift Supervisor for issuing and implementing the Unit I Emergency Duty Roster for both on-site and off-site.

1.3 References

TMI-I Emergency Plan and Implementing Procedures.

2.0 ATTACHMENTS

2.1 Attachment 1 - MINIMUM QUALIFICATIONS FOR EMERGENCY ORGANIZATION
MEMBERS

3.0 RESPONSIBILITIES

3.1 Manager TMI-I

The Manager TMI-I is responsible for insuring that a TMI-I On-Site Emergency Duty Roster is available at all times to the TMI-I Shift Supervisor. He is responsible for ensuring that it is:

- 1) formulated

- 2) approved by the Duty Superintendent
- 3) distributed to the necessary persons
- 4) maintained current in the Shift Supervisor's Office
- 5) that the current Duty Roster is reflected appropriately on the Shift Supervisor's Duty Roster Status Board. (EPIP 1004.8)

NOTE: Members of, and alternates to the On-Site Emergency Duty Roster must meet the qualifications outlined in Attachment 1, and must have received formal training in accordance with AP 1052. Records of current training shall be on file in the TMI Training Department.

3.2 Supervisor - Emergency Preparedness

The Supervisor - Emergency Preparedness, or his designee is responsible for ensuring that an Off-Site Emergency Duty Roster is available at all times to the TMI-I Shift Supervisor. He is responsible for ensuring that the TMI-I Off-Site Emergency Duty Roster is:

- 1) formulated
- 2) approved
- 3) distributed to the necessary persons
- 4) maintained current in the Shift Supervisor's office

The Supervisor - Emergency Preparedness will, by December 1st of each year, issue a Duty Section Program for the coming year, to all on-site and off-site duty section members.

NOTE: Members of, and alternates to, the Off-Site Emergency Duty Roster must meet the qualifications outlined in Attachment 1 and have received formal training in accordance with AP 1052. Records of current training shall be on file in the TMI Training Department.

3.3 Duty Section Superintendent

The Duty Section Superintendent is responsible for ensuring that his Duty Section contains an adequate complement of personnel to support Emergency recall to the Unit, and to enable the gathering of a PORC quorum.

3.4 TMI-I Shift Supervisor

The TMI-I Shift Supervisor's designee is responsible for the initiation of callout for Emergency situations. (EPIP 1004.8)

3.5 Duty Section Personnel

Personnel assigned positions on the On-Site Duty Emergency Roster are responsible for ensuring they are available for recall. Each person will be provided a beeper during their duty week. It is the individual's responsibility to ensure he can be reached at the number listed on the roster or via his beeper. The individual on duty is responsible for insuring his beeper is maintained in working order, and that he is in a position of being able to report within 1 hour for on-site assignments. If assigned a duty section beeper, which is to be utilized by more than one individual, personnel are responsible for ensuring the beeper transfer occurs on, or shortly after 0800 on the day the new duty section assumes the duty.

4.0 SPECIFICS

4.1 TMI-I Duty Rosters

4.1.1 On-Site Emergency Duty Roster

The TMI-I On-Site Emergency Duty Section Roster has been created to ensure that a sufficient complement of personnel are available 24 hours a day to support emergency situations. Emergency situations are ones where the TMI-I Shift Supervisor initiates callout of personnel due to implementation of the Emergency Plan. The TMI-I On-Site Emergency Duty Roster is completed (names, phone numbers, beeper numbers, etc.) by the Manager-Unit I or his designee. The completed Roster is then submitted and approved by the Duty Section Superintendent. The approved Roster is then distributed weekly to the Duty Section Superintendent, the managers of persons listed on the roster, and all members of the Duty Section. The master copy is maintained in the Unit I Shift Supervisor's office, and assignments reflected appropriately on the Shift Supervisor's Duty Roster Status Board.

:	<u>NOTE:</u>	Duty Sections normally run from 0800 hours each	:
:		Monday until 0800 hours the following Monday. The	:
:		On-Site Emergency Duty Roster will be distributed	:
:		by 1600 hours on the Thursday prior to the Monday the	:
:		Duty roster takes effect.	:

4.1.2 Off-Site Emergency Duty Roster

The TMI-I Off-Site Emergency Duty Roster is completed (names, phone numbers, beeper numbers, etc.) by the Supervisor Emergency Preparedness or his designee. The completed roster is then approved by the Manager - Emergency Preparedness and is distributed annually* to:

- a. TMI-I Shift Supervisor (Master)
- b. Emergency Support Directors
- c. Emergency Support Primary Communicator
- d. Emergency Support Secondary Communicator
- e. Manager TMI-I
- f. Designated Duty Personnel
- g. Manager - Emergency Preparedness
- h. Supervisor - Emergency Preparedness

Revision and distribution may be accomplished more frequently, as required, by additions, deletions, or other changes to the Emergency Duty Roster.

4.2 Maintenance of Approved Duty Rosters4.2.1 TMI-I On-Site Emergency Duty Roster

Individuals assigned to the On-Site Emergency Duty Roster shall be responsible for submitting the name(s) of qualified replacements for approval in the event they will be unable to fulfill On-Site Emergency Duty Roster assignments. Changes will be submitted, to the Manager -

Unit I or his designee no later than noon Wednesday of the week prior to the affected Section's duty. The Duty Roster master copy (maintained in the Shift Supervisor's office) and the Shift Supervisor's Duty Roster Status Board will be updated by the Manager - Unit I or his designee to reflect approved changes. Changes requested after noon Wednesday will be approved by the Duty Section Superintendent who will notify the Shift Foreman. In this case, the Shift Foreman or his designee will be responsible for updating the Shift Supervisor's Duty Roster Status Board.

4.2.2 Off-Site Emergency Duty Roster

Individuals assigned to the Off-Site Emergency Duty Roster shall be responsible for being available to report to their assigned station within six hours of notification. The Off-Site Duty Roster is established on a priority call-up basis. Duty member call-up will be conducted in priority order and in accordance with EPIP 1004.8. The Off-Site Emergency Duty Roster master copy will be maintained in the Shift Supervisor's Office by the Supervisor - Emergency Preparedness or his designee.

MINIMUM QUALIFICATIONS FOR EMERGENCY ORGANIZATION MEMBERS

ON-SITE DUTY PERSONNEL

POSITION

Emergency Director
(Duty Section Superintendent)
Communicator
Communications Assistants
Technical Support Center Coordinator
Technical Support Center Engineers

Radiological Assessment Coordinator
Radiological Analysis Support Engineers
Operations Support-Center Coordinator
Radiological Monitoring Teams *
On-site & Off-site (2-man teams)
Radiological Controls Technicians
Operations Coordinator
Radiological Controls Coordinator
Chemistry Coordinator
Emergency Maintenance Coordinator
Security Coordinator
Site Security Force *
Chemistry Technicians *
Maintenance Personnel *
Shift Supervisor *

POSITION TITLE OR EXPERTISE

Shift Supervisor or Shift Foreman or Plant Manager
or Senior Site Operations Management Person
Technical Analyst
Technical Analyst
Senior Lead Engineer
Assorted Discipline Engineers - i.e.:
Nuclear Engineers
Electrical Engineers
Mechanical Engineers
I&C Engineers

Senior Radiological Controls Technician/Foreman
Radiological Controls Engineering Personnel
Senior Operations, Maintenance, or Radiological
Controls Technician/Foreman
Radiological Controls Personnel as Monitors and
Site Personnel as Drivers
Radiological Controls Technicians
Shift Supervisor or Senior Operations Person (SRO)
Radiological Controls Technician/Foreman
Chemistry Technician/Foreman
Maintenance Technician/Foreman
Senior Security Person
Security Personnel
Chemistry Technicians
Maintenance Personnel
Shift Supervisor (SRO)

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MINIMUM QUALIFICATIONS FOR EMERGENCY ORGANIZATION MEMBERS

ON-SITE DUTY PERSONNEL

POSITION

POSITION TITLE OR EXPERTISE

Shift Foreman *

Shift Foreman (RO)

Operations Shift Personnel *

Control Room Operators (CRO)
Auxiliary Operators (AO)

Shift Technical Advisor *

Assorted Discipline Engineer

First Aid and Rescue Team *

Multi-Media First Aid Qualified Personnel

Fire Brigade Team *

Fire Brigade Qualified Personnel

8.0 * These positions are filled from the normal shift complement.

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MINIMUM QUALIFICATIONS FOR EMERGENCY ORGANIZATION MEMBERS

OFF-SITE DUTY PERSONNEL

POSITION

Emergency Support Director
 Emergency Support Staff
 Emergency Support Communicators
 Public Affairs Representative
 Group Leader Technical Support
 Technical Support Staff
 Technical Support Representative
 Group Leader Radiological Controls Support
 Group Leader Chemistry Support
 Group Leader Maintenance Support
 Group Leader Administrative Support
 Maintenance & Construction Manager
 Group Leader Security Support
 Personnel Monitoring Coordinator
 Radiological Controls Manpower Support
 Coordinator
 Environmental Assessment Coordinator
 Assistant Environmental Assessment
 Coordinator
 Emergency Planning Representative
 Environmental Assessment Group
 Security Support Staff
 Administrative Support Staff
 Personnel Monitoring Staff
 Chemistry Support Staff
 Maintenance Support Staff

POSITION TITLE OR EXPERTISE

Senior Management Representative
 Site Management Personnel
 Technical Analyst
 Public Information Department Duty Person
 Technical Functions Management Person
 Technical Functions Department Engineers
 Technical Functions Department Engineer
 Radiological Controls Engineer
 Chemistry Supervisor or Engineer
 Maintenance Foreman
 Senior Administration Department Person
 Maintenance & Construction Manager or Engineer
 Security Supervisor
 Radiological Controls Supervisor or Engineer
 Radiological Controls Engineer
 Environmental Assessment Supervisor or Engineer
 Environmental Assessment Engineer
 Emergency Preparedness Department Engineer
 Environmental Assessment Scientists
 Site Security Personnel
 Administration Department
 Site Dosimetry Personnel
 Site Chemistry Personnel
 Site Maintenance Personnel

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12/31/80

THREE MILE ISLAND NUCLEAR STATION UNIT NO. 1 ADMINISTRATIVE PROCEDURE 1051 EMERGENCY PLANNING DRILLS

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Unit 1 Staff Recommends Approval

Approval

N/A
Cognizant Dept. Head

Date

Unit 1 PORC Recommends Approval

M. A. Nelson
Chairman of PORC

Date

12/31/80

Manager TMI I Approval

R. J. Toole

Date

12-31-80

QA Modifications/Operations Mgr

N/A

Date

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THREE MILE ISLAND NUCLEAR STATION UNIT I ADMINISTRATIVE PROCEDURE 1051 EMERGENCY PLANNING DRILLS

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- 2.5 Radiological Controls Manager
- 2.6 Superintendent, Maintenance
- 2.7 Supervisor of Operations

3.0 REQUIREMENTS

- 3.1 Medical Emergency Drill
- 3.2 Fire Emergency Drill
- 3.3 Repair and Damage Control Drill
- 3.4 Communications Links Exercise
- 3.5 Radiation Emergency Exercise
- 3.6 Radiological Monitoring Drill
- 3.7 Health Physics Drill
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2. Drill Scenario Sheet
3. Emergency Drill Critique
Individual Action Item Assignment Sheet
4. Emergency Drill Overall Assignment Sheet
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1.0 GENERAL

1.1 Purpose

This procedure delineates the requirements for testing, evaluating and documenting emergency drills as required by reference 1.3.2.

1.2 Scope

This procedure applies to the conduct of drills carried out to measure the emergency preparedness of TMI Unit I personnel.

1.3 References

1.3.1 TMI Unit I Communications Plan

1.3.2 TMI Unit I Emergency Plan

2.0 RESPONSIBILITIES

2.1 The Emergency Planning Coordinator is responsible for the planning, scheduling and coordinating of all Emergency Plan related drills and exercises.

2.2 The Fire Brigade Training Coordinator is responsible to assist the Emergency Planning Coordinator in conducting the Fire Emergency Drill (subsection 3.2).

2.3 The Manager, Environmental Impact Assessment is responsible to assist the Emergency Planning Coordinator in conducting the Radiation Emergency Exercise (subsection 3.5).

2.4 The Manager, Health and Safety is responsible to assist the Emergency Planning Coordinator in conducting the Medical Emergency Drill (subsection 3.1).

2.5 The Radiological Controls Manager is responsible to assist the Emergency Planning Coordinator in conducting the following drills:

2.4.1 Radiation Emergency Exercises (subsection 3.5)

2.4.2 Radiological Monitoring Drill (subsection 3.6)

2.4.3 Health Physics Drill (subsection 3.7)

2.6 The Superintendent, Maintenance is responsible to assist the Emergency Planning Coordinator in conducting the Repair and Damage Control Drill (subsection 3.3).

2.7 The Supervisor of Operations is responsible to assist the Emergency Planning Coordinator in conducting the Communications Links Exercise (subsection 3.4).

3.0 REQUIREMENTS

3.1 Medical Emergency Drill

3.1.1 Involves the participation of some, if not all, of the local medical support personnel and organizations, and will involve simulated cases of contaminated injured personnel and/or radiation overexposure.

3.1.2 At least one drill shall be conducted every 12 (\pm 3) months.

3.2 Fire Emergency Drill

3.2.1 At least one drill shall be conducted per calendar quarter per shift.

3.2.2 At least one drill every 12 (\pm 3) months shall involve the participation of at least one, if not all, of the local fire departments.

3.3 Repair and Damage Control Drill

3.3.1 At least one drill shall be conducted every 12 (\pm 3) months.

3.4 Communications Links Exercise (See also reference 1.3)

- 3.4.1 At least once per month the communications links to state and local government agencies within the 10 - mile EPZ shall be exercised (operationally checked).
- 3.4.2 At least once every 12 (\pm 3) months, the communications links to federal emergency response organizations and state agencies within the 50 - mile EPZ shall be exercised (operationally checked).
- 3.4.3 At least once every 12 (\pm 3) months, the communications links between the nuclear facility, state and local emergency operations centers and field assessment teams shall be exercised (operationally checked).
- 3.5 Radiation Emergency Exercise
 - 3.5.1 A major drill appropriate to a site or general emergency shall be conducted every 12 (\pm 3) months.
 - 3.5.2 Conduct of the drill shall provide for the coordination with and participation of: offsite emergency response personnel, organizations and agencies; including those of state and county governments.
- 3.6 Radiological Monitoring Drill
 - 3.6.1 The drill shall include collection and analysis of all appropriate sample media for both onsite and offsite locations.
 - 3.6.2 At least one drill shall be conducted every 12 (\pm 3) months.
- 3.7 Health Physics Drill

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3.7.1 The drill will involve response to, and analysis of, simulated elevated airborne and liquid samples and direct radiation measurements in the environment.

3.7.2 at least one drill shall be conducted semi-annually.

3.8 Drill Implementation and Evaluation

3.8.1 All drills will be planned, developed and conducted by the Emergency Planning Coordinator through the use of the Drill Packet.

a. The Drill Packet is a separate set of check-off procedures and forms that is used for any of the emergency drills conducted at the TMI Nuclear Station.

b. The purposes of the Drill Packet are:

(1) to provide a step-by-step procedure for conducting a drill to ensure that all aspects of every drill are completed.

(2) To provide a means of documenting the fact that a drill has been performed.

3.8.2 When a drill is required, the Emergency Planning Coordinator shall obtain a Drill Packet and begin at step 1 Attachment 1 of the procedure and then follow the outline as indicated.

a. The Drill Packet shall not leave the Emergency Planning Coordinator at any time during the conduct of the drill and he shall be responsible for ensuring that the entire Drill Packet is completed and forwarded to the Training Department at the completion of the drill.

3.8.3 The completed Drill Packet will be sent to the NRC for review and comment no less than 60 days prior to the scheduled drill. The NRC will be invited to observe the scheduled drill by receipt of the Drill Packet.

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ENCLOSURE I (Page 1 of 6)

DRILL PACKET

1. Drill Classification and Scheduling

The Emergency Planning Coordinator shall check the appropriate box below and note the date and time the drill is to be held.

<u>DATE</u>	<u>INITIALS</u>		Date	Time
_____	_____	Medical Emergency	_____	_____
_____	_____	Fire Emergency	Date	Time
_____	_____	Repair and Damage Control	Date	Time
_____	_____	Communications Links Test	Date	Time
_____	_____	Radiation Emergency Exercise	Date	Time
_____	_____	Radiological Monitoring	Date	Time
_____	_____	Health Physics Drill	Date	Time

2. Scenario Development and Routing

The Emergency Planning Coordinator and a designated assistant as indicated in section 3.0 of AP 1051, Emergency Planning Drills, shall be responsible for preparing the drill scenario.

<u>Date</u>	<u>Initials</u>	
_____	_____	Meet with designated assistant and develop emergency drill scenario.
_____	_____	Sign emergency drill scenario cover sheet and forward scenario to Manager, TMI Unit I for review and approval.
_____	_____	Forward emergency drill scenario to Vice President of Nuclear Operations for review and approval if Drill is annual Radiation Emergency Exercise.

8.0

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ENCLOSURE I (Page 2 of 6)

DRILL PACKET

3. Outside Agency Notification

The Emergency Planning Coordinator is responsible for coordinating efforts with outside participating emergency personnel and organizations. Notification has been made to the agencies indicated below that will participate in or observe the drill.

<u>DATE</u>	<u>INITIALS</u>	
_____	_____	Pennsylvania Emergency Management Agency
_____	_____	Dauphin County Emergency Management Agency
_____	_____	York County Emergency Management Agency
_____	_____	Lancaster County Emergency Management Agency
_____	_____	Cumberland County Emergency Management Agency
_____	_____	Lebanon County Emergency Management Agency
_____	_____	State Police
_____	_____	State Bureau of Radiation Protection
_____	_____	Nuclear Regulatory Commission, Bethesda, MD
_____	_____	Resident Inspector and Region I
_____	_____	Local Fire Companies
		(Specify) _____

_____	_____	Hershey Medical Center, Local Physicians

ENCLOSURE I (Page 3 of 6)

DRILL PACKET

<u>DATE</u>	<u>INITIALS</u>	
_____	_____	Fire Company Ambulance Services (Specify) - _____ _____ _____
_____	_____	Other (Specify) - _____ _____ _____

4. Notification of TMI Departments

<u>DATE</u>	<u>INITIALS</u>	
_____	_____	VP/TMI - 1
_____	_____	VP/TMI - 2
_____	_____	Unit 1 Manager
_____	_____	Site Security Manager
_____	_____	Public Affairs
_____	_____	Media Relations

All notifications will be made by memo or phone contact no earlier than one week and no later than one day prior to scheduled drill date.

5. Observers

The Emergency Planning Coordinator is responsible for assigning observers to monitor personnel and areas involved in the drill.

<u>DATE</u>	<u>INITIALS</u>	Assign all observers and complete the <u>Emergency Drill Overall Assignment Sheet</u> (Enclosure 4).
_____	_____	

6. Predrill Meeting

DATE INITIALS

_____ _____ Meet with all observers and other personnel involved with the drill to brief them on scope, sequence of events, and responsibilities.

_____ _____ Pass out Emergency Drill Observer Critique Sheets (Enclosure 5) to all observers.

_____ _____ Prepare and pass out Drill Data Cards to appropriate observers.

7. Drill

The Emergency Planning Coordinator is responsible for commencing the drill as scheduled under part 1 of this Drill Packet.

DATE INITIALS

_____ _____ Position all observers and ensure that the drill is initiated in a manner consistent with safe plant operations.

8. Post Drill Requirements

Upon completion of the drill, the Emergency Planning Coordinator is responsible for meeting with all observers and holding a critique to review and discuss deficiencies and corrective actions.

DATE INITIALS

_____ _____ Meet with all observers to review their significant comments.

_____ _____ Hold drill critique to review drill with all involved personnel.

_____ _____ Have all attending personnel fill out the Training Program Administrative Form. Collect all Emergency Drill Observer Critique Sheets (Enclosure 5).

ENCLOSURE I (Page 5 of 6)

DRILL PACKET

9. Action Items

The Emergency Planning Coordinator is responsible for initiating any Emergency Drill Critique Individual Action Item Assignment Sheets (Enclosure 3) based upon recommendations as a result of the drill.

DATE INITIALS

_____ _____ Initiate all required Emergency Drill Critique Individual Action Item Assignment Sheets (Enclosure 3)), and forward them to the Manager, TMI Unit I for review and approval.

10. Documentation of and Routing of Drill and Critique Results

The Emergency Planning Coordinator is responsible for ensuring that all documents generated as a result of the drill are collected and forwarded to appropriate personnel and/or departments.

DATE INITIALS

_____ _____ Prepare and distribute to all TMI Department Heads a memorandum detailing the results of the drill.

_____ _____ Forward the completed drill packet to Training. Items included in the drill packet are the following:

_____ _____ Training Program Administrative Forms

_____ _____ Drill Scenario and Cover Sheet (Enclosure 2)

_____ _____ Drill Data Cards

_____ _____ Copy of Drill memorandum sent to all Department Heads.

_____ _____ Emergency Drill Observer Critique Sheets (Enclosure 5)

_____ _____ Emergency Drill Observer Assignment Sheet (Enclosure 4)

_____ _____ Completed Drill Packet Check-off Sheets (Enclosure 1)

ENCLOSURE I (Page 6 of 6)

DRILL PACKET

11. Action Item Assignment Sheets

The Emergency Planning Coordinator shall maintain a file of "open" Individual Action Item Assignment Sheets for each drill. Once all action items for a particular drill are closed out, the Emergency Planning Coordinator shall forward them to the Manager, Training for filing with the Drill Packet.

ENCLOSURE 2 (Page 1 of 3)

DRILL SCENARIO

The following scenario was developed by:

	NAME	TITLE	SIGNATURE
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____

Review and Approval

_____	_____	(Annual Radiation
V.P. Nuclear Operations	Date	Emergency Exercise)
_____	_____	
Unit Manager	Date	
_____	_____	(Not participating
Shift Supervisor (SRO)	Date	drill)

ENCLOSURE 2 (Page 2 of 3)

DRILL SCENARIO

Type of Drill: _____

Date and time to be conducted: _____

Objectives: (including participation of offsite organizations)

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

Scope: (General overview of event)

- Initial Conditions:
- 1.
 - 2.
 - 3.
 - 4.
 - 5.
 - 6.
 - 7.
 - 8.

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DRILL SCENARIO

Detailed Scenario: Use additional sheets as necessary)

16.0

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ENCLOSURE 3

EMERGENCY DRILL CRITIQUE

INDIVIDUAL ACTION ITEM ASSIGNMENT SHEET

DRILL _____ ACTION ITEM NO. _____

DATE _____ RESPONSIBLE DEPT. _____

ACTION ITEM DUE DATE _____

ACTION RECOMMENDED: _____

Emergency Planning Coordinator

REVIEWED BY MANAGER, TMI UNIT I AND FORWARDED TO EMERGENCY PLANNING COORDINATOR

APPROVED: _____

Manager, TMI Unit I

ACTION TAKEN:

ITEM CLOSE OUT DATE _____

DEPARTMENT HEAD _____

RETURN TO EMERGENCY PLANNING COORDINATOR

NOTE: EMERGENCY PLANNING COORDINATOR FORWARD TO, MANAGER, TRAINING TO
FILE WITH DRILL PACKET.

ENCLOSURE 4
EMERGENCY DRILL
OVERALL ASSIGNMENT SHEET

TYPE OF EMERGENCY _____

DATE _____

AREA OF RESPONSIBILITY	OBSERVER
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____
8. _____	_____
9. _____	_____
10. _____	_____
11. _____	_____
12. _____	_____
13. _____	_____
14. _____	_____
15. _____	_____

ENCLOSURE 5

EMERGENCY DRILL

OBSERVER CRITIQUE SHEET

OBSERVER _____ DATE _____

TYPE OF DRILL _____

AREA OF RESPONSIBILITY _____

TIME: _____ EVENT: _____

COMMENTS:

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12/15/80

THREE MILE ISLAND NUCLEAR STATION UNIT NO. 1 ADMINISTRATIVE PROCEDURE EMERGENCY PLANNING TRAINING

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Unit 1 Staff Recommends Approval

Approval N/A
Cognizant Dept. Head

Date _____

Unit 1 PORC Recommends Approval

Melalehon
Chairman of PORC

Date 12/15/80

Manager TMI I Approval

R. Toole

^{12/15}
Date 12-15-80

QA Modifications/Operations Mgr

_____. Date _____

FOR USE IN UNIT 1 ONLY

THREE MILE ISLAND NUCLEAR STATION
UNIT NO. I ADMINISTRATIVE PROCEDURE 1052
EMERGENCY PLANNING TRAINING

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- 1.2 Scope
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2.0 RESPONSIBILITIES

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- 2.3 Emergency Plan Training Instructors

3.0 REQUIREMENTS

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- 3.2 Introduction to Emergency Plan Course
- 3.3 Accident Management Personnel Training Program
- 3.4 Radiological Controls/Chemistry Personnel Training Program
- 3.5 First Aid and Rescue Teams Training Program
- 3.6 Emergency Repair Team Training Program
- 3.7 Site Security and Support Security Forces Training Program
- 3.8 Fire Brigade Training Program

List of Enclosures

1. Emergency Plan Training Matrix

11/2/06

1.0 GENERAL

1.1 Purpose

1.1.1 This procedure delineates the training requirements for personnel involved in a TMI emergency which comes under the scope of the Three Mile Island Unit I Emergency Plan.

1.1.2 This training is intended to prepare these personnel to successfully manage their emergency duties as outlined in the Emergency Plan and the Implementing Document for TMI Unit I.

1.2 Scope

This procedure applies to all personnel assigned to the Emergency Duty Rosters for TMI Unit I and those responsible to carry it out as delineated in section 2.0 following.

1.3 References

1.3.1 TMI Unit I Emergency Plan and it's implementing procedures.

1.3.2 TMI Unit I Training Manual

1.3.3 AP 1051, Emergency Planning Drills

1.3.4 EP 1202-31, Fire

2.0 RESPONSIBILITIES

2.1 The Emergency Planning Coordinator is responsible for reviewing training outlines with respect to the Emergency Plan and assuring their credibility.

2.2 The Manager of Training is responsible for scheduling training programs and for maintaining training documents in accordance with reference 1.3.2.

- 2.3 Emergency Plan Training Instructors are responsible for ensuring that their assigned tasks are performed in accordance with specified procedures, are documented properly, and upon completion, results are forwarded to the Manager of Training.

3.0 REQUIREMENTS

3.1 General

- 3.1.1 Training programs will be conducted for both on and off site organizations, individuals or agencies as outlined in this procedure (see also Enclosure 1).
- 3.1.2 Lesson plans or outlines will be provided for each instructor's program and the designated instructor will be responsible for identifying and correcting weak areas within his program in accordance with applicable sections of reference 1.3.2.
- 3.1.3 The Specialized Emergency Plan Training as established in accordance with Table 12 of reference 1.3.1, is designed to instruct all personnel assigned to the GPU-Nuclear emergency organization in their individual responsibilities with respect to the plan and the implementing procedure on an annual basis, not to exceed 15 months. Before entering into the Specialized Emergency Plan Training Program, all personnel assigned to the emergency organization must have successfully completed the Introduction to Emergency Plan Training Course. (See section 3.2 following).

- 3.1.4 All TMI staff personnel assigned to the Emergency Duty Rosters for TMI Unit I are required to attend the Specialized Emergency Plan training once per year, not to exceed 15 months.
- 3.1.5 Employees at TMI who do not have specific emergency responsibilities receive review training for Unusual Event, Alert, Site Emergency and General Emergency conditions. The review which also includes the employees response to emergency alarms, is conducted in conjunction with the General Employee Training Program (GET).
- 3.1.6 All newly hired TMI Staff members or vendors working at TMI, receive a Basic Health Physics Training Program which includes a review of the types of emergencies and the employees' response to alarms. The Manager of Training or his designee is responsible for the administration of this program.
- 3.1.7 Periodic drills will be conducted to evaluate the training and readiness of TMI Unit I personnel in accordance with reference 1.3.3.
- 3.2 Introduction to Emergency Plan Training
 - 3.2.1 All on and off-site staff comprising the personnel categories listed on Posted Emergency Duty Rosters will be required to attend the Introduction to Emergency Plan Training courses annually, not to exceed 15 months.

- 3.2.2 This course shall include but not be limited to:
- a. Definitions.
 - b. Applicability and Scope.
 - c. Summary of the TMI Emergency Planning Programs.
 - d. Emergency Conditions.
 - e. Normal Station Organization.
 - f. Onsite Emergency Organization.
 - g. Activation of Emergency Organizations.
 - h. Protective Action Guides, Evacuation and Personnel Accountability.
 - i. Emergency Communication Network.
 - j. Emergency Plan Implementing Procedures:
 - 1) Unusual Event (1004.1)
 - 2) Alert (1004.2)
 - 3) Site Emergency (1004.3)
 - 4) General Emergency (1004.4)

- 3.2.3 The offsite emergency organizations listed will be invited at least annually, to participate in one of the Introduction to Emergency Plan Training courses conducted at TMI. These agencies will be provided with copies of the lesson plans for review prior to utilization in a formalized training program.
- a. Pennsylvania Emergency Management Agency.
 - b. Dauphin County Emergency Management Agency.
 - c. York County Emergency Management Agency.

- d. Lancaster County Emergency Management Agency.
- e. Cumberland County Emergency Management Agency.
- f. Lebanon County Emergency Management Agency.
- g. Pennsylvania Bureau of Radiation Protection (Dept. of Environmental Resources).
- h. Pennsylvania State Police.
- i. Middletown Police Department.
- j. Fire Companies from the five county areas listed b-f above.
- k. Hershey Medical Center, Local Physicians, and Fire Company Ambulance Services.

3.2.4 In addition to the General Emergency Plan Training Course, outside emergency organizations will also be invited, to attend various specialized Emergency Plan Training Courses listed in the next Section that may apply to their job description.

3.3 Accident Management Personnel Training Program

3.3.1 Accident Management Personnel are called upon for overall management of the accident and are listed in Table 12 of reference 1.3.1.

3.3.2 This course shall include, but will not be limited to:

- a. Organizational Control of Emergencies.
- b. Emergency Measures.
- c. Emergency Facilities and Equipment (to include Emergency Communications).

d. Emergency Plan Implementing Procedures:

- (1) Unusual Event (1004.1)
- (2) Alert (1004.2)
- (3) Site Emergency (1004.3)
- (4) General Emergency (1004.4)

3.4 Radiological Controls/Chemistry Personnel Training Program

3.4.1 Radiological Controls/Chemistry Personnel are called upon to assess the emergency situations in terms of radiological/chemical considerations (Dose calculations, sample collection, sample analysis, etc.)

3.4.2 This course shall include but not be limited to:

- a. Emergency measures
- b. Emergency Plan Implementing Procedures:
 - (1) Unusual Event (1004.1)
 - (2) Alert (1004.2)
 - (3) Site Emergency (1004.3)
 - (4) General Emergency (1004.4)
 - (5) Offsite Dose Projections (1004.7)
 - (6) In-Plant Radiological Controls During Emergencies (1004.9)
 - (7) Onsite Radiological Monitoring (1004.10)
 - (8) Offsite Radiological Monitoring (1004.11)
 - (9) Environmental Monitoring (1004.12)
 - (10) Contaminated Injuries and Radiation Overexposure (1004.16)

- (11) Personnel/Vehicle Monitoring (1004.20)
- (12) Handling High Activity Radiological samples
(1004.33)

3.5 First Aid and Rescue Teams Training Programs

- 3.5.1 First Aid Rescue teams are called upon to rescue injured personnel and provide initial first aid during a medical emergency.
- 3.5.2 Each member of the First Aid Rescue Team will receive the Standard Red Cross Multimedia First Aid Course. Satisfactory completion of this course will certify them as a First Aid Rescue Team member for a period of three years. A refresher course will be made available for the team members annually and will include a review of the Multimedia Course material, Emergency Medical Assistance Program, and Onsite Emergency Medical Contracts.
- 3.5.3 This course shall include, but will not be limited to:
 - a. Emergency Measures
 - b. Emergency Plan Implementing Procedures:
 - (1) Unusual Event (1004.1)
 - (2) Alert (1004.2)
 - (3) Site Emergency (1004.3)
 - (4) General Emergency (1004.4)
 - (5) Contaminated Injuries and radiation
Overexposure (1004.16)
 - (6) Search and Rescue (1004.18)

3.6 Emergency Repair Team Training Program

3.6.1 Emergency Repair Teams are called upon to assist in the determination and repair of any equipment damaged during an emergency.

3.6.2 This training program will focus on the radiological aspect of repair work rather than on specific equipment. This course shall include but will not be limited to:

- a. Emergency measures.
- b. Emergency Plan Implementing Procedures:
 - (1) Unusual Event (1004.1)
 - (2) Alert (1004.2)
 - (3) Site Emergency (1004.3)
 - (4) General Emergency (1004.4)
 - (5) In-Plant Radiological Controls During Emergencies (1004.9)
 - (6) Contaminated Injuries and Radiation Overexposure (1004.16)
 - (7) Recovery Operations (1004.24)

3.7 Site Security and Support Security Forces Training Program

3.7.1 During an emergency Plant Security Personnel are called upon for site protection, site security and for personnel accountability tabulation.

7.2 This course shall include but will not be limited to:

- a. Emergency Measures.
- b. Emergency Plan Implementing Procedures:
 - (1) Unusual Event (1004.1)
 - (2) Alert (1004.2)
 - (3) Site Emergency (1004.3)
 - (4) General Emergency (1004.4)
 - (5) Contaminated Injuries and Radiation Overexposure (1004.16)
 - (6) Search and Rescue (1004.18)
- c. Personnel accountability and evacuation.

3.8 Fire Brigade Training Program

3.8.1 The Fire Brigade Team is called upon to respond to fire emergencies at Three Mile Island.

3.8.2 This course shall include, but will not be limited to:

- a. Emergency measures.
- b. Emergency Plan Implementing Procedures:
 - (1) Unusual Event (1004.1)
 - (2) Alert (1004.2)
 - (3) Site Emergency (1004.3)
 - (4) General emergency (1004.4)
 - (5) Search and Rescue (1004.18)
- c. Hazardous materials control during fire conditions
- d. Emergency Procedure 1202-31, Fire.

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ENCLOSURE 1 (Page 1 of 3) EMERGENCY PLAN TRAINING MATRIX

LESSON PLAN TITLES

TITLE/POSITION
EMERGENCY DIRECTOR

EMERGENCY SUPPORT
DIRECTOR
TSC COORDINATOR

OPERATIONS
COORDINATOR
RAD ASSESSMENT
COORDINATOR
SHIFT SUPERVISOR

SHIFT FOREMAN

EMER. MAINT.
COORDINATOR
OSC COORDINATOR

HP COORDINATOR

CHEMISTRY
COORDINATOR
SECURITY
COORDINATOR
TECHNICAL SUPPORT
ENGINEERS
RADIOLOGICAL ANALYSIS
SUPPORT ENGINEERS
OPERATIONS SHIFT
PERSONNEL
HP TECHNICIANS

CHEMISTRY
TECHNICIANS
SITE SECURITY
FORCE
COMMUNICATOR

COMMUNICATIONS
ASSISTANTS

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ENCLOSURE 1 (Page 2 of 3) EMERGENCY PLAN TRAINING MATRIX

LESSON PLAN TITLES

TITLE
POSITION
EMERGENCY SUPPORT STAFF
PUBLIC AFFAIRS REPRESENTATIVE
EMERGENCY SUPPORT COMMUNICATOR
GROUP LEADER ADMINISTRATIVE SUPPORT
GROUP LEADER RAD-CON SUPPORT
GROUP LEADER CHEMISTRY SUPPORT
GROUP LEADER TECHNICAL SUPPORT
GROUP LEADER MAINTENANCE SUPPORT
ENVIRONMENTAL ASSESSMENT COORDINATOR
GROUP LEADER SECURITY SUPPORT
RAD-CON MANPOWER SUPPORT COORDINATOR
ASSISTANT ENVIRONMENTAL ASSESSMENT COORDINATOR
CHEMISTRY SUPPORT STAFF
TECHNICAL SUPPORT STAFF
MAINTENANCE SUPPORT STAFF
ADMINISTRATIVE SUPPORT STAFF
SECURITY SUPPORT STAFF
ENVIRONMENTAL ASSESSMENT STAFF
PERSONNEL MONITORING COORD.
DOSIMETRY STAFF
BIOASSAY STAFF
TECHNICAL SUPPORT REPRESENTATIVE

ENCLOSURE 1 (Page 3 of 3)
EMERGENCY PLAN TRAINING MATRIX

LESSON PLAN
TITLES

- AGENCY-
ORGANIZATION
- _____ PENNSYLVANIA EMERGENCY
MANAGEMENT AGENCY
- _____ DAUPHIN COUNTY EMERGENCY
MANAGEMENT AGENCY
- _____ YORK COUNTY EMERGENCY
MANAGEMENT AGENCY
- _____ LANCASTER COUNTY EMERGENCY
MANAGEMENT AGENCY
- _____ CUMBERLAND COUNTY EMERGENCY
MANAGEMENT AGENCY
- _____ LEBANON COUNTY EMERGENCY
MANAGEMENT AGENCY
- _____ PENNSYLVANIA BUREAU OF
RADIATION PROTECTION
(DEPARTMENT OF
ENVIRONMENTAL RESOURCES)
- _____ PENNSYLVANIA
STATE POLICE
- _____ MIDDLETOWN
POLICE DEPARTMENT
- _____ DAUPHIN COUNTY
FIRE AND AMBULANCE
- _____ YORK COUNTY
FIRE AND AMBULANCE
- _____ LANCASTER COUNTY
FIRE AND AMBULANCE
- _____ CUMBERLAND COUNTY
FIRE AND AMBULANCE
- _____ LEBANON COUNTY
FIRE AND AMBULANCE
- _____ HERSHEY
MEDICAL CENTER
- _____ LOCAL PHYSICIANS
- _____
- _____
- _____

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THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 ADMINISTRATIVE PROCEDURE 1053
EMERGENCY EQUIPMENT READINESS

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01/07/81

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Unit 1 Staff Recommends Approval

Approval NA Date _____
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

Bill Nelson Date 1/6/81
Chairman of PORC

Manager TMI I Approval

R. Toole Date 1-7-81
1/7/81

QA Modifications/Operations Mgr

_____ Date _____

FOR USE IN UNIT I ONLY

THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 ADMINISTRATIVE PROCEDURE 1053
EMERGENCY EQUIPMENT READINESS

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 - 2.1 Radiological Controls Manager
 - 2.2 Supervisor, Radiological Controls
 - 2.3 Radiological Controls Foreman
- 3.0 REQUIREMENTS
 - 3.1 Inspections and Calibrations
 - 3.2 Procedure
 - 3.3 Final Conditions

List of Enclosures

- 1. Minimum Requirements for Kits/Lockers
- 2. Inventory Checklist - Emergency Kit
- 3. Inventory Checklist - Instrument Kit
- 4. Inventory Checklist - Emergency Locker
- 5. Operational Checks for Emergency Equipment

1.0 GENERAL

1.1 Purpose

This procedure delineates the requirements to maintain availability and reliability of Emergency Equipment.

1.2 Scope

This procedure applies to the emergency equipment designated for use in implementing the Emergency Plan.

1.3 References

1.3.1 TMI Unit 1 Emergency Plan.

1.3.2 RC 1742, Operation and Calibration of Eberline RM-14 Beta-Gamma Survey Meter.

1.3.3 RC 1758, Operation and Calibration of Portable Air Samplers.

1.3.4 RC 1762, Operation and Calibration of the RO-2.

1.3.5 RC 1764, Operation and Calibration of the SAM-2 Analyzer.

1.3.6 RC 1772, Dosimeter Calibration and Leak Test.

1.3.7 RC 1778, Emergency Equipment and Inventory Control.

2.0 RESPONSIBILITIES

2.1 The Radiological Controls Manager has the ultimate responsibility for all radiological control emergency equipment and it's availability and reliability.

2.2 The Supervisor, Radiological Controls, or his designee, shall assign personnel to perform inventory and calibration checks on the emergency kits and lockers under his jurisdiction.

2.3 The Radiological Controls Foreman shall ensure that the following items are performed during an inventory:

2.3.1 Complete all inventory checklists for that kit/locker.

- 2.3.2 Replace all missing items.
- 2.3.3 Verify calibrations, perform operational checks, note discrepancies on inventory checklist, and notify the Radiological Controls Foreman/Supervisor of these discrepancies and/or broken seals.
- 2.3.4 Emergency instrumentation removed from lockers/kits shall be replaced prior to end of working shift.

3.0 REQUIREMENTS

3.1 Inspections and Calibrations

- 3.1.1 Emergency kits/lockers shall have inventory and calibration checks performed quarterly, with the exception of respiratory protection equipment which shall be checked monthly.
- 3.1.2 Prior to removing an instrument for repair/calibration from any emergency equipment storage location, an alternate equivalent instrument shall be provided.
- 3.1.3 Calibrations of emergency instrumentation shall be performed in accordance with references 1.3.2 through 1.3.6.
- 3.1.4 Emergency lockers/kits shall be visually inspected for lock seal integrity monthly. Lockers or kits with suspect integrity shall be inventoried. Emergency lockers/kits shall be inventoried after each use including use for training.
- 3.1.5 Perform an inventory/inspection or calibration at any time as directed by the Supervisor, Radiological Controls.

3.2 Details

3.2.1 Emergency equipment and radiac instruments shall be located in the following areas in accordance with the TMI Unit 1 Emergency Plan to allow protection of Emergency Personnel and availability of equipment:

- a) Unit 1 Processing Center
- b) Unit 1 Service Building Auditorium
- c) Unit 1 Reactor Building Access Control Point and Unit 1 Health Physics Laboratory
- d) Unit 1 Control Room/Shift Supervisors Office (SSO)
- e) Unit 1 Warehouse
- f) Near site Emergency Operations Facility (EOF) (TMI Observation Center)
- g) Alternate Emergency Operation Facility (AEOF)(Crawford Station, Middletown, Pa.)
- h) Technical Support Center (TSC)

3.2.2 Inventories shall only be considered complete when all required items are returned to the kit/locker, all instruments in the kit/locker are within calibration and all operational checks on equipment/instruments are complete

- a) Operational checks shall consists of battery check, response check and visual inspection for obvious damage. (See Enclosure 5 for operational check of emergency equipment).

3.2.3 All emergency kits and lockers shall have lock seals or padlocks, as appropriate.

- 3.2.4 Key control for all emergency kits/lockers shall be maintained by the Radiological Controls Department with duplicates maintained in the Emergency Control Center (Control Room/Shift Supervisors Office).
- 3.2.5 All completed inventory checklists shall be returned to the Radiological Controls Foreman/Supervisor for approval and filing.
- 3.3 FINAL CONDITIONS
 - 3.3.1 All equipment/instruments have been inventoried, and inventory checklists have been approved by the Radiological Controls Foreman/Supervisor and forwarded to the Radiological Control Department Administrative Assistant.
 - 3.3.2 Used kits/lockers are reinventoried, resupplied and locked/lock sealed.

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ENCLOSURE 1

Minimum Requirements for Kits/Lockers

<u>LOCATION - UNIT 1</u>	<u>KITS/LOCKERS REQUIRED</u>
1. Processing Center	8 Kits (4 instruments 4 emergency)
2. Service Building Auditorium	1 Locker (Protective Clothing Only)
3. Reactor Building Access Control Point/Health Physics Laboratory	1 Locker (Protective Clothing, Respirators, Instruments)
4. Control Room/Shift Supervisor's Office	1 locker (Respirators, instrs)
5. Warehouses (Unit I)	1 Emergency Kit
6. Alternate Near Site Emergency Operations Facility	1 Locker (Protective Clothing, Respirators, Instruments Kit, Decontamination Materials)
7. Near Site Emergency Operations Facility	1 Locker (Protective Clothing, Respirators, Instrument Kits)
8. Technical Support Center	1 Locker (Protective Clothing, Respirators)

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ENCLOSURE 1

Inventory Requirements - Emergency Kit

EMERGENCY KIT REQUIREMENTS

MINIMUM QUANTITY

1. Topographical Map (REMP and Site)	1 each
2. Procedures (EPIP 1004.10, 1004.11, 1004.12)	1 each
3. Inventory Checklist	1 each
4. Flashlight	1 each
5. Writing tablets, pencils, pens, felt tip markers, wax pencils	4 each
6. Polyethylene Sheeting (minimum size-4'x8', 8'x16')	2 each
7. Smear and Air Sample envelopes	100 each
8. Air Sampler filters	2 boxes
9. Iodine Cartridges	25 each
10. Smear Discs	2 boxes
11. Radiological Warning Signs	5 each
12. Water Sample Bottle	5 each
13. First Aid Kit (5 people)	1 each
14. High and Low Range Pocket Dosimeters (Processing Center only)	5 each (High and Low Range)
15. Dosimeter Charger	1 each
*16. Resusitator (Processing Center only)	1 each
*17. Inverters-portable power (Processing Center only)	5 total
*18. Two-way radios (Processing Center only)	5 each
*19. RM-14 Beta-Gamma Survey Meter	2 each

* May be kept in lockers

ENCLOSURE 1

Inventory Requirements - Instrument Kit

INSTRUMENT KIT REQUIREMENTS

MINIMUM QUANTITY

- | | |
|---|--------|
| *1. Air Sampler (Radico HD28/H809V or equivalent) | 1 each |
| 2. Dose Rate Meter (RO-2 or equivalent) | 1 each |
| 3. Stabilized Assay Meter (SAM II RD-19) | 1 each |
| 4. Battery and Charger for SAM II | 1 each |
| 5. Stop watch | 1 each |
| 6. Inventory Checklist | 1 each |

* May be kept in lockers

ENCLOSURE 2
INVENTORY CHECKLIST - EMERGENCY KIT

EMERGENCY KIT No. _____ EMERGENCY LOCKER No. N/A LOCATION _____ KIT/LOCKER TYPE: _____
 DATE _____ INVENTORY BY _____ APPROVED BY _____ EMERGENCY INSTRUMENT XX

FOR USE IN UNIT 1 ONLY	ITEM	NUMBER REQUIRED	NUMBER PRESENT	S/N	CAL* DATE	OPERATIONAL* CHECK	INVENTORY COMPLETE BY:
1.	Topographical Map - REMP map	1		N/A	N/A	N/A	
2.	Topographical Map - Site	1		N/A	N/A	N/A	
3.	Procedures - EPIP 1004.10, 1004.11, 1004.12	1 ea.		N/A	N/A	N/A	
4.	Flashlight	1		N/A	N/A	N/A	
5.	Tablets, pens, pencils, wax pencil	4 ea.		N/A	N/A	N/A	
6.	Polyethylene Sheeting (8' x 16' as minimum)	2		N/A	N/A	N/A	
7.	Polyethylene Sheeting (4' x 8' as minimum)	2		N/A	N/A	N/A	
8.	Smears/Air Sample envelopes	100		N/A	N/A	N/A	
9.	Air Sample Filters	2 bxs		N/A	N/A	N/A	
10.	Iodine Cartridges	5 min. 25 max		N/A	N/A	N/A	
11.	Disc Smears	2 bxs		N/A	N/A	N/A	
12.	Radiological Warning Signs and Inserts	5		N/A	N/A	N/A	
13.	Water Sample Bottles	5		N/A	N/A	N/A	

FOR USE IN UNIT 1 ONLY

ENCLOSURE 2
INVENTORY CHECKLIST - EMERGENCY KIT

EMERGENCY KIT No. _____ EMERGENCY LOCKER No. N/A LOCATION _____ KIT/LOCKER TYPE: EMERGENCY XX
DATE _____ INVENTORY BY _____ APPROVED BY _____ INSTRUMENT _____

ITEM	NUMBER REQUIRED	NUMBER PRESENT	S/N	CAL* DATE	OPERATIONAL* CHECK	INVENTORY COMPLETE BY:
14 First Aid Kit	1		N/A	N/A	N/A	

REMARKS: _____

Kit locked and sealed:
by:

*If applicable

FOR USE IN UNIT 1 ONLY

FOR USE IN UNIT 1 ONLY

ENCLOSURE 3
INVENTORY CHECKLIST - INSTRUMENT KIT

EMERGENCY KIT No. _____ EMERGENCY LOCKER No. N/A LOCATION _____ KIT/LOCKER TYPE: _____
 DATE _____ INVENTORY BY _____ APPROVED BY _____ EMERGENCY INSTRUMENT XX

ITEM	NUMBER REQUIRED	NUMBER PRESENT	S/N	CAL* DATE	OPERATIONAL* CHECK	INVENTORY COMPLETE BY:
1. Air Sampler (Radeco HD-28/H809V/equiv)	1					
2. Dose Rate Meter (RO-2/equivalent)	1					
3. Stabilized Assay Meter (SAM-II) (May be stored separately)	1					
4. Battery and Charger for SAM-II	1		N/A	N/A	N/A	
5. Stopwatch	1		N/A	N/A		
6. 12 V. AC/DC Converter	1		N/A			

REMARKS: _____

Kit locked and
sealed:
by:
*If applicable

FOR USE IN UNIT 1 ONLY

FOR USE IN UNIT 1 ONLY

ENCLOSURE 4
INVENTORY CHECKLIST - EMERGENCY LOCKER

EMERGENCY KIT No. N/A EMERGENCY LOCKER No. LOCATION Service Building Auditorium KIT/LOCKER TYPE:
DATE INVENTORY BY APPROVED BY EMERGENCY INSTRUMENT XX

ITEM	NUMBER REQUIRED	NUMBER PRESENT	S/N	CAL* DATE	OPERATIONAL* CHECK	INVENTORY COMPLETE BY:
1. Protective Clothing - full set	25		N/A	N/A	N/A	

REMARKS: _____

Locker locked and
sealed:
by:
*If applicable

FOR USE IN UNIT 1 ONLY

FOR USE IN UNIT 1 ONLY

ENCLOSURE 4
INVENTORY CHECKLIST - EMERGENCY LOCKER

EMERGENCY KIT No. N/A EMERGENCY LOCKER No. LOCATION Reactor Bldg. Access Control KIT/LOCKER TYPE:
 DATE INVENTORY BY APPROVED BY EMERGENCY INSTRUMENT XX

ITEM	NUMBER REQUIRED	NUMBER PRESENT	S/N	CAL* DATE	OPERATIONAL* CHECK	INVENTORY COMPLETE BY:
1. Protective Clothing - full set	25		N/A	N/A	N/A	
2. Full-face Canister Respirators	25		N/A	N/A	N/A	
3. Respirator Canisters	25		N/A	N/A	N/A	
4. Air Sample Filters	2 bxs		N/A	N/A	N/A	
5. Disc Smears	2 bxs		N/A	N/A	N/A	
6. Smears/Air Sample Envelope	100		N/A	N/A	N/A	
7. Iodine Cartridges	5 min 25 max		N/A	N/A	N/A	
8. Dose Rate Meter (RO-2/Equivalent)	2					
9. Beta-gamma Contamination Meter (RM-14/equivalent)	1					
10. Teletector (HP Access Point Locker Only)	6					
11. Pocket Dosimeters 0-200 mRem (Control Room and RC Access only)	25		N/A			
12. Pocket Dosimeters 0-5 REM (Control Room and RC Access only)	25		N/A			

FOR USE IN UNIT 1 ONLY

FOR USE IN UNIT 1 ONLY

ENCLOSURE 4
INVENTORY CHECKLIST - EMERGENCY LOCKER

EMERGENCY KIT No. N/A EMERGENCY LOCKER No. LOCATION Reactor Bldg. Access Control KIT/LOCKER TYPE:
DATE INVENTORY BY APPROVED BY EMERGENCY INSTRUMENT XX

ITEM	NUMBER REQUIRED	NUMBER PRESENT	S/N	CAL* DATE	OPERATIONAL* CHECK	INVENTORY COMPLETE
13. Dosimeter Charger	1					
14. Resuscitator-(Control Room and RC Access Only)	1					

REMARKS: _____

Locker locked and
sealed:
by:
*If applicable

FOR USE IN UNIT 1 ONLY

FOR USE IN UNIT 1 ONLY

ENCLOSURE 4
INVENTORY CHECKLIST - EMERGENCY LOCKER

EMERGENCY KIT No. N/A EMERGENCY LOCKER No. LOCATION Alternate NEOF KIT/LOCKER TYPE:
 DATE INVENTORY BY APPROVED BY EMERGENCY XX
 INSTRUMENT

ITEM	NUMBER REQUIRED	NUMBER PRESENT	S/N	CAL* DATE	OPERATIONAL* CHECK	INVENTORY COMPLETE BY:
1. Protective Clothing - full set	25		N/A	N/A	N/A	
2. Full-face Canister Respirators	25		N/A	N/A	N/A	
3. Respirator Canisters	25		N/A	N/A	N/A	
4. Topographical Map - REMP Map	1		N/A	N/A	N/A	
5. Topographical Map - Site	1		N/A	N/A	N/A	
6. Procedures - EPIP 1004.10, 1004.11, 1004.12	1 ea.		N/A	N/A	N/A	
7. Tablets, pens, pencils, wax pencil	4 ea.		N/A	N/A	N/A	
8. Polyethylene Sheeting (4' x 8' as minimum)	2		N/A	N/A	N/A	
9. Air Sample Filters	2 bxs		N/A	N/A	N/A	
10. Disc Smears	2 bxs		N/A	N/A	N/A	
11. Smears/Air Sample Envelope	100		N/A	N/A	N/A	
12. Iodine Cartridges	5 min 25 max		N/A	N/A	N/A	
13. Air Sampler (Radeco HD-28/H809V/equiv	1					
14. Dose Rate Meter (RO-2/Equivalent)	2					

FOR USE IN UNIT 1 ONLY

FOR USE IN UNIT 1 ONLY

ENCLOSURE 4
INVENTORY CHECKLIST - EMERGENCY LOCKER

EMERGENCY KIT No. N/A EMERGENCY LOCKER No. LOCATION Alternate NEOF KIT/LOCKER TYPE:
 DATE INVENTORY BY APPROVED BY EMERGENCY INSTRUMENT XX

FOR USE IN UNIT 1 ONLY

FOR USE IN UNIT 1 ONLY

ITEM	NUMBER REQUIRED	NUMBER PRESENT	S/N	CAL* DATE	OPERATIONAL* CHECK	INVENTORY COMPLETE BY:
15 Beta-gamma Contamination Meter (RM-14/equivalent)	1					
16 Dosimeter Charger	1					

REMARKS: _____

Locker locked and
sealed:
by:
*If applicable

ENCLOSURE 4
INVENTORY CHECKLIST - EMERGENCY LOCKER

EMERGENCY KIT No. N/A EMERGENCY LOCKER No. LOCATION Unit 1 Warehouse KIT/LOCKER TYPE:
 DATE INVENTORY BY APPROVED BY EMERGENCY INSTRUMENT XX

ITEM	NUMBER REQUIRED	NUMBER PRESENT	S/N	CAL* DATE	OPERATIONAL* CHECK	INVENTORY COMPLETE BY:
1. Protective Clothing - full set	25		N/A	N/A	N/A	
2. Full-face Canister Respirators	25		N/A	N/A	N/A	
3. Respirator Canisters	25		N/A	N/A	N/A	
4. Topographical Map - REMP Map	1		N/A	N/A	N/A	
5. Topographical Map - Site	1		N/A	N/A	N/A	
6. Procedures - EPIP 1004.10, 1004.11, 1004.12	1 ea.		N/A	N/A	N/A	
7. Tablets, pens, pencils, wax pencil	4 ea.		N/A	N/A	N/A	
8. Polyethylene Sheeting (4' x 8' as minimum)	2		N/A	N/A	N/A	
9. Air Sample Filters	2 bxs		N/A	N/A	N/A	
10. Disc Smears	2 bxs		N/A	N/A	N/A	
11. Smears/Air Sample Envelope	100		N/A	N/A	N/A	
12. Iodine Cartridges	5 min 25 max		N/A	N/A	N/A	
13. Air Sampler (Radeco HD-28/H809V/equiv)	1					
14. Dose Rate Meter (RO-2/Equivalent)	2					

FOR USE IN UNIT 1 ONLY

FOR USE IN UNIT 1 ONLY

ENCLOSURE 4
INVENTORY CHECKLIST - EMERGENCY LOCKER

EMERGENCY KIT No. N/A EMERGENCY LOCKER No. LOCATION Control Room SSO KIT/LOCKER TYPE:
 DATE INVENTORY BY APPROVED BY EMERGENCY INSTRUMENT XX

ITEM	NUMBER REQUIRED	NUMBER PRESENT	S/N	CAL* DATE	OPERATIONAL* CHECK	INVENTORY COMPLETE BY:
1. Protective Clothing - full set	25		N/A	N/A	N/A	
2. Full-face Canister Respirators	25		N/A	N/A	N/A	
3. Respirator Canisters	25		N/A	N/A	N/A	
4. Topographical Map - REMP Map	1		N/A	N/A	N/A	
5. Topographical Map - Site	1		N/A	N/A	N/A	
6. Procedures - EPIP 1004.10, 1004.11, 1004.12	1 ea.		N/A	N/A	N/A	
7. Tablets, pens, pencils, wax pencil	4 ea.		N/A	N/A	N/A	
8. Polyethylene Sheeting (4' x 8' as minimum)	2		N/A	N/A	N/A	
9. Air Sample Filters	2 bxs		N/A	N/A	N/A	
10. Disc Smears	2 bxs		N/A	N/A	N/A	
11. Smears/Air Sample Envelope	100		N/A	N/A	N/A	
12. Iodine Cartridges	5 min 25 max		N/A	N/A	N/A	
13. Air Sampler (Radeco HD-28/H809V/equiv)	1					
14. Dose Rate Meter (RO-2/Equivalent)	2					

FOR USE IN UNIT ONLY

FOR USE IN UNIT 1 ONLY

ENCLOSURE 4
INVENTORY CHECKLIST - EMERGENCY LOCKER

EMERGENCY KIT No. N/A EMERGENCY LOCKER No. LOCATION Control Room SSO KIT/LOCKER TYPE:
DATE INVENTORY BY APPROVED BY EMERGENCY INSTRUMENT XX

FOR USE IN UNIT 1 ONLY

FOR USE IN UNIT 1 ONLY

ITEM	NUMBER REQUIRED	NUMBER PRESENT	S/N	CAL* DATE	OPERATIONAL* CHECK	INVENTORY COMPLETE BY:
15 Beta-gamma Contamination Meter (RM-14/equivalent)	1					
16 Dosimeter Charger	1					

REMARKS: _____

Locker locked and
sealed:
by:
*If applicable

ENCLOSURE 4
INVENTORY CHECKLIST - EMERGENCY LOCKER

EMERGENCY KIT No. N/A EMERGENCY LOCKER No. LOCATION NEOF KIT/LOCKER TYPE:
 DATE INVENTORY BY APPROVED BY EMERGENCY INSTRUMENT XX

ITEM	NUMBER REQUIRED	NUMBER PRESENT	S/N	CAL* DATE	OPERATIONAL* CHECK	INVENTORY COMPLETE BY:
1. Protective Clothing - full set	25		N/A	N/A	N/A	
2. Full-face Canister Respirators	25		N/A	N/A	N/A	
3. Respirator Canisters	25		N/A	N/A	N/A	
4. Topographical Map - REMP Map	1		N/A	N/A	N/A	
5. Topographical Map - Site	1		N/A	N/A	N/A	
6. Procedures - EPIP 1004.10, 1004.11, 1004.12	1 ea.		N/A	N/A	N/A	
7. Tablets, pens, pencils, wax pencil	4 ea.		N/A	N/A	N/A	
8. Air Sample Filters	2 bxs		N/A	N/A	N/A	
9. Disc Smears	2 bxs		N/A	N/A	N/A	
10. Smears/Air Sample Envelope	100		N/A	N/A	N/A	
11. Iodine Cartridges	5 min 25 max		N/A	N/A	N/A	
12. Air Sampler (Radeco HD-28/H809V/equiv)	1					
13. Dose Rate Meter (RO-2/Equivalent)	2					

FOR USE IN UNIT 1 ONLY

FOR USE IN UNIT 1 ONLY

ENCLOSURE 4
INVENTORY CHECKLIST - EMERGENCY LOCKER

EMERGENCY KIT No. N/A EMERGENCY LOCKER No. _____ LOCATION _____
DATE _____ INVENTORY BY _____ APPROVED BY _____
KIT/LOCKER TYPE: EMERGENCY INSTRUMENT XX

FOR USE IN UNIT 1 ONLY

ITEM	NUMBER REQUIRED	NUMBER PRESENT	S/N	CAL* DATE	OPERATIONAL* CHECK	INVENTORY COMPLETE BY:
------	--------------------	-------------------	-----	--------------	-----------------------	---------------------------

14. Beta-gamma Contamination Meter (RM-14/equivalent)	1					
15. Dosimeter Charger	1					

REMARKS: _____

Locker locked and
sealed:
by:
*If applicable

FOR USE IN UNIT 1 ONLY

ENCLOSURE 5
Operational Check of Emergency Equipment

: NOTE: Initial each step as operational check of Emergency :
: Equipment is performed. :

Initial

RADIAC INSTRUMENTS

- 1. Obtain "button" source (Cs137) from Radiation Control Laboratory for response test on instrumentation.

: NOTE: Person initialing for source is responsible to return :
: source to Radiation Control Laboratory. :

- 2. Battery check of instrumentation.
Remarks _____

- 3. Response check of instrumentation.
Remarks _____

- 4. Visual Inspection of instrumentation.
Remarks _____

- 5. Return "button" source to Radiation Control Laboratory.

AIR SAMPLING EQUIPMENT

- 1. Load Air Sampler with cartridge and filter paper

2. Turn Air Sampler on and verify slow rates from 1 cfm to 7 cfm.

3. Unload Air Sampler and return Air Sampler to cabinet.

12 V. AC/DC 120 V. INVERTERS

: NOTE: Electrical personnel shall accompany Radiological :
: Control Personnel for operational check of AC/DC :
: 120V/12V power inverters. :

- 1. Hook-up inverter to 12V power supply.

FOR USE IN UNIT I ONLY

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- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
2. Turn inverter on and allow to operate for one (1) minute.
 3. Load inverter by plugging in air sampler unit and turn Air Sample unit on.
 4. With volt-ohm meter check output of second female plug. Voltage should be 110 V. AC \pm 10 Volts.
Remarks _____

 5. Turn off Air Sampler and measure output voltage of female plug. Voltage should be 110 V. AC \pm 10 V.
Remarks _____

 6. Remove Air Sampler Unit plug from inverter. Remove volt-ohm unit from inverter.
 7. Turn off inverter and disconnect from 12V. power supply.
 8. Return 12 V. AC/DC 120V. Power inverter to cabinet.

FOR USE IN UNIT 1 ONLY

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THREE MILE ISLAND NUCLEAR STATION UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.1 UNUSUAL EVENT

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Spill of Nuc. Reactor Reg.

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Unit 1 Staff Recommends Approval

Approval

NA
Cognizant Dept. Head

Date

Unit 1 PORC Recommends Approval

McAvelon
Chairman of PORC

Date

3/12/81

Manager TMI I Approval

G Toole

Date

3-13-81

QA Modifications/Operations Mgr

NA

Date

FOR USE IN UNIT 1 ONLY

THREE MILE ISLAND NUCLEAR STATION
UNIT 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.1
UNUSUAL EVENT

1.0 PURPOSE

The purpose of this procedure is to define the conditions that shall be regarded as an Unusual Event for Three Mile Island Nuclear Station (Unit 1) and to:

- a. Ensure necessary actions are taken to protect the health and safety of the public.
- b. Ensure necessary actions are taken to notify GPU-Nuclear management and offsite emergency response organizations.
- c. Mobilize the appropriate portions of the emergency response organization to initiate appropriate emergency actions.

The Emergency Director is responsible for implementing this procedure.

NOTE: Emergency Director responsibilities that may NOT be delegated include:

- a. Decision to notify offsite emergency management agencies.
- b. Making protective action recommendations as necessary to offsite emergency management agencies.
- c. Classification of Emergency Event.
- d. Determining the necessity for onsite evacuation based upon potential exposure to non-essential personnel.
- e. Authorization for emergency workers to exceed 10 CFR 20 radiation exposure limits.

2.0 ATTACHMENTS

2.1 Attachment I, Unusual Event Notifications

2.2 Attachment II, Emergency Status Report.

3.0 EMERGENCY ACTION LEVELS

INITIATING CONDITION

INDICATION

- | | |
|---|---|
| 3.1 Reactor trip followed by an unplanned automatic ECCS initiation. | Reactor trip alarm (F-1-1) followed by HP Injection Flow alarm (E-2-6 and/or E-3-6). |
| 3.2 Radiological effluent technical specification limits being approached. | As indicated by a valid Alert alarm on RM-A5, RM-A8, RM-A9, or RM-L7. |
| 3.3 Reactor coolant total activity > 50 $\mu\text{Ci/ml}$ but < 130 $\mu\text{Ci/ml}$ indicating possible fuel defect. | As indicated by either:
a. Reactor coolant specific activity as determined by sample and analysis.*
b. RM-L1 Low > 6.35×10^4 cpm but < 1.65×10^5 cpm.
c. RM-L1 High $\geq 1.11 \times 10^3$ cpm but < 2.9×10^3 cpm. |
| 3.4 Abnormal coolant temperature and/or pressure or abnormal fuel temperatures outside of technical specification limits. | Any condition whereby the Technical Specification Safety Limits 2.1.1 and 2.1.2 are exceeded without a reactor trip and confirmed by an engineering analysis. |
| 3.5 Exceeding primary system leak rate technical specification. | As indicated by either:
a. Total reactor coolant leakage > 10 gpm as measured by daily leak rate test.
b. Unidentified reactor coolant leakage ≥ 1 gpm as measured by daily leak rate test. |
| 3.6 Failure of a safety or relief valve in a safety related system to close following reduction of applicable pressure. | Failure of the following to close:
a. Pressurizer Safety Valve(s), Power Operated Relief Valve(s) or OTSG safety valve(s) as indicated by the accoustical valve |

- monitoring or flow measuring equipment.*
- b. OTSG Atmospheric Relief Valve(s) or Decay Heat System relief valve.
- 3.7 A loss of On-site AC power resulting in a technical Specification shutdown. As indicated by a loss of the ability to meet any one of the conditions of Technical Specification Limiting Condition for Operation 3.7.2.
- 3.8 A sustained loss of offsite power resulting in a reactor trip. As indicated by a reactor trip caused by loss of power.
- 3.9 Loss of containment integrity requiring shutdown by technical specifications. As indicated by a loss of the ability to meet any one of the conditions of Technical Specification Limiting Condition for Operation 3.6.
- 3.10 Loss of engineered safety features or fire protection system function requiring shutdown by technical specifications (e.g. because of malfunction, personnel error or procedural inadequacy). As indicated by a loss of the ability to meet any one of the conditions requiring shutdown of Technical Specification Limiting Conditions of Operation 3.3 or 3.18.
- 3.11 Fire in a permanent plant structure which cannot be controlled by the fire brigade within 10 minutes of discovery. Shift Supervisors judgement, based on advice of the fire brigade leader.
- 3.12 Fire outside plant structures requiring offsite firefighting assistance. Shift Supervisors judgement, based on request of the fire brigade leader for offsite firefighting assistance.
- 3.13 Indications or alarms on process or effluent parameters not functional in control room to an extent requiring plant shutdown or other significant loss of assessment or communication capability (e.g., plant computer, Safety Parameter Display System, all meteorological instrumentation). As indicated by a loss of indications, assessment or communications capability requiring plant shutdown as determined by the Shift Supervisor.

3.14 Security threat or attempted entry or attempted sabotage.

Shift Supervisor's judgment, based on advice of the Security Duty Sergeant.

3.15 Natural phenomenon being experienced or projected beyond usual levels.

As indicated by any one of the following:

- a. A valid alarm on PRF-1-2 ($\geq .01g$) "Threshold Seismic Condition" indicating an earthquake.
- b. A projected river stage > 302 ft. at the River Water In-take Structure (50 year flood level).
- c. High winds ≥ 75 mph as indicated on Wind Speed Recorder (NDS-501) or National Weather Service projection of tornado or hurricane force winds.

3.16 Other hazards being experienced or projected.

As indicated by any one of the following as judged by the Shift Supervisor.

- a. Onsite aircraft crash outside the protected area fence and not impacting permanent plant structures.
- b. Train derailment within the Exclusion Area.
- c. Unanticipated explosion detected near or onsite.
- d. Near or onsite toxic or flammable gas or liquid release which could affect the habitability required for normal plant operability.
- e. Turbine rotating component failure causing a Reactor trip.

3.17 Transportation of any contaminated injured personnel from site to offsite medical facility.

As judged by the Shift Supervisor.

3.18 Valid, unanticipated ALERT alarms on any two or more area and/or process radiation monitors at the same time.

Any two or more radiation monitor ALERT alarms are received in the Control Room simultaneously.

- 3.19 A reactor trip caused by either:
- Any reactor coolant pump failure.
 - Total loss of ability to feed OTSG.
- As indicated by reactor trip caused by a validated low-flow trip or by a total loss of feedwater.
- 3.20 Valid Reactor Building Evacuation Alarm.
- Receipt of a valid Reactor Building Evacuation Alarm.
- 3.21 Unanticipated positive reactivity insertion potentially degrading the level of safety of the plant.
- As determined by the Shift Supervisor or as indicated by any one of the following:
- An uncompensated operating reactivity change resulting in a valid high reactor coolant outlet temperature alarm.
 - An unanticipated criticality.
 - An inadvertent rod withdrawal at power operations resulting in a reactor trip.
 - An inadvertent moderator dilution resulting in a valid high reactor coolant outlet temperature alarm and/or a Reactor trip.
- 3.22 Stuck-Out, Stuck-In or Dropped Control Rod requiring shutdown by Technical Specifications.
- As indicated by a loss of the ability to meet any of the conditions of Technical Specifications Limiting Conditions of Operation 3.5.2.2 for one control rod.
- 3.23 Other plant conditions exist that warrant increased awareness on the part of State and/or Local offsite authorities.
- Shift Supervisor judges that:
- Unit shutdown is other than a normal controlled shutdown. For example, the cooldown rate exceeds Technical Specification Limits.
 - Unit is in other than a normal condition during operation and the abnormal condition is of

- c. such a nature as to warrant notification. For example, cracking is found in primary system piping during operation.
- c. Any other condition exists which has the potential for escalating into a higher level of emergency and, therefore, warrants notification.

* These indications may be determined via instrumentation that will be installed or expanded as required by NUREG 0578 prior to restart.

4.0 EMERGENCY ACTIONS

Initials

____ 4.1 Upon recognition that any of the action levels above have been reached or exceeded, the Shift Supervisor shall assume the duties of Emergency Director. (Event should be assessed and declared within ten (10) minutes of the occurrence.)

____ 4.2 Announce, or have announced, the following message over the public address system (merged):

"ATTENTION ALL PERSONNEL; ATTENTION ALL PERSONNEL: AN UNUSUAL EVENT HAS BEEN DECLARED IN UNIT ONE. ALL MEMBERS OF THE ON-SHIFT EMERGENCY ORGANIZATION REPORT TO YOUR STATIONS. ALL OTHER PERSONNEL SHOULD CONTINUE WITH THEIR NORMAL DUTIES UNLESS FURTHER INSTRUCTION IS GIVEN. Give a brief description of the event and repeat the announcement.)

____ 4.3 Announce to the Control Room personnel that _____
Name

has assumed the duties of Emergency Director.

____ 4.4 Assign a Communicator to make notifications to persons and/or agencies per Attachment I, Section I.

- ____ 4.5 Contact the Duty Section Superintendent and discuss:
- a. Plant status
 - b. Which members of the Duty Section are required to augment the Onsite Emergency Organization.
- ____ 4.6 Depending on the emergency action level which was reached or exceeded, ensure that the appropriate Emergency Operating Procedures have been implemented and/or the following Emergency Plan Implementing Procedures as required:
- a. Contaminated Injuries and Radiation Overexposure(1004.16)
 - b. High winds - Tornado/High Winds (1004.22).
- ____ 4.7 Assign a Communications Assistant and direct him to notify the Public Affairs Representative and to call out the required Duty Section personnel.
- ____ 4.8 Record the following message on the Code-A-Phone 700:
- "This is the Communications Assistant (identify by name) .
An Unusual Event has been declared in Unit One. At the sound of the tone, leave your name and report to your assigned emergency station."
- The Code-A-Phone 700 shall then be placed in the ANN-REC mode of operation.
- ____ 4.9 If local services (fire, ambulance, police) are required, direct the Communicator to notify Dauphin County Emergency Operatins Center and request the appropriate assistance. Notify security (N/S gate) to begin preparations to expedite entry of responding emergency personnel (Police/Fire Ambulance). Security should be advised to Dosimetry Badge Issuance.

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- ___ 4.10 If changes in onsite or offsite radiation levels are expected, direct the Radiological Assessment Coordinator to:
- a. Dispatch offsite and/or onsite radiation monitoring teams in accordance with EPIP 1004.10 and 1004.11.
 - b. Implement Offsite Dose Projections procedure (1004.7).
- ___ 4.11 If additional resources or notifications are required, refer to Assistance and Notification Procedure (1004.6).
- ___ 4.12 If the emergency involves in-plant radiological controls problems, direct the Radiological Assessment Coordinator to implement Radiological Controls During Emergencies (1004.9).
- ___ 4.13 Assign an individual to complete Attachment II, Section I and give to the Radiological Assessment Coordinator to transmit to the Bureau of Radiation Protection.
- ___ 4.14 Direct the Radiological Assessment Coordinator to complete Attachment II, Section II to transmit to the Bureau of Radiation Protection if a radioactive release has occurred or is occurring.
- ___ 4.15 Verify that communications and documentation are maintained per procedure Communications and Recordkeeping (1004.5).
- ___ 4.16 If applicable, direct the operations Coordinator dispatch Emergency Repair/Operations personnel to investigate the identified problem area in accordance with procedure 1004.21.
- ___ 4.17 After 30 minutes, confirm that BRP verification has been made. If no verification, instruct the Communicator to proceed to Attachment I, Section 1.2.(d).
- ___ 4.18 Based upon assessment of plant conditions, either close out the Unusual Event or escalate to a higher class of emergency.

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- _____ a. If Recovery Phase criteria have been met (see Recovery Procedure 1004.24), close out the Unusual Event by directing the Communicator to perform the notifications in Attachment I, Section III. Implement the Recovery Procedure (1004.24).
- _____ b. If emergency action levels exceed those for an Unusual Event, escalate to a higher class, notify BRP on Radiological Line and make remaining notifications in accordance with the appropriate emergency procedure as specified in Step 5.2.

_____ 4.19 If necessary, due to potential contamination of normally non-contaminated sumps and/or tanks, or the need to closely monitor liquid releases, initiate procedure (1004.14), monitoring/controlling liquid discharges.

5.0 FINAL CONDITIONS

- _____ 5.1 A higher class of emergency has been declared by the Emergency Director after meeting or exceeding an emergency action level of one of the higher classes and one of the following procedures is being implemented:
 - a. Alert (1004.2)
 - b. Site Emergency (1004.3)
 - c. General Emergency (1004.4)
- _____ 5.2 The Unusual Event has been closed out since no recovery operations are required.
- _____ 5.3 The Unusual Event can be shifted to a recovery mode by implementing the procedure Recovery Operations (1004.24).

ATTACHMENT I SECTION I

INITIAL CONTACT

INITIAL The Communicator shall notify the following agencies and personnel and update the Attachment I, Section II checklist for each notification.

1. DAUPHIN COUNTY EMERGENCY OPERATION CENTER

(If this is a reclassification notification, go to Item 3, Unaffected Control Room)

a. Telephone: 9-911 or 9-236-7976

b. Message:

This is _____ at the Three Mile Island Nuclear
(name/title)

Station Unit 1 calling. We have declared an Unusual Event at
_____ hours, and (based upon Emergency Director judgement,
(time)

deliver one of the following statements):

1) We have not had a radioactive release

OR

2) We have had a radioactive release, but do not expect this situation to result in detectable changes in offsite radiation levels, OR

3) We have had a radioactive release, but do not know if there

ATTACHMENT I SECTION I

INITIAL CONTACT

INITIAL

will be detectable changes in offsite radiation levels. We will be keeping the Bureau of Radiation Protection (BRP) informed of the results of our investigation, OR

- 4) We have had a radioactive release and expect to be able to detect changes in offsite radiation levels but they are expected to be less than the levels calling for an alert. We will be keeping the Bureau of Radiation Protection informed.

- c. Give a short non-technical description of the emergency and any potentially affected population and areas.

2. PENNSYLVANIA EMERGENCY MANAGEMENT AGENCY (PEMA)

(If this is a reclassification notification, go to Item 3, Unaffected Control Room).

- a. Telephone: 9-783-8150. (A diverter forwards this call to a PEMA duty officer after working hours.)

NOTE: If no contact, proceed to step 2.d.

ATTACHMENT I SECTION I

INITIAL CONTACT

b. Message:

This is Three Mile Island Nuclear Station Unit 1 calling. We have an emergency. Give me the Operations Duty Officer. (When Duty Officer answers:)

This is _____ at the Three Mile Island
(name/title)

Nuclear Station Unit 1 calling. We have declared an Unusual Event at _____ hours. We request you
(time)

contact Bureau of Radiation Protection. Bureau of Radiation Protection call back should be made on the Radiological Line or 948-8069, 948-8071 or 944-0839. (Based upon Emergency Director judgement, deliver one of the following statements):

- 1) We have not had a radioactive release, OR
- 2) We have had a radioactive release, but do not expect this situation to result in detectable changes in offsite radiation levels, OR

ATTACHMENT I SECTION I

INITIAL CONTACT

INITIAL

- 3) We have had a radioactive release, but do not know if there will be detectable changes in offsite radiation levels. We will be keeping the Bureau of Radiation Protection informed of the results of our investigation, OR
- 4) We have had a radioactive release and expect to be able to detect changes in offsite radiation levels, but they will be less than the levels calling for an Alert. We will be keeping the Bureau of Radiation Protection informed.

c. Give a short non-technical description of the emergency, and any potentially affected populations and areas:

d. If PEMA was unable to be contacted, contact Dauphin County; advise them that PEMA cannot be contacted and direct them to notify PEMA, BRP, and Lancaster, York, Lebanon, and Cumberland counties.

ATTACHMENT I SECTION I

INITIAL CONTACT

INITIAL

e. Message verification:

Expect Bureau of Radiation Protection (BRP) contact after PEMA notification. If no BRP confirmation is received within 30 minutes, notify PEMA of the situation. If unable to contact PEMA (line busy), call Dauphin County and notify them that BRP has not verified initial contact. Request Dauphin County to contact PEMA and/or BRP.

3. UNAFFECTED CONTROL ROOM

a. Telephone: 8066, 8067, 8068 or inter Control Room Hot-Line

b. MESSAGE:

Give a brief description of Plant Status to Shift Supervisor.

4. INSTITUTE OF NUCLEAR POWER OPERATIONS

(Do not notify if this is a reclassification notification.)

a. Telephone: 404-953-0904

b. MESSAGE:

This is _____ at Three Mile Island Nuclear
(name/title)

Station Unit 1 calling. We have declared an Unusual Event at
_____ hours. (Give a brief description of the emergency.)
(time)

ATTACHMENT I SECTION I

INITIAL CONTACT

INITIAL

5. Notify the following personnel/agencies if the emergency situation is such that notification is deemed appropriate:

_____ a. Hershey Medical Center 9-534-8333

Notification to be performed per procedure 1004.16.

_____ b. Pennsylvania State Police 9-234-4051

MESSAGE:

This is _____ at the Three Mile Island Nuclear Station
(name/title)

Unit 1 calling. We have declared an Unusual Event at

_____ hours. We _____ had a radioactive
(time) (have/have not)

release. We require assistance as follows:

(State any assistance required).

_____ c. Radiation Management Corporation 73-1-215-243-2950

EMERGENCY NUMBER:

73-1-215-243-2990

MESSAGE:

This is _____ at the Three Mile Island Nuclear Station
(name/title)

Unit 1 calling. We have declared an Unusual Event at _____
(time)

h. (Give a brief description of the emergency). We

ATTACHMENT I SECTION I

INITIAL CONTACT

INITIAL

_____ had a radioactive release. We require the
(have/have not)

following assistance: (State any assistance required.)

- d. American Nuclear Insurers 74-1-203-677-7305

MESSAGE:

This is _____ at the Three Mile Island Nuclear
(name/title)

Station Unit 1 calling. We have declared an Unusual Event
at _____ hours. (Give a brief description of the emergency).
(time)

6. NUCLEAR REGULATORY COMMISSION OFFICE Bethesda, MD.

(Communications with the NRC will be continuously maintained fol-
lowing contact.)

- a. Telephone: Emergency Notification System (ENS)
b. MESSAGE:

This is _____ at Three Mile Island Nuclear Station
(name/title)

Unit 1 calling. We declared an Unusual Event at _____
(time)

hours.

- 1) We have not had a radioactive release, OR

ATTACHMENT I SECTION I

INITIAL CONTACT

- 2) We have had a radioactive release, but do not expect this situation to result in detectable changes in offsite radiation levels, OR
 - 3) We have had a radioactive release, but do not know if there will be detectable changes in offsite radiation levels. We will be keeping the Bureau of Radiation Protection informed of the results of our investigation, OR
 - 4) We have had a radioactive release and expect to be able to detect changes in offsite radiation levels but they will be less than the levels calling for an Alert. We expect these levels to be less than 10 mRem/hr (gamma). We will be keeping the Bureau of Radiation Protection informed.
- c. Give a short technical description of emergency and potentially affected populations and areas: _____
- _____
- _____

DATE _____ TIME OF COMPLETION _____ COMPLETED BY _____

ATTACHMENT I SECTION II

SECONDARY CONTACT

INITIAL

The Communicator shall notify the following agencies and personnel and update the Attachment I, Section II checklist:

1. Bureau of Radiation Protection

a. Telephone: Radiological Line

b. MESSAGE:

This is _____ at the Three Mile Island Nuclear Station
(name/title)

Unit 1. We have closed-out the Unusual Event at _____ hours.
(time)

Please notify PEMA, Dauphin, Lancaster, York Lebanon and Cumberland counties.

2. Unaffected Control Room

a. Telephone: 8066, 8067, 8068

b. MESSAGE:

Notify Shift Supervisor of close-out of the Unusual Event

3. Nuclear Regulatory Commission Office - Bethesda, Md.

a. Telephone: Emergency Notification System (ENS)

ATTACHMENT I SECTION II

SECONDARY CONTACT

INITIAL

(RED PHONE)

b. MESSAGE:

This is _____ at the Three Mile Island Nuclear
(name/title)

Station Unit I. We have closed-out the Unusual Event at
_____ hours.

(time)

4. If applicable, notify the following persons and/or agencies of
close-out of the Unusual Event:

- _____ a. Hershey Medical Center: 9-534-8333
- _____ b. Pennsylvania State Police: 9-234-4051
- _____ c. Radiation Management Corporation (RMC)
73-1-215-243-2950 or 73-1-215-243-2990
- _____ d. American Nuclear Insurers: 74-1-203-677-7305
- _____ e. Others: As directed by the Emergency Director.

DATE _____ TIME _____ COMPLETED BY _____

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ATTACHMENT I
SECTION II

NOTIFICATION CHECKLIST

AGENCY	TIME OF INITIAL NOTIFICATION OR ESCALATION				TIME OF DE-ESCALATION OR CLOSE OUT			
	UNUSUAL EVENT	ALERT	SITE EMERGENCY	GENERAL EMERGENCY	UNUSUAL EVENT	ALERT	SITE EMERGENCY	GENERAL EMERGENCY
Dauphin County								
PEMA								
Unit 2 Control Room								
INPO								
NRC								
Hershey Medical Center	*	*	*	*				
State Police	*	*	*	*				
BMC	*	*	*	*				
ANI	*	*	*	*				
B & W	N/A	N/A	N/A	N/A				
Conrail	N/A	N/A	N/A	N/A				
5 Affected Counties	N/A	N/A	N/A	N/A				

* Optional

POOR ORIGINAL

ATTACHMENT II
EMERGENCY STATUS REPORT

SECTION I

1. Description of Emergency: _____

2. Has the Reactor tripped Yes / No
3. Did the Emergency Safeguards Systems actuate Yes / No

If so, which ones

- a. High Pressure Injection Yes / No
- b. Low Pressure Injection Yes / No
- c. Core Flood Yes / No
- d. Phase 2 Reactor Building Isolation Yes / No

4. What is the status of the plant

- a. At power
- b. Hot standby
- c. Hot Shutdown
- d. Cooling down
- e. Reactor Pressure _____ psig
- f. Reactor Temperature _____ °F

ATTACHMENT II
EMERGENCY STATUS REPORT

SECTION II

Fill out if a release has occurred or is occurring. Provide BRP all available information for verification call.

1. What is the approximate radioactive source term discharge rate from the plant (As determined by the Projected Dose Calculation procedure (1004.7)).
 - a) Noble gases _____ Ci/sec
 - b) Iodine _____ Ci/sec
2. What is the approximate meteorology
 - a) Wind speed _____ mph
 - b) Wind direction _____
 - c) Stability Class Stable / Neutral / Unstable
3. What is the projected whole body dose rate and iodine concentration at the nearest offsite downwind point
 - a) _____ mR/hr
 - b) _____ uCi/cc Iodine
 - c) _____ (Location)
4. Estimated duration of the release
 - a) If the release is terminated:
Start time _____ Stop Time _____ Duration _____

ATTACHMENT II

EMERGENCY STATUS REPORT

SECTION II

Start time _____ Stop time _____ Duration _____

b) If the release is still in progress:

Start time _____

Estimated duration _____ (hrs / min / sec)

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1004.2
Revision 3
03/24/81

THREE MILE ISLAND NUCLEAR STATION UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.2 CONTROLLED COPY FOR ALERT USE IN UNIT 1 ONLY

*Office of Nuclear Reactor
Reg.*

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Unit 1 Staff Recommends Approval

Approval NA Date
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

Met Nelson Date 3/20/81
Chairman of PORC

Manager TMI I Approval

Ry Toole Date 3-24-81
3/23/81

QA Modifications/Operations Mgr

NA Date

THREE MILE ISLAND NUCLEAR STATION
UNIT 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.2
ALERT

1.0 PURPOSE:

The purpose of this procedure is to define the conditions that shall be regarded as an Alert for Three Mile Island Nuclear Station (Unit 1) and to:

- a. Ensure necessary actions are taken to protect the health and safety of the public.
- b. Ensure necessary actions are taken to notify GPU-Nuclear management and offsite emergency response organizations.
- c. Mobilize the appropriate portions of the emergency response organization to initiate appropriate emergency actions.

The Emergency Director is responsible for implementing this procedure.

NOTE: Emergency Director responsibilities that may not be delegated include:

- a. Decision to notify offsite emergency management agencies.
- b. Making protective action recommendations as necessary to offsite emergency management agencies.
- c. Classification of Emergency Event.
- d. Determining the necessity for onsite evacuation.
- e. Authorization for emergency workers to exceed 10 CFR 20 radiation exposure limits.

2.0 ATTACHMENTS

- 2.1 Attachment I, Alert Notifications
- 2.2 Attachment II, Emergency Status Report

3.0 Emergency Action LevelsINITIATING CONDITION

3.1 Fuel cladding failure

3.2 Primary to secondary leakage
 $\geq 1\text{gpm}$ but $< 50\text{gpm}$.3.3 Primary coolant leak rate of
greater than 50 gpm.3.4 Radiation levels or radioactive
contamination which indicate a
severe degradation in the control
of radioactive materials.INDICATION

As indicated by any one of the following.

- a. Reactor coolant activity
 $\geq 130\ \mu\text{Ci/ml}$ but $< 300\ \mu\text{Ci/ml}$ as sampled and analyzed.*
- b. RM-L1 (High) reading $\geq 2.9 \times 10^3\ \text{cpm}$ but $< 6.66 \times 10^3\ \text{cpm}$.
- c. RM-L1 (Low) reading $\geq 1.65 \times 10^5\ \text{cpm}$ but $< 3.81 \times 10^5\ \text{cpm}$.

As indicated by valid high alarms on RM-A5 and/or the Steam Line Monitor* in conjunction with reactor coolant loss not otherwise identifiable as determined by daily leak rate test.

As indicated by increased makeup flow in excess of letdown flow by 50 gpm or makeup tank level decreasing at approximately 2 inches per minute.

- As indicated by either:
- a. Valid, unanticipated high alarms on any two area and/or process radiation monitors (RMA, RML or RMG monitors) at the same time.
 - b. Receipt of a validated report of airborne or waterborne contaminants as determined by sample and analysis or general radiation readings as determined by periodic survey to have increased by a factor of 1000 above normal.

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1004.2
Revision 0

- 3.5 Loss of all offsite power coincident with a loss of Diesel Generators for less than 15 minutes.
- 3.6 Loss of all onsite DC power for less than 15 minutes.
- 3.7 Reactor coolant pump locked rotor at power leading to fuel failure.
- 3.8 Complete loss of any function needed for plant cold shutdown.
- 3.9 Failure of the reactor protection system to initiate and complete a trip when required.
- 3.10 Fuel damage accident with release of radioactivity to the containment of fuel building.
- As indicated by a reactor trip caused by loss of power and trouble alarms on both Diesel Generators neither of which energizes the ID or IE 4 kV busses.
- All Battery Voltmeters read zero and there is no light or control power available.
- As indicated by both of the following:
- a. Receipt of a valid RCP Stator Temp High alarm (150°C) and decreasing flow in the affected loop.
 - b. Reactor Coolant specific activity as determined by sample and analysis is $\geq 50 \mu\text{Ci/ml}$ but $< 130 \mu\text{Ci/ml}$.
- As indicated by a total loss of any of the following:
- a. Source and intermediate range nuclear instrumentation.
 - b. A loss of forced reactor coolant system flow (includes Decay Heat Removal Pumps, Reactor Coolant Pumps, etc.) coincident with total loss of ability to feed OTSG's.
- Any reactor trip setpoint being exceeded with no rod in limit lights.
- An accident occurs while handling spent fuel during refueling or while moving objects over the spent fuel pool which causes any one of the following:
- a. A valid High alarm on RM-A2.
 - b. A valid Alert alarm on RM-A4.

- | | |
|--|---|
| | <ul style="list-style-type: none"> c. A valid Alert alarm on RM-A8. d. A valid High alarm on RM-A13. e. A valid High alarm on RM-G7. f. A valid High alarm on RM-G9. g. A valid increase by a factor of 100 of atmospheric activity as determined by sample and analysis. |
| 3.11 Any fire jeopardizing the operability of any safety system | As judged by the Shift Supervisor. |
| 3.12 Most or all annunciators lost which may involve an actual or potential substantial degradation of the level of safety of the plant. | As judged by the Shift Supervisor. |
| 3.13 Radiological effluent activity exceed the Environmental technical specification instantaneous limits. | As indicated by any of the following validated by sample and analysis: <ul style="list-style-type: none"> a. RM-A8 (gas) $\geq 2.0 \times 10^4$ cpm (High alarm) but $< 1.0 \times 10^5$ cpm. b. RM-A9 (gas) $\geq 4.5 \times 10^4$ cpm (high alarm) but $< 3.0 \times 10^5$ cpm. c. RM-A5 $> 1.0 \times 10^6$ cpm.* d. RM-A8 (iodine) increase $\geq 8.5 \times 10^2$ cpm/min but $< 4.5 \times 10^3$ cpm/min.* e. RM-A9 (iodine) increase $\geq 2.5 \times 10^3$ cpm/min but $< 1.2 \times 10^4$ cpm/min.* f. Offsite Radiological Monitoring Team report > 10 mR/hr (gamma) but < 50 mR/hr at any offsite location. g. RM-L7 $\geq 4.8 \times 10^5$ cpm (high alarm). h. RM-G8 $\geq 6.0 \times 10^3$ mR/hr. |

3.14 Ongoing security compromise.

Shift Supervisors judgement, based on advice of Security Duty Sergeant.

3.15 Severe natural phenomenon being experienced.

As indicated by any one of the following:

- a. Valid alarm on PRF 1-3, "Operating Basis Earthquake".
- b. Actual river stage \geq 302 feet but $<$ 307 feet at the River Water Intake Structure.
- c. Any tornado striking facility.
- d. Hurricane winds $>$ 75mph as indicated on the Wind Speed Recorder (NDS-501).

3.16 Other hazards being experienced.

As indicated by any one of the following:

- a. Aircraft crash or other missile impact within the protected area or onto an permanent plant structure.
- b. Know explosion damage to any permanent plant structure.
- c. Release of toxic or flammable gasses into the plant which, in the judgement of the Shift Supervisor, affects the safe operation of the plant.
- d. Turbine failure resulting in casing penetration.
- e. Any fire in a permanent plant structure which requires offsite firefighting capability.

3.17 Non-isolable steam leak that results in a rapid depressurization of the steam system.

As indicated by a Steam Line Rupture System actuation ($<$ 600 psig) on the affected OTSG.

3.18 Evacuation of control room anticipated or required with control of shutdown systems established from local stations within 15 minutes.

Shift Supervisor's judgement.

- | | |
|---|--|
| 3.19 Reactor Coolant System hot leg temperature is $\geq 620^{\circ}\text{F}$ in either loop. | As read on Reactor Coolant Outlet Temperature indication. |
| 3.20 Reactor Power to Flow to Imbalance outside of the Technical Specification Limit curves. | Any condition whereby the Technical Specification Safety Settings set forth in Figure 2.1-2 are exceeded without a reactor trip and confirmed by engineering analysis. |
| 3.21 Reactor Building Pressure ≥ 4.0 psig, but <30 psig. | Reactor trip and ECCS initiation due to high Reactor Building pressure. |
| 3.22 More than one control rod Stuck-Out, Stuck-In or Dropped requiring shutdown by Technical Specifications. | As indicated by a loss of the ability to meet any of the conditions of Technical Specification Limiting Condition for Operation 3.5.2.2 for more than one control rod. |
| 3.23 Secondary system activity ≥ 1.0 $\mu\text{Ci/ml}$ (I-131 equivalent). | As indicated by sample and analysis. |
| 3.24 Control Rod Ejection. | As indicated by a Reactor Trip due to high neutron flux in coincidence with loss of coolant indications. |
| 3.25 Other plant conditions exist that warrant precautionary activation of Technical Support Center and placing near-site Emergency Operations Facility and other key emergency personnel on standby. | Whenever plant conditions warrant it, as judged by the Shift Supervisor/Emergency Director. |

* These indications may be determined via instrumentation that will be installed or expanded as required by NUREG 0578 prior to restart.

4.0 EMERGENCY ACTIONS

Initials

- ___ 4.1 Upon recognition that any of the above action levels have been reached or exceeded, the Shift Supervisor/Duty Section

Superintendent assume the duties of the Emergency Director.

(Event should be assessed and declared within 10 minutes of its occurrence.)

___ 4.2 Announce to Control Room personnel that _____ has
(name)

assumed the duties of Emergency Director

___ 4.3 Announce, or have announced, the following message over the public address system (merged): "ATTENTION ALL PERSONNEL; ATTENTION ALL PERSONNEL: AN ALERT HAS BEEN DECLARED IN UNIT 1. ALL MEMBERS OF THE ONSITE EMERGENCY ORGANIZATION REPORT TO YOUR STATIONS. ALL OTHER PERSONNEL AWAIT FURTHER INSTRUCTIONS." (If emergency is radiation-oriented add "There will be No Smoking, Drinking, or Eating until further notice") (Give a brief description of the event and repeat the announcement).

___ 4.4 If emergency is radiation-oriented, direct that the Radiation Emergency Alarm be sounded.

___ 4.5 Assign a Communications Assistant to make notifications to persons and/or agencies per Attachment I, Section I.

___ 4.6 Record the following message on the Code-A-Phone 700:

"This is the Communications Assistant (identify by name). An Alert has been declared in Unit One. At the sound of the tone, leave your name and report to your assigned emergency station".

The Code-A-Phone 700 shall then be placed in the ANN-REC mode of operation.

- ___ 4.7 Contact the Duty Section Superintendent and discuss:
 - (a) Plant status
 - (b) Which members of the Duty Section are required to augment the Onsite/Offsite Emergency Organization.

- ___ 4.8 Assign a Communications Assistant and direct him to notify the Public Affairs Representative and to call out the required Duty Section personnel.

- ___ 4.9 Depending on the emergency action level which was reached or exceeded, ensure that the appropriate Emergency Operating Procedures have been implemented and/or the following Emergency Plan Implementing Procedures as required:
 - (a) Contaminated Injuries and Radiation Overexposure (1004.16).
 - (b) High Winds - Tornado/High Winds (1004.22)

- ___ 4.10 If local services (fire, ambulance, police) are required, direct the Communicator to notify Dauphin County Emergency Operations Center and request the appropriate assistance. Notify Security (N/S Gate) to begin preparations to expedite entry of responding emergency personnel (Police/Fire/Ambulance). Security should be advised to implement procedure 1004.19 Emergency Security/Dosimetry Badge Issurance.

- ___ 4.11 If changes in onsite or offsite radiation levels are expected, direct the Radiological Assessment Coordinator to:
 - (a) Dispatch offsite and/or onsite radiation monitoring teams in accordance with EPIP's 1004.10 and 1004.11.
 - (b) Implement Offsite Dose Projections procedure (1004.7).

- ___ 4.12 Activate the Technical Support Center, procedure (1004.28), and the Operations Support Center, procedure (1004.29).
- ___ 4.13 If additional resources or notifications are required, refer to Assistance and Notifications procedure (1004.6).
- ___ 4.14 If the emergency involves in-plant health physics problems, direct the Radiological Assessment Coordinator to implement Health Physics Controls During Emergencies (1004.9).
- ___ 4.15 Assign an individual to complete Attachment II, Section I and give it to the Radiological Assessment Coordinator to transmit to the Bureau of Radiation Protection.
- ___ 4.16 Direct the Radiological Assessment Coordinator to complete Attachment II, Section II to transmit to the Bureau of Radiation Protection if a radioactive release has occurred or is occurring.
- ___ 4.17 Verify that communications and documentation are maintained per procedure Communications and Recordkeeping (1004.5).
- ___ 4.18 If applicable, direct the Operations Coordinator to dispatch Emergency Repair/Operations personnel to investigate the identified problem area in accordance with Emergency Repair/Operations procedure 1004.21.
- ___ 4.19 After 30 minutes, confirm that BRP verification has been made. If no verification, instruct the communicator to proceed to Attachment I Section 1.2 (d).
- ___ 4.20 Instruct the Radiological Assessment Coordinator to provide ongoing dose estimates for actual releases to the Bureau of Radiation Protection.

- ___ 4.21 If an accountability was required and a report of the accountability has not been received within 30 minutes from the time it was ordered, contact the Shift Sergeant/Security Coordinator at 8038, 8039, 8040 for a status report.
- ___ 4.22 If personnel are unaccounted for, direct the Radiological Assessment Coordinator to initiate Search and Rescue procedure (1004.18).
- ___ 4.23 Evaluate dose projections and estimates and if necessary, recommend protective actions to the BRP consistent with the guidelines in Attachment I, Section IV.
- ___ 4.24 Based upon assessment of plant conditions, either close out the Alert, escalate to a higher class of emergency or downgrade to a lower class.
 - ___ (a) If Recovery Phase criteria have been met (see Recovery Procedure 1004.24), close out the Alert by performing the notifications in Attachment I, Section III. Implement the Recovery Procedure (1004.24).
 - ___ (b) If Recovery Phase criteria have not been met, but Alert emergency action levels are no longer being exceeded, de-escalate to an Unusual Event by notifying BRP on the Radiological Line and perform the remaining notifications in accordance with the Unusual Event procedure (1004.1).
 - ___ (c) If emergency action levels exceed those for an Alert, escalate to a higher class, notify BRP on the Radiological Line and make the remaining notifications in accordance with the appropriate emergency procedure as specified in Step 5.1.

___ 4.25 If necessary, due to potential contamination of normally non-contaminated sumps and/or tanks, or the need to closely monitor liquid releases, initiate procedure (1004.14),
Monitoring/Controlling Liquid Discharges.

5.0 FINAL CONDITIONS

- ___ 5.1 A higher class of emergency has been declared by the Emergency Director after meeting or exceeding an emergency action level of one of the higher classes and one of the following procedures is being implemented.
- a. Site Emergency (1004.3)
 - b. General Emergency (1004.4)
- ___ 5.2 A lower class of emergency has been declared by the Emergency Director and Unusual Event procedure (1004.01) is being implemented.
- ___ 5.3 The Alert has been closed out since no recovery operations are required.
- ___ 5.4 The Alert can be shifted to a recovery mode by implementing the procedure Recovery Operations (1004.24).

DATE

SIGNATURE OF PERSON RESPONSIBLE FOR
IMPLEMENTING THE PROCEDURE

ATTACHMENT I

Section I

Initial Contact

The Communicator shall notify the following agencies and personnel and update the Attachment I, Section II checklist for each notification.

___ 1. Dauphin County Emergency Operation Center

(If this is a reclassification notification, first advise BRP via Radiological line then unaffected Control Room) go to Item 3.

a. Telephone: 9-911 or 9-236-7976

1) If not contact, activate Dauphin County radio system.

b. MESSAGE:

This is (name/Title) at the Three Mile Island Nuclear Station
(name/title)

Unit I calling. We have declared an Alert at (time) hours.
(time)

(Based upon Emergency Director judgment, deliver one of the following statements):

1) We have not had a radioactive release

OR

2) We have had a radioactive release, but do not expect this situation to result in detectable changes in offsite radiation levels,

OR

ATTACHMENT I

SECTION I

Initial Contact

Initial

3) We have had a radioactive release, but do not know if there will be a detectable change in offsite radiation levels. We will be keeping the Bureau of Radiation Protection informed of the results of our investigation,
OR

4) We have had a radioactive release and expect to be able to detect changes in offsite radiation levels, but they are expected to be less than the levels calling for a Site Emergency. We will be keeping the Bureau of Radiation Protection informed.

c. Give a short non-technical description of the emergency and the extent of the radioactive release and the affected populations and area. _____

___ 2. Pennsylvania Emergency Management Agency (PEMA)
(If this is a reclassification notification, go to Item 3. Unaffected Control Room.)

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Initial Contact

Initial

- a. Telephone: 9-783-8150 (A diverter forwards this call to PEMA Duty Officer after working hours.)

NOTE

If not contact, proceed to step 2.d.

- b. MESSAGE:

This is Three Mile Island Nuclear Station Unit 1 calling. We have an emergency. Give me the Operations Duty Officer.

(When Duty Office answers:)

This is (name/title) at the Three Mile Island Nuclear Station
(name/title)

Unit 1 calling. We have declared an Alert at (time) hours.

(time)

We request you contact Bureau of Radiation Protection. Bureau of Radiation Protection callback should be made on the Radiological Line or 948-8069, 948-8071 or 944-0839. (Based upon Emergency Director judgment, deliver one of the following statements):

- 1) We have not had a radioactive release,

OR

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SECTION I

Initial Contact

2) We have had a radioactive release, but do not expect this situation to result in detectable changes in offsite radiation levels,

OR

3) We have had a radioactive release, but do not know if there will be detectable changes in offsite radiation levels. We will be keeping the Bureau of Radiation Protection informed of the results of our investigation,

OR

4) We have had a radioactive release and expect to be able to detect changes in offsite radiation levels but they will be less than the levels calling for a Site Emergency. We will be keeping the Bureau of Radiation Protection informed.

c. Give a short non-technical description of the emergency, and any potentially affected populations and areas:

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SECTION I

Initial Contact

Initial

d. If PEMA is unable to be contacted, contact Dauphin County; advise them that PEMA cannot be contacted and direct them to notify PEMA, BRP, and Lancaster, York, Lebanon, and Cumberland counties.

e. Message verification:

Expect Bureau of Radiological Protection (BRP) contact after PEMA notification. If no BRP confirmation is received within 30 minutes, notify PEMA of the situation. If unable to contact PEMA (line busy) call Dauphin County and notify them that BRP has not verified initial contact. Request Dauphin County to contact PEMA and/or BRP.

3. Unaffected Control Room

- a. Telephone: 8066, 8067, 8068 or inter Control Room Hot Line.
- b. Message: Give a brief description of plant status to Shift Supervisor.

ATTACHMENT I
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Initial Contact

Initial

4) Institute of Nuclear Power Operations

(Do not notify if this is a reclassification notification.)

a. Telephone: 404-953-0904

b. MESSAGE:

This is _____ at Three Mile Island
(name/title)

Nuclear Station Unit 1 calling. We have declared an
Alert at _____ hours. (Give a brief description of
(time)

the emergency.)

5) Notify the following personnel/agencies if the emergency situation is such that notification is deemed appropriate.

a. Hershey Medical Center 9-534-8333

Notification to be performed per procedure 1004.16.

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SECTION I

Initial Contact

Initial

b. Pennsylvania State Police 9-234-4051

MESSAGE:

This is _____ at the Three Mile Island
(name/title)

Nuclear Station Unit I calling. We have declared an
Alert at _____ hours. We _____ had a
(time) (have/have not)

radioactive release. We require assistance as
follows: (State any assistance required.)

c. Radiation Management Corporation 73-1-215

243-2950. Emergency number 73-1-215-243-2990.

MESSAGE:

This is _____ at the Three Mile Island Nuclear
(name/title)

Station Unit I calling. We have declared an Alert
at _____ hours. (Give a brief description of the
(time)

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Initial Contact

Initial

emergency). We _____ had a radioactive
(have/have not)
release.

d. American Nuclear Insurers 74-1-203-677-7305

Message:

This is _____ at the Three Mile Island Nuclear
(name/title)

Station Unit I calling. We have declared an Alert
at _____ hours (Give a brief description of the
(time)

emergency).

We _____ had a radioactive release.
(have/have not)

DATE

TIME OF COMPLETION

COMPLETED BY

ATTACHMENT I

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Initial Contact

Initial

4. Nuclear Regulatory Commission (NRC) - Bethesda, MD.

(Continuous communications with the NRC will be maintained following contact.)

a. Telephone: NRC Emergency Notification System (ENS)

(RED PHONE)

b. MESSAGE:

This is _____ at the Three Mile Island Nuclear Station

(name/title)

Unit I calling. We have declared an Alert at _____ hours.

(time)

(Based upon Emergency Director judgment, use one of the following statements):

1) We have not had a radioactive release

OR

2) We have had a radioactive release but do not expect this situation to result in detectable changes in offsite radiation levels.

OR

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Initial Contact

Initial

- 3) We have had a radioactive release but do not know if there will be a detectable change in offsite radiation levels. We will be keeping the Bureau of Radiation Protection informed of the results of our investigation.
- 4) We have had a radioactive release and expect to be able to detect changes in offsite radiation levels but they will be less than the levels calling for a Site Emergency. We expect the levels to be <50mRem/hr (gamma). We will be keeping the Bureau of Radiation Protection informed. (Give a short non-technical description of the emergency and the extent of the radioactive release, if appropriate).
-
-
-

ATTACHMENT I
SECTION II

NOTIFICATION CHECKLIST

AGENCY	TIME OF INITIAL NOTIFICATION OR ESCALATION				TIME OF DE-ESCALATION OR CLOSE OUT			
	UNUSUAL EVENT	ALERT	SITE EMERGENCY	GENERAL EMERGENCY	UNUSUAL EVENT	ALERT	SITE EMERGENCY	GENERAL EMERGENCY
Dauphin County								
PEMA								
Unit 2 Control Room								
INPO								
NRC				*				
Hershey Medical Center	*	*	*	*				
State Police	*	*	*	*				
BMC	*	*	*	*				
ANT	*	*	*	*				
B & W	N/A	N/A	N/A	N/A				
Conrail	N/A	N/A	N/A	N/A				
5 Affected Counties	N/A	N/A	N/A	N/A				

* Optional

ATTACHMENT I

SECTION III

Secondary Contact

Initial

The Communicator shall notify the following agencies and personnel and update the Attachment I, Section II checklist for each notification.

1. Bureau of Radiation Protection

a. Telephone: Radiological Line

b. MESSAGE:

This is _____ at the Three Mile Island Nuclear Station
(name/title)

Unit 1. We have closed out the Alert at _____ hours and
(time)

initiated recovery operations. Please notify PEMA, Dauphin,
Lancaster, York, Lebanon and Cumberland counties.

2. Unaffected Control Room

a. Telephone: 8066, 8067, 8068

b. Message: Notify Shift Supervisor of Close out of the Alert.

3. Nuclear Regulatory Commission Office - Bethesda, Md.

a. Telephone: Emergency Notification System (ENS)
(RED PHONE)

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ATTACHMENT I

SECTION III

Secondary Contact

Initial

b. MESSAGE:

This is _____ at the Three Mile Island Nuclear
(name/title)

Station Unit 1. We have closed out the Alert at _____ hours
(time)

and initiated recovery operations.

4. If applicable, notify the following persons and/or agencies of
close out of the Alert:

- a. Hershey Medical Center: 9-534-8333
- b. Pennsylvania State Police: 9-234-4051
- c. Radiation Management Corporation (RMC):
73-1-215-243-2950 or 73-1-215-243-2990
- d. American Nuclear Insurers: 74-1-203-677-7305
- e. Others - as directed by the Emergency Director.

DATE

TIME OF COMPLETION

COMPLETED BY

ALERT

ATTACHMENT I SECTION IV

PROTECTIVE ACTION RECOMMENDATION GUIDELINES

THESE RECOMMENDATIONS MAY BE DELIVERED ONLY BY THE EMERGENCY DIRECTOR

1. Consideration shall be given to sheltering if:
 - a. Release time is expected to be short (Puff release, <2 hours)
and
 - b. Evacuation could not be well underway prior to expected plume arrival due to short warning time, high wind speeds, and/or foul weather.

2. Consideration shall be given to evacuation if:
 - a. A release is expected to occur with projected doses approaching or exceeding:
1 Rem Whole Body and/or
5 Rem Child Thyroid
and
 - b. Release time is expected to be long (>2 hours)
and
 - c. Evacuation can be well underway prior to plume arrival for above release, based upon wind speed and travel conditions.

ATTACHMENT II
EMERGENCY STATUS REPORT
Section I

1. Description of emergency: _____

2. Has the Reactor tripped Yes/No
3. Did the Emergency Safeguards Systems actuate Yes/No

If so, which ones

- (a) High Pressure Injection Yes/No
- (b) Low Pressure Injection Yes/No
- (c) Core Flood Yes/No
- (d) 4 No. Reactor Building Isolation Yes/No
- (e) Reactor Building Cooling Yes/No

4. What is the status of the plant

- (a) At power
- (b) Hot Standby
- (c) Hot Shutdown
- (d) Cooling Down
- (e) Reactor Pressure _____ psig
- (f) Reactor temperature _____ °F

ATTACHMENT II
EMERGENCY STATUS REPORT

Section I

- 5. Is offsite power available Yes/No
- 6. Are both diesel generators operable Yes/No
- 7. Have any personnel injuries occurred Yes/No
 - (a) If so, is the injured person(s) contaminated Yes/No

(1) What are the approximate radiation and/or contamination levels

_____ mR/hr

_____ DPM/100 cm²

8. Are these excessive radiation levels and/or contamination Levels

Yes/No

(a) If so, List below:

(1) Radiation Levels (Whole Body) _____

(2) Contamination levels _____ DPM/100 cm²

at location: _____

DATE

TIME

COMPLETED BY

ATTACHMENT II
EMERGENCY STATUS REPORT
Section II

Fill out if a release has (is) occurring. Provide BRP all available information for verification call.

1. What is the approximate radioactive source term discharge rate from the plant (As determined by the Projected Dose Calculation procedure (1004.7).)
 - (a) Noble gases _____ Ci/sec
 - (b) Iodine _____ Ci/sec
2. What is the approximate meteorology
 - (a) Wind speed _____ mph
 - (b) Wind direction _____
 - (c) Stability Class—Stable/Neutral/Unstable
3. What is the projected whole body dose rate and iodine concentration at the nearest offsite downwind point
 - (a) _____ mR/hr
 - (b) _____ uCi/cc Iodine
 - (c) _____ (Location)
4. Estimated duration of the release

ATTACHMENT II
EMERGENCY STATUS REPORT
Section II

(a) If the release is terminated:

Start time _____ Stop time _____

Duration _____

(b) If the release is still in progress:

Start Time _____ Estimated duration _____ (hrs/min/sec)

5. (a) Based on projected dose rates, iodine concentration and duration or estimated duration (if still in progress) of the release, will the lower limits of the EPA Protective Action Guides be exceeded (i.e., 1 Rem Whole Body, 5 Rem Child Thyroid.

Yes/No

(b) If yes, estimate time to exceeding PAG: _____ hours

FOR USE IN UNIT 1 ONLY

1004.3
Revision 3
03/24/81

THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.3 CONTROLLED COPY FOR
SITE EMERGENCY USE IN UNIT 1 ONLY

*Office of Nuc.
Reactor Reg.*

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14.0	0						
15.0	3						
16.0	3						
17.0	3						
18.0	3						
19.0	3						
20.0	3						
21.0	0						
22.0	0						
23.0	0						
24.0	2						
25.0	0						

Unit 1 Staff Recommends Approval

Approval NA Date
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

all at Nelson Date 3/20/81
Chairman of PORC

Manager TMI I Approval

Ry Toole Date 3-24-81
3/23/81

QA Modifications/Operations Mgr

NA Date
Document ID: 0025W

THREE MILE ISLAND NUCLEAR STATION
UNIT NO. I EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.3
SITE EMERGENCY

1.0 PURPOSE

The purpose of this procedure is to define the conditions that shall be regarded as a Site Emergency for Three Mile Island Nuclear Station (Unit I) and to:

- a) Ensure necessary actions are taken to protect the health and safety of the public.
- b) Ensure necessary actions are taken to notify GPU Nuclear management and offsite emergency response organizations.
- c) Mobilize the emergency response organizations to initiate appropriate emergency actions.

The Emergency Director is responsible for implementing this procedure.

NOTE: Emergency Director responsibilities that may NOT be delegated include:

- a) Decision to notify offsite emergency management agencies.
- b) Making protective action recommendations as necessary to offsite emergency management agencies.
- c) Classification of Emergency Event.
- d) Determining the necessity for onsite evacuation.

- e) Authorization for emergency workers to exceed 10CFR20 radiation exposure limits.

2.0 ATTACHMENTS

- 2.1 Attachment I, Site Emergency Notifications.
2.2 Attachment II, Emergency Status Report.

3.0 EMERGENCY ACTION LEVELS

<u>INITIATING CONDITION</u>	<u>INDICATION</u>
3.1 Known loss of coolant accident greater than makeup capacity leading to RCS saturation.	As indicated by automatic ECCS initiation due to both high containment pressure (4.0 psig) and low reactor coolant pressure (1600 psig) or reactor coolant system pressure/temperature curves or subcooling monitor* indicate saturation conditions.
3.2 Primary to Secondary leakage \geq 50 gpm.	As indicated by makeup tank level decreasing at 2 inches/minute or makeup flow exceeding letdown by 50 gpm in conjunction with RM-A5 high alarm (8000 cpm) or steam line monitor high alarm.*
3.3 Loss of all offsite power coincident with a loss of both Diesel Generators for more than 15 minutes.	Continuation of condition in Alert EAL-5 for more than 15 minutes.
3.4 Loss of all vital onsite DC power for more than 15 minutes.	Continuation of condition in Alert EAL-6 for more than 15 minutes.
3.5 Complete loss of any function needed for plant hot shutdown.	As indicated by a complete loss of any of the following a. All means to feed OTSGs.

3.6 Major damage to spent fuel in containment or fuel handling building.

3.7 Fire compromising the functions of any safety system.

3.8 Most or all Annunciators lost and plant transient initiated or in progress which may involve actual or likely major failures of plant functions needed for protection of the public.

3.9 Actual or projected doses at the Exclusion Area boundary greater than 1/20 of the lower limit EPA Protective Action Guidelines but less than 1/10 of the lower limit EPA Protective Action Guidelines but less 1/10 of the lower limit EPA Protective Action Guidelines.

- b. All means to control Reactor Coolant Pressure
- c. Makeup pumps or makeup flow control.
- d. Control Rods.

Caused by either:

- a. An object, weighing more than the Technical Specification Limiting Condition for Operation 3.11.6 limits, impacting on spent fuel.
- b. The water level in the reactor vessel or spent fuel pool drops below the top of the spent fuel.

As judged by the Shift Supervisor.

As judged by the Shift Supervisor.

As indicated by:

- a. Valid count rate of $\geq 1.0 \times 10^5$ cpm on the gas channel of RM-A8.*
- b. Valid count rate of $\geq 3.0 \times 10^5$ cpm on the gas channel of RM-A9.*
- c. A valid count rate increase of $> 4.5 \times 10^3$ cpm/min on the iodine channel of RM-A8.*
- d. A valid count rate increase of $> 1.2 \times 10^4$ cpm/min. on the iodine channel of RM-A9.*
- e. A valid dose rate of $\geq 2.8 \times 10^4$ mR/hr on RM-G8.
- f. Offsite radiological monitoring reports or dose projections of ≥ 50 mR/hr (gamma) but < 100 mR/hr (gamma).

3.10 Imminent loss of control of the physical security of the plant.

Shift Supervisor's judgment, based on the advice of the Security Duty Sergeant.

3.11 Severe natural phenomena being experienced or projected with plant not in cold shutdown.

Plant is not in cold shutdown and any of the following phenomenon are experienced or projected:

- a. An earthquake of magnitude $\geq 0.12g$ horizontal and/or $\geq 0.08g$ vertical acceleration (Safe Shutdown Earthquake).
- b. River Stage ≥ 307 feet at the River Water Intake Structure.
- c. Sustained Hurricane winds or tornados ≥ 75 mph as indicated on the Wind Speed Recorder (NDS-501).

3.12 Other hazards being experienced or projected with the plant not in cold shutdown.

Plant is not in cold shutdown and any of the following phenomenon are experienced or projected:

- a. Aircraft crash which, in the judgment of the Shift Supervisor affects vital structures by impact or fire.
- b. Explosion or missile damage which, in the judgment of the Shift Supervisor, causes severe damage to safe shutdown equipment.
- c. Entry of toxic or flammable gases into vital areas which in the judgment of the Shift Supervisor, affects operation of safe shutdown equipment.

3.13 Evacuation of the Control Room where control of the shutdown systems is not established within 15 minutes.

Control Room is evacuated and control of all of the following systems or equipment is not established within 15 minutes:

- | | |
|---|---|
| 3.14 Reactor Building pressure
≥ 30 psig. | a. Emergency Feedwater System
b. Turbine Bypass Valves or Atmospheric Steam Dump Valves.
c. Makeup Pumps.
d. Makeup Flow Control Valve.
e. Letdown Flow Control. |
| 3.15 Total reactor coolant activity
≥ 300 μCi/ml. | As indicated by Reactor Building Spray initiation and on Reactor Building Pressure Indicator. |
| 3.16 High incore thermocouple readings following a reactor trip. | As indicated by any of the following:
a. RM-L1 (High) reading ≥ 6.66 x 10 ³ cpm.
b. RM L1 (Low) reading ≥ 3.81 x 10 ⁵ cpm
c. As determined by sample and analysis. |
| 3.17 Failure of any actuated Emergency Core Cooling System (includes HPI, LPI and Core Flood) to start and run following automatic system initiation such that the number of components available is below the minimum assumed for accident analysis. | Any two incore thermocouple readings ≥ 700 F following a reactor trip.* |
| 3.18 Other plant conditions exist that warrant activation of emergency centers and monitoring teams or a precautionary notification to the public near the site. | Shift Supervisor judges that ECCS setpoint is exceeded but ECCS has not initiated. |
| * These indications may be determined via instrumentation that will be installed or expanded as required by NUREG 0578 prior to restart. | Whenever plant conditions warrant it, as judged by the Shift Supervisor/Emergency Director. |

4.0 EMERGENCY ACTIONS

- 4.1 Upon recognition that any of the above action levels have been reached or exceeded, the Shift Supervisor/Duty Section Superintendent shall assume the duties of the Emergency Director. (Event should be assessed and declared within 10 minutes of the occurrence).

___ 4.2 Announce to Control Room personnel that name _____
has assumed the duties of Emergency Director.

___ 4.3 Announce, or have announced, the following message over the public
address system (merged):

ATTENTION ALL PERSONNEL; ATTENTION ALL PERSONNEL: A SITE EMERGENCY
HAS BEEN DECLARED IN UNIT I. ALL NON-ESSENTIAL PERSONNEL IN UNIT I
REPORT TO UNIT I WAREHOUSE. ALL NON- ESSENTIAL PERSONNEL IN THE UNIT
II AREA REPORT TO THE UNIT II WAREHOUSE. ALL PERSONNEL IN H.P.
CONTROLLED AREAS PROCEED TO THE H.P. ACCESS CONTROL POINTS. ALL
MEMBERS OF THE EMERGENCY ORGANIZATION REPORT TO YOUR STATIONS. THERE
WILL BE NO SMOKING, DRINKING OR EATING UNTIL FURTHER NOTICE. (Repeat
message slowly).

___ 4.4 If emergency is radiation-oriented, direct that the Radiation
Emergency Alarm be sounded.

___ 4.5 Assign a Communicator to make notifications to persons and/or agen-
cies per Attachment I, Section I.

___ 4.6 Assign a Communications Assistant and direct him to notify the Public
Affairs Representative and to first call out the onsite Duty Section
personnel and then the offsite Duty Section personnel.

___ 4.7 Record the following message on the Code-a-phone 700: "This is the
Communications Assistant (identify by name). A Site Emergency has
been declared in Unit One. At the sound of the tone, leave your name
and report to your assigned emergency station."

The Code-a-phone 700 shall then be placed in the ANN-REC mode of
operation.

___ 4.8 Contact the Duty Section Superintendent and discuss Plant Status and
that the onsite and offsite Duty Section personnel are being called.

___ 4.9 Depending on the emergency action level which was reached or ex-
ceeded, ensure that the appropriate Emergency Operating Procedures
have been implemented.

4.10 If local services (fire, ambulance, police) are required, direct the Communicator to notify Dauphin County Emergency Operations Center and request the appropriate assistance. Notify security (N/S Gate) to begin preparations to expedite entry of responding emergency personnel (Police/Fire/Ambulance). Security should be advised to implement EPIP 1004.19, Emergency Security/Dosimetry Badge Issuance.

4.11 If changes in onsite or offsite radiation levels are expected, direct the Radiological Assessment Coordinator:

- a. Dispatch offsite and/or onsite radiation monitoring teams in accordance with EPIP's 1004.10 and 1004.11 and send a monitor to the Emergency Assembly Areas.
- b. Implement offsite dose projections procedure (1004.7).

4.12 Activate the Technical Support Center (1004.28) and the Operations Support Center (1004.29).

4.13 If additional resources or notifications are required, refer to Assistance and Notifications procedure (1004.6).

4.14 If the emergency involves in-plant health physics problems, direct the Radiological Assessment Coordinator to implement Health Physics Controls During Emergencies procedure (1004.9).

4.15 Assign an individual to complete Attachment II, Section I and give it to the Radiological Assessment Coordinator to transmit to the Bureau of Radiation Protection.

4.16 Direct the Radiological Assessment Coordinator to complete Attachment II, Section II to transmit to the Bureau of Radiation Protection if a radioactive release has occurred or is occurring.

- ___ 4.17 Verify that communications and documentation are maintained per procedure Communications and Recordkeeping (1004.5).
- ___ 4.18 If applicable, direct the Operations Coordinator to dispatch Emergency Repair/Operations personnel to investigate the identified problem area(s) in accordance with Emergency Repair/Operations procedure 1004.21.
- ___ 4.19 After 30 minutes confirm that BRP verification has been made. If no verification, instruct the communicator to proceed to Attachment I, Section 1, 2.(e).
- ___ 4.20 Instruct the Radiological Assessment Coordinator to provide ongoing dose estimates for actual releases to the Bureau of Radiation Protection.
- ___ 4.21 If a report of the accountability has not been received within 30 minutes from the time it was ordered, contact the Security Coordinator at 8038, 8039, 8040 for a status report.
- ___ 4.22 If personnel are unaccounted for, initiate Search and Rescue procedure (1004.18).
- ___ 4.23 If site evacuation is deemed necessary, announce or have announced one of the following messages over the public address system (merged).
- ATTENTION ALL PERSONNEL; ATTENTION ALL PERSONNEL: ALL NON-ESSENTIAL PERSONNEL IN UNITS I AND II PROCEED TO THE (MIDDLETOWN SUBSTATION/500 KV SUBSTATION) USING THE NORTH/SOUTH GATE. (DEPENDING ON PLUME PATHWAY). UPON ARRIVAL, ALL SUPER-VISORS WILL ASSEMBLE AND LOG IN THEIR PERSONNEL AND PROVIDE FURTHER INSTRUCTIONS. (Repeat message slowly).
- ___ 4.24 Evaluate dose projections and estimates and, if necessary, recommend protective actions to the BRP consistent with the guidelines in Attachment I, Section IV.

4.25 Based upon assessment of plant conditions, the Emergency Director shall either close out the Site Emergency, escalate to a General Emergency or downgrade to a lower class as follows:

a. If Recovery Phase criteria have been met (see Recovery Procedure (1004.24), close out the Site Emergency by performing the notifications in Attachment I, Section III. Implement the Recovery Procedure (1004.24).

b. If Recovery Phase criteria have not been met, but Site Emergency action levels are no longer exceeded, de-escalate to a lower emergency class by notifying BRP on the Radiological Line and performing the remaining notifications in accordance with the applicable emergency procedure as specified in Step 5.2.

c. If emergency action levels exceed those for a Site Emergency, escalate to a General Emergency, notify BRP on the Radiological Line and make the remaining notifications in accordance with the General Emergency procedure (1004.4).

4.26 If necessary, due to potential contamination of normally non-contaminated sumps and/or tanks, or the need to closely monitor liquid releases, initiate procedure 1004.14, Monitoring/Controlling Liquid Discharges.

5.0 FINAL CONDITIONS

5.1 A higher class of emergency has been declared by the Emergency Director and the General Emergency procedure (1004.4) is being implemented, or

5.2 A lower class of emergency has been declared by the Emergency Director and one of the following procedures is being implemented:

a. Unusual Event (1004.1)

b. Alert (1004.2)

___ 5.3 The Site Emergency has been closed out with the concurrence of the Emergency Support Director, since no recovery operations are required, or

___ 5.4 The Site Emergency can be shifted to a recovery mode by implementing procedure 1004.24.

Date

Signature of Person Responsible
for Implementing Procedure

ATTACHMENT I SECTION I

INITIAL CONTACT

INITIALS

The Communicator shall notify the following agencies and personnel and update the Attachment I, Section II checklist after each notification.

1. Dauphin County Emergency Operation Center

(If this is a reclassification notification, first notify BRP then on the radiological line go to Item 3, unaffected Control Room).

a. Telephone: 9-911 or 9-236-7976

(1) If no contact, activate Dauphin County radio system.

b. This is _____ at the Three Mile

(name/title)

Island Nuclear Station Unit 2 calling. We have declared a Site Emergency at _____ hours. (Based upon Emergency

(time)

Director judgment, deliver one of the following statements):

(1) We have not had a radioactive release, but do not expect this situation to result in detectable changes in offsite radiation levels, OR

(2) We have had a radioactive release, but do not expect this situation to result in in detectable changes in offsite radiation levels, OR

ATTACHMENT I SECTION I

INITIAL CONTACT

INITIAL

(3) We have had a radioactive release, but do not know if there will be a detectable change in offsite radiation levels.

We will be keeping the Bureau of Radiation Protection informed of the results of our investigation, OR

(4) We have had a radioactive release and expect to be able to detect changes in offsite radiation levels, but they will be less than the levels calling for a General Emergency.

We will be keeping the Bureau of Radiation Protection informed.

(Give a short non-technical description of the emergency and the extent of radioactive release including potentially affected populations and areas). _____

2. Pennsylvania Emergency Management Agency (PEMA)

(If this is a reclassification notification, go to Item 3, unaffected Control Room).

NOTE: When protective actions are to be recommended, the Emergency Director should refer to the contents of Attachment I, Section IV.

ATTACHMENT I SECTION I

INITIAL CONTACT

INITIAL

- a. Telephone: 9-783-8.50

(A diverter forwards this call to PEMA duty officer after working hours).

NOTE: If no contact, proceed to Step 2.d.

- b. MESSAGE:

This is _____ at the Three Mile Island
(name/title)

Nuclear Station Unit I calling. We have an emergency. Give me the Operations Duty Officer. (When Duty Officer answers):

This is _____ at the Three Mile Island
(name/title)

Nuclear Station Unit I calling. We have declared a Site Emergency at _____ hours. We request that you contact
(time)

the Bureau of Radiation Protection. Bureau of Radiation Protection call back should be made on the Radiological Line or 948-8069, 948-8071 or 944-0839. (Based on Emergency Director's judgement, deliver one of the following statements).

(1) We have not had a radioactive release, OR

ATTACHMENT I SECTION I
INITIAL CONTACT

INITIAL

- (2) We have had a radioactive release, but do not expect this situation to result in detectable changes in offsite radiation levels, OR
 - (3) We have had a radioactive release, but do not know if there will be detectable changes in offsite radiation levels. We will be keeping the Bureau of Radiation Protection informed of the results of our investigation, OR
 - (4) We have had a radioactive release and expect to be able to detect changes in offsite radiation levels, but they will be less than the levels calling for a General Emergency. We will be keeping the Bureau of Radiation Protection informed.
- c. Give a short non-technical description of the emergency and, if applicable, after release, state the direction of the projected plume pathway and potentially affected populations.
-
-

- d. If PEMA was unable to be contacted, contact Dauphin County; advise them that PEMA cannot be contacted and direct them to notify PEMA, BRP, and Lancaster, York, Lebanon and Cumberland counties.

ATTACHMENT I SECTION I

INITIAL CONTACT

INITIAL

 e. Message verification:

Expect Bureau of Radiation Protection (BRP) contact after PEMA notification. If no BRP confirmation is received within 30 minutes, notify PEMA of the situation. If unable to contact PEMA (line busy), call Dauphin County and notify them that BRP has not verified initial contact. Request Dauphin County to contact PEMA and BRP.

 3. Unaffected Control Room

- a. Telephone: 8066, 8067, 8068 or inter Control Room hotline.
- b. MESSAGE: Give a brief description of plant status to Shift Supervisor.

 4. Institute of Nuclear Power Operations

(Do not notify if this is a reclassification notification).

- a. Telephone: 404-953-0904
- b. MESSAGE:

This is _____ at Three Mile Island Nuclear
(name/title)

Station Unit I calling. We have declared a Site Emergency
at _____ hours. (Give a brief description of
(time)

the emergency). _____

ATTACHMENT I SECTION I
INITIAL CONTACT

INITIAL

5. Babcock and Wilcox - 74-1-804-384-3413

This is _____ at Three Mile Island
(name/title)

Nuclear Station Unit I calling. We have declared a Site Emergency
at _____ hours. (Have a prepared Attachment II
(name/title)

available for reference while giving a brief description of the
emergency).

: NOTE: From 0900 to 1700 Monday thru Friday the B and W trunk :
: of the Operations Line may be used. (See Communications :
: Plan). :

6. American Nuclear Insurers - 74-1-203-677-7305

MESSAGE:

This is _____ at Three Mile Island Nuclear
(name/title)

Station Unit I calling. We have declared a Site Emergency
at _____ hours. (Give a brief description of the
(time)

emergency).

ATTACHMENT I SECTION I

INITIAL CONTACT

INITIAL

We _____ had a radioactive release.

(have/have not)

7. If the Site Emergency involves radiation releases, notify the following agencies:

a. Radiation Management Corporation 73-1-215-243-2950

Emergency Number 73-1-215-841-5141

MESSAGE:

This is _____ at the Three Mile Island Nuclear

(name/title)

Station Unit I calling. We have declared a Site Emergency

at _____ hours. (Give a brief description of the

(time)

emergency).

We have had a radioactive release.

ATTACHMENT I SECTION I
INITIAL CONTACT

INITIAL

We _____ require assistance at this time.
(do/do not)

(Describe the assistance required, if any).

___ 8. If police or medical assistance is required, notify the following agencies:

- ___ a. Hershey Medical Center - 9-534-8333
- ___ b. Pennsylvania State Police - 9-234-4051

MESSAGE:

This is _____ at the Three Mile Island
(name/title)

Nuclear Station Unit I calling. We have declared a Site
Emergency at _____ hours. We _____
(time) (have/have/not)

had a radioactive release. We require assistance as follows:
(State any assistance required).

___ 9. Nuclear Regulatory Commission (NRC) - Bethesda, MD
(Communications with the NRC will be continuously maintained
following contact).

- a. Telephone: NRC Emergency Notification System (ENS)
(RED PHONE)

ATTACHMENT I SECTION I

INITIAL CONTACT

b. MESSAGE:

This is _____ at the Three Mile Island
(name/title)

Nuclear Station Unit I calling. We have declared a Site
Emergency at _____ hours. (Based upon Emergency
(time)

Director's judgment, use one of the following statements):

- (1) We have not had a radioactive release, OR
- (2) We have had a radioactive release, but do not expect this situation to result in detectable changes in offsite radiation levels, OR
- (3) We have had a radioactive release, but do not know if there will be a detectable change in offsite radiation levels. We will be keeping the Bureau of Radiation Protection informed of the results of our investigation.
- (4) We have had a radioactive release and expect to be able to detect changes in offsite radiation levels, but they will be less than the levels calling for a General Emergency. We expect the levels to be < 100 mRem per hour (gamma). We will be keeping the Bureau of Radiation Protection

ATTACHMENT I SECTION I

INITIAL CONTACT

informed. (Give a short non-technical description of the emergency and the extent of the radioactive release, including affected populations and areas). _____

Date

Time Completed

Completed By

FOR USE IN UNIT I ONLY

1004.3
Revision 0

ATTACHMENT I
SECTION II

NOTIFICATION CHECKLIST

AGENCY	TIME OF INITIAL NOTIFICATION OR ESCALATION				TIME OF DE-ESCALATION OR CLOSE OUT			
	UNUSUAL EVENT	ALERT	SITE EMERGENCY	GENERAL EMERGENCY	UNUSUAL EVENT	ALERT	SITE EMERGENCY	GENERAL EMERGENCY
Dauphin County								
PEMA								
Unit 2 Control Room								
INPO								
NRC	*	*	*	*				*
Hershey Medical Center	*	*	*	*				*
State Police	*	*	*	*				*
BMC	*	*	*	*				*
ANI								
CONRAIL	N/A	N/A	N/A	N/A				
5 Affected Counties	N/A	N/A	N/A	N/A				

POOR ORIGINAL

* Optional

ATTACHMENT I SECTION III
SECONDARY CONTACT

INITIAL

The Communicator shall notify the following agencies and personnel and update the Attachment I, Section II checklist after each notification.

1. Bureau of Radiation Protection

- a. Telephone: Radiological Line
- b. MESSAGE:

This is _____ at the Three Mile Island
(name/title)

Nuclear Station Unit I calling. We have closed out the Site
Emergency at _____ hours and initiated recovery operations.
(time)

Please notify PEMA, Dauphin, Lancaster, York, Lebanon and Cumberland counties.

2. Unaffected Control Room

- a. Telephone: 8066, 8067 8068
- b. MESSAGE:

This is _____ at the Three Mile Island
(name/title)

Nuclear Station Unit I calling. We have closed out the Site Emergency at _____ hours and initiated recovery operations.
(time)

ATTACHMENT I SECTION III
SECONDARY CONTACT

INITIAL

4. If applicable, notify the following persons and/or agencies of close out of the Site Emergency:

- a. Hershey Medical Center: 9-534-8333
- b. Pennsylvania State Police: 9-234-4051
- c. Radiation Management Corp.: 73-1-215-243-2950
(RMC) OR 73-1-215-243-2990
- d. American Nuclear Insurers: 74-1-203-677-7305
- e. Babcock and Wilcox: 74-1-804-384-3413
- F. Others - as directed by the Emergency Director.

Date	Time Completed	Completed By

ATTACHMENT I SECTION IV
PROTECTIVE ACTION RECOMMENDATION GUIDELINES

THESE RECOMMENDATIONS MAY BE DELIVERED ONLY BY THE EMERGENCY DIRECTOR

1. Consideration shall be given to sheltering if:
 - a. Release time is expected to be short (Puff release, < 2 hours).
(AND)
 - b. Evacuation could not be well underway prior to expected plume arrival due to short warning time, high wind speeds, and/or foul weather.
2. Consideration shall be given to evacuation if:
 - a. A release is expected to occur with projected doses approaching or exceeding:
1 Rem Whole Body and/or
5 Rem Child Thyroid
(AND)
 - b. Release time is expected to be long (> 2 hours)
(AND)
 - c. Evacuation can be well underway prior to plume arrival for above release, based upon wind speed and travel conditions.

ATTACHMENT II SECTION I
EMERGENCY STATUS REPORT

1. Description of Emergency: _____

2. Has the Reactor tripped Yes / No

3. Did the Emergency Safeguards Systems actuate Yes / No

If so, which ones

(a) High Pressure Injection Yes / No

(b) Low Pressure Injection Yes / No

(c) Core Flood Yes / No

(d) 4 No. Reactor Building Isolation Yes / No

(e) Reactor Building Cooling Yes / No

4. What is the status of the plant

(a) At power

(b) Hot Standby

(c) Hot Shutdown

(d) Cooling down

(e) Reactor Pressure _____ psig

(f) Reactor Temperature _____ °F

5. Is offsite power available Yes / No

6. Are both diesel generators operable Yes / No

ATTACHMENT II SECTION II
EMERGENCY STATUS REPORT

Fill out if a release has (is) occurring. Provide BRP all available information for verification call.

1. What is the approximate radioactive source term discharge rate from the plant (As determined by the Projected Dose Calculation Procedure (1004.7).

(a) Noble gases _____ Ci/sec

(b) Iodine _____ Ci/sec

2. What is the approximate meteorology

(a) Wind speed _____ mph

(b) Wind direction _____

(c) Stability Class—Stable/Neutral/Unstable

3. What is the projected whole body dose rate and iodine concentration at the nearest offsite downwind point

(a) _____ mR/hr

(b) _____ uCi/cc Iodine

(c) _____ (Location)

4. Estimated duration of the release

(a) If the release is terminated:

Start Time _____ Stop Time _____

Duration _____

ATTACHMENT II SECTION II
EMERGENCY STATUS REPORT

(b) If the release is still in progress:

Start Time _____

Estimated Duration _____ (hrs/min/sec)

5. a. Based on projected dose rates, iodine concentration and duration or estimated duration (if still in progress) of the release, will the lower limits of the EPA Protective Action Guides be exceeded (i.e., 1 Rem Whole Body, 5 Rem Child Thyroid)/
Yes/No

b. If yes, estimate time to exceeding PAG: _____
hours and projected whole body dose _____ Rem and
child thyroid dose _____ Rem.

Date

Time Completed

Completed By

FOR USE IN UNIT 1 ONLY

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Revision 2
03/11/81

THREE MILE ISLAND NUCLEAR STATION UNIT NO. 1 EMERGENCY PLANNING IMPLEMENTING PROCEDURE 1004.4 GENERAL EMERGENCY

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USE IN UNIT 1 ONLY

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Reactor Reg.*

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Unit 1 Staff Recommends Approval

Approval

NA
Cognizant Dept. Head

Date

Unit 1 PORC Recommends Approval

McKelton
Chairman of PORC

Date

3/9/81

Manager TMI I Approval

Bo Toole

Date

3-11-81

QA Modifications/Operations Mgr

NA

Date

FOR USE IN UNIT 1 ONLY

FOR USE IN UNIT 1 ONLY

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Revision 0

THREE MILE ISLAND NUCLEAR STATION UNIT 1 EMERGENCY PLANNING IMPLEMENTING PROCEDURE 1004.4 GENERAL EMERGENCY

1.0 PURPOSE -

The purpose of this procedure is to define the conditions that shall be regarded as a General Emergency for Three Mile Island Nuclear Station (Unit 1) and to:

- a. Ensure necessary actions are taken to protect the health and safety of the public.
- b. Ensure necessary actions are taken to notify GPU-Nuclear management and offsite emergency response organizations.
- c. Mobilize the emergency response organizations to initiate appropriate emergency actions.

The Emergency Director is responsible for implementing this procedure.

NOTE: Emergency Director responsibilities that may not be delegated include:

- a) Decision to notify offsite emergency management agencies.
- b) Making protective action recommendations as necessary to offsite emergency management agencies.
- c) Classification of Emergency Event.
- d) Determining the necessity for onsite evacuation.
- e) Authorization for emergency workers to exceed 10 CFR 20 radiation exposure limits.

INITIALS2.0 ATTACHMENTS

- 2.1 Attachment I, General Emergency Notifications
- 2.2 Attachment II, Emergency Status Report

3.0 EMERGENCY ACTION LEVELS

<u>INITIATING CONDITIONS</u>	<u>INDICATION</u>
3.1 Actual or projected doses at the Exclusion Area boundary in excess of 1/10 of the lower limit EPA Protective Action Guidelines.	As determined by: <ul style="list-style-type: none"> a. A projected dose calculation of $\geq 100\text{mR/hr}$ whole body using actual meteorology and Reactor Building design leakrates (includes a Waste Gas Tank Rupture containing the high limit content of $8800\ \mu\text{Ci}$). b. A projected child thyroid dose calculation of $\geq 500\ \text{mR/hr}$ in one hour using actual meteorology and Reactor Building design leakrate. c. Offsite radiological monitoring reports of $> 100\text{mR/hr}$ (gamma) at any offsite location.
3.2 Significant levels of radiation in the reactor containment building and potential loss of containment integrity.	As indicated by either: <ul style="list-style-type: none"> a. Dose rate on RM-G8 $> 2.8 \times 10^4\ \text{mR/hr}$ and a Reactor Building pressure $\geq 30\ \text{psig}$.* b. Dose rate on RM-G8 $> 2.8 \times 10^4\ \text{mR/hr}$ and a Reactor Building hydrogen concentration $\geq 3\ \text{Percent}$ by volume.
3.3 Loss of physical control of the facility.	Shift Supervisor's judgment, based on advice of the Security Duty Sergeant.
3.4 Other plant conditions exist, from whatever source that make release of significant amounts of radioactivity in a short time possible.	Whenever plant conditions warrant it, as judged by the Shift Supervisor/Emergency Director.

* These indications may be determined via instrumentation that will be installed or expanded as required by NUREG 0578 prior to restart.

4.0 EMERGENCY ACTIONS

INITIALS

- ___ 4.1 Upon recognition that any of the above action levels have been reached or exceeded, the Shift Supervisor/Duty Section Superintendent shall assume the duties of the Emergency Director. (Event should be assessed and declared within 10 minutes of the occurrence.)
- ___ 4.2 Announce, or have announced, one of the following messages over the public address system (merged):
- ATTENTION ALL PERSONNEL; ATTENTION ALL PERSONNEL: A GENERAL EMERGENCY IN UNIT I HAS BEEN DECLARED. ALL NON-ESSENTIAL PERSONNEL IN UNITS I AND II PROCEED TO (500 KV SUBSTATION/MIDDLETOWN SUBSTATION) (Depending on plume pathway). UPON ARRIVAL, ALL SUPERVISORS WILL ASSEMBLE and LOG THEIR PERSONNEL. PERSONNEL IN H.P. CONTROLLED AREAS REPORT TO ACCESS CONTROL POINTS. ALL MEMBERS OF THE EMERGENCY ORGANIZATION REPORT TO YOUR STATIONS. THERE WILL BE NO SMOKING, DRINKING, OR EATING UNTIL FURTHER NOTICE. (Repeat message slowly)
- ___ 4.3 Announce to Control Room Personnel that _____
(name)
has assumed the duties of Emergency Director.
- ___ 4.4 Direct the sounding of the Radiation Emergency Alarm.
- ___ 4.5 Assign a Communications Assistant to make notifications to persons and/or agencies per Attachment I, Section I.
- ___ 4.6 Assign a Communications Assistant and direct him to notify the Public Affairs Representative and first, call out the onsite Duty Section personnel, and then the off-site Duty Section.

INITIALS

- ___ 4.7 Record the following message on the Code-a-phone 700:
"THIS IS THE COMMUNICATIONS ASSISTANT (IDENTIFY BY NAME). A GENERAL EMERGENCY HAS BEEN DECLARED IN UNIT ONE. AT THE SOUND OF THE TONE, LEAVE YOUR NAME AND REPORT TO YOUR ASSIGNED EMERGENCY STATION".
The code-a-phone 700 shall then be placed in the ANN-REC mode of operation.
- ___ 4.8 Contact the Duty Section Superintendent, and discuss plant status and that the on-site and off-site duty section personnel are being called.
- ___ 4.9 Depending on the emergency action level which was reached or exceeded, ensure that the appropriate Emergency Operating Procedures have been implemented.
- ___ 4.10 If local services (fire, ambulance, police) are required, direct the Communicator to notify Dauphin County Emergency Operations Center and request appropriate assistance. Notify security (N/S Gate) to begin preparations to expedite entry of responding emergency personnel (Police/Fire/Ambulance). Security should be advised to implement procedure 1004.19 Emergency Security/Dosimetry Badge Issuance.
- ___ 4.11 Direct the Radiological Coordinator to:
- a. Dispatch off-site and/or on-site radiation monitoring teams in accordance with Offsite Radiation Monitoring procedure (1004.11) and Onsite Radiation Monitoring procedure (1004.10).
 - b. Implement Offsite Dose Projections procedure (1004.7).

INITIALS

- ___ 4.12 Activate the Technical Support Center (1004.28) and the Operations Support Center (1004.29).
- ___ 4.13 If additional resources or notifications are required, refer to Assistance and Notification procedure (1004.6).
- ___ 4.14 If the emergency involves in-plant health physics problems, direct the Radiological Assessment Coordinator to implement Health Physics Controls During Emergencies procedure (1004.9).
- ___ 4.15 Assign an individual to complete Attachment II, Section I and give it to the Radiological Assessment Coordinator to transmit to the Bureau of Radiation Protection.
- ___ 4.16 Direct the Radiological Assessment Coordinator to complete Attachment II, Section II to transmit to the Bureau of Radiation Protection.
- ___ 4.17 Verify that communications and documentation are maintained per Communications and Recordkeeping procedure (1004.5).
- ___ 4.18 If applicable, direct the Operations Coordinator to dispatch Emergency Repair/Operations Personnel to investigate the identified problem areas(s) in accordance with Emergency Repair/Operations procedure 1004.21.
- ___ 4.19 After 30 minutes, confirm that BRP verification has been made. If no verification, instruct the Communicator to proceed to Attachment I, Section 1,2.e.
- ___ 4.20 Instruct the Radiological Assessment Coordinator to provide ongoing dose estimates for actual releases, to the Bureau of Radiation Protection.

INITIALS

- ___ 4.21 If a report of Accountability has not been received within 30 minutes from the time it was ordered, contact the Shift Sergeant/Security Coordinator at 8038, 8039, 8040 for a status report.
- ___ 4.22 If personnel are unaccounted for, direct the Radiological Assessment Coordinator to initiate Search and Rescue procedure (1004.18).
- ___ 4.23 Evaluate dose projections and estimates and, if necessary, recommend protective actions to the BRP, consistent with the guidelines in Attachment I, Section IV.
- ___ 4.24 Based upon assessment of plant conditions, the Emergency Director shall either close out the General Emergency and enter the Recovery Phase or downgrade to a lower class as follows:
- a. If Recovery Phase criteria have been met (see procedure 1004.24),
 - b. If Recovery Phase criteria have not been met, but General Emergency Action levels are no longer being exceeded, de-escalate to a lower emergency class by notifying BRP on the Radiological Line and perform the remaining notifications in accordance with the applicable emergency procedure as specified in Step 5.1.
- ___ 4.25 If necessary, due to potential contamination of normally non-contaminated sumps and/or tanks, or the need to closely monitor liquid releases, initiate procedure 1004.14 (monitoring/controlling liquid discharges).

5.0 FINAL CONDITIONS

- ___ 5.1 A lower class of emergency has been declared by the Emergency Director and one of the following procedures is being implemented:
- a. Site Emergency (1004.3)
 - b. Alert (1004.2)
 - c. Unusual Event (1004.1)
- ___ 5.2 The General Emergency has been closed out with the concurrence of the Emergency Support Director, since no recovery operations are required.
- ___ 5.3 The General Emergency has been shifted to a recovery mode by implementing the procedure Recovery Operations (1004.24).

ATTACHMENT I SECTION I

INITIAL CONTACT

INITIALS

The Communicator shall notify the following agencies and personnel, and update the Attachment I, Section II checklist after each notification.

1. Dauphin County Emergency Operation Center

(If this is a reclassification, go to Item 3, Unaffected Control Room).

a. Telephone: 9-911 or 9-236-7976

(1) If no contact, activate the Dauphin County Radio System.

b. MESSAGE:

This is _____ at the Three Mile Island Nuclear
(name/title)

Station Unit 1 calling. We have declared a General Emergency at _____ hours. (Based upon Emergency Director judgement, (time)

use one of the following statements):

1) We have not had a radioactive release, however we have the potential for a significant radioactive release
OR

2) We have had a radioactive release and offsite radiation levels are expected to be > 100 mRem per hour (gamma). We will be keeping the Bureau of Radiological Protection informed.

FOR USE IN UNIT I ONLY

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INITIALS

(Give a short non-technical description of the emergency, the extent of the radioactive release, and potentially affected populations and areas:)

___ 2. Pennsylvania Emergency Management Agency (PEMA)

(If this is a reclassification notification, go to Item 3, Unaffected Control Room.)

NOTE: Where offsite protective actions are to be recommended, the Emergency Director should refer to the contents of Attachment I Section IV.

a. Telephone: 9-783-8150

(A diverter forwards this call to a PEMA Duty Officer after working hours).

1) If no contact, proceed to Step 2.d.

___ b. MESSAGE: ASK FOR THE DUTY OFFICER

This is _____ at the Three Mile Island Nuclear
(name/title)

Station Unit I calling. We have declared an Emergency.

Give me the Operations Duty Officer. (When Duty Officer answers): This is _____ at the Three Mile Island

(name/title)

Nuclear Station Unit 1 calling. We have declared a General Emergency at _____ hours. We request that you contact the

(time)

INITIALS

Bureau of Radiation Protection. Bureau of Radiation Protection call back should be made on the Radiological Line or 948-8069, 948-8071, 944-0839. (Based on Emergency Director's judgement, deliver one of the following statements):

1) We have not had a radioactive release, however, we have the potential for significant radioactive release.

OR

2) We have had a radioactive release and offsite radiation levels are expected to be > 100 mRem/hour (gamma). We will be keeping the Bureau of Radiation Protection informed.

____ c. Give a short, non-technical description of the emergency and the extent of the radioactive release, and potentially affected populations and areas: _____

____ d. If PEMA was unable to be contacted, contact Dauphin County; advise them that PEMA cannot be contacted and direct them to notify PEMA, BRP, and Lancaster, York, Lebanon and Cumberland counties.

____ e. Message verification:
Expect Bureau of Radiation Protection (BRP) contact after PEMA notification. If no BRP confirmation is received

INITIALS

within 30 minutes, notify PEMA of situation. If unable to contact PEMA (line busy), call Dauphin County and notify them that BRP has not verified initial contact. Instruct Dauphin County to contact PEMA and/or BRP.

___ 3. Unaffected Control Room

a. Telephone: Use 8066, 8067 or 8068 or inter-control Room Hot-Line.

___ b. MESSAGE:

Give a brief description of plant status to Shift Supervisor

4. Parent and Four affected Counties

a. Telephone each county separately and deliver the message

1. Dauphin - 911 or 9-236-7976
2. York - 73-1-843-5111
3. Lancaster - 73- 1-299-8373
4. Lebanon - 73-1-272-2025
5. Cumberland - 9-238-9676

b. MESSAGE:

This is _____ at the Three Mile Island Nuclear
(name/title)

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INITIALS

Station Unit 1 calling. We have declared a General Emergency

at _____ hours. (Give a brief description of the

(time)

emergency.) _____

NOTE: Each county must be notified independently and the message transmitted.

___ 5. Institute of Nuclear Power Operations

(Do not notify if this is a reclassification notification).

a. Telephone : 404-953-0904

b. MESSAGE:

This is _____ at the Three Mile Island Nuclear

(name/title)

Station Unit 1 calling. We have declared a General Emergency

at _____ hours. (Give a brief description

(time)

of the of the emergency.) _____

___ 6. Pennsylvania State Police 9-234-4051

FOR USE IN UNIT I ONLY

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INITIALS

MESSAGE:

This is _____ at the Three Mile Island Nuclear

(name/title)

Station Unit 1 calling. We have declared a General Emergency

at _____ hours. We have/have not had a radioactive

(time)

release. We require immediate traffic control assistance in the vicinity of the (North/South) gate.

___ 7. Conrail Railroad 9-255-1414

MESSAGE:

This is _____ at the Three Mile Island Nuclear

(name/title)

Station Unit I calling. We have declared a General Emergency

at _____ hours. We require immediate restriction of

(time)

railway traffic at the Station.

___ 8. Radiation Management Corporation

73-1-215-243-2950

73-1-215-243-2990 Emergency Number

MESSAGE:

This is _____ at the Three Mile Island Nuclear

(name/title)

Station Unit I calling. We declared a General Emergency at _____

time

hours. (Give a brief description of the emergency.)

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INITIALS

We _____ had a radioactive release. We _____
(have/have not) (do/do not)

require assistance at this time. (Describe the assistance required if any.)

___ 9. American Nuclear Insurers 74-1-203-677-7305

MESSAGE:

This is _____ at the Three Mile Island Nuclear
(name/title)

Station Unit 1 calling. We have declared a General Emergency at _____ hours. (Give a brief description of the
(time)

emergency.) We _____ had a radioactive release.
(have/have not)

___ 10. Babcock and Wilcox 74-1-804-384-3413

MESSAGE:

This is _____ at the Three Mile Island Nuclear
(name/title)

Station Unit 1 calling. We have declared a General Emergency at _____ hours. (Have a prepared Attachment II available
(time)

for reference while giving a brief description of the emergency).

NOTE: From 0900 to 1700 the B and W trunk of the Operations Line may be used. (See Communications Plan)

___ 11. If medical assistance is required, notify the following agency:

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INITIALS

- a. Hershey Medical Center 9-534-8333

Notification to be performed in accordance with procedure
1004.16.

12. Nuclear Regulatory Commission (NRC) - Bethesda, MD

(Communications with NRC will be continuously maintained following
contact.)

- a. Telephone: NRC Emergency Notification System (ENS)
(RED PHONE)

- b. MESSAGE:

This is _____ at the Three Mile Island
(name/title)

Nuclear Station Unit 1 calling. We have declared a General
Emergency at _____ hours. (Based on Emergency Director
(time)

judgement, issue one of the following statements):

- 1) We have not had a radioactive release, however, we have
the potential for Significant radioactive release.

OR

- 2) We have had a radioactive release and offsite radiation
levels are expected to be >100 mRem/hour (gamma). We will
be keeping the Bureau of Radiation Protection informed.

- c. Give a short non-technical description of the emergency and the extent of the radioactive release, and the potentially affected populations and areas.

ATTACHMENT I
SECTION II

NOTIFICATION CHECKLIST

AGENCY	TIME OF INITIAL NOTIFICATION OR ESCALATION				TIME OF DE-ESCALATION OR CLOSE OUT			
	UNUSUAL EVENT	ALERT	SITE EMERGENCY	GENERAL EMERGENCY	UNUSUAL EVENT	ALERT	SITE EMERGENCY	GENERAL EMERGENCY
Dauphin County								
PEHA								
Unit 2 Control Room								
INPD								
NRC								
Hershey Medical Center	*	*	*	*				
State Police	*	*	*	*				
BMC	*	*	*	*				
AMT	*	*	*	*				
B&W	NA	NA	NA	NA				
ComRail	NA	NA	NA	NA				
5 Affected Counties	NA	NA	NA	NA				

FOR USE IN UNIT I ONLY

*Optional

POOR ORIGINAL

FOR USE IN UNIT I ONLY

ATTACHMENT I SECTION III

SECONDARY CONTACT

INITIALS

The Communicator shall notify the following agencies and personnel and update the Attachment I, Section II checklist after each notification.

____ 1. Bureau of Radiation Protection

a. Telephone: Radiological Line

b. MESSAGE:

This is _____ at the Three Mile Island Nuclear
(name/title)

Station Unit 1 calling. We have closed out the General
Emergency at _____ hours and initiated recovery operations.
(time)

Please notify PEMA, Dauphin, Lancaster, York, Lebanon and
Cumberland counties.

____ 2. Unaffected Control Room

a. Telephone: 8066, 8067, 8068

b. Message:

Notify Shift Supervisor of close out of the General Emergency.

____ 3. Nuclear Regulatory Commission Office- Bethesda, Md.

a. Telephone: Emergency Notification System (ENS)
(RED PHONE)

FOR USE IN UNIT I ONLY

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INITIALS

b. MESSAGE:

This is _____ at the Three Mile Island Nuclear
(name/title)

Station Unit 1 calling. We have closed-out the General
Emergency at _____ hours and initiated recovery
(time)

operations.

4. If applicable, notify the following persons and/or agencies of
the close-out of the General Emergency:

- a. Hershey Medical Center: 9-534-8333
- b. Pennsylvania State Police: 9-234-4051
- c. Radiation Management Corporation (RMC)
73-1-215-243-2950 or 73-1-215-243-2990
- d. American Nuclear Insurers: 74-1-203-677-7305
- e. Babcock and Wilcox: 74-1-804-384-3413
- f. Conrail: 9-255-1414
- g. Others: As directed by the Emergency Director

DATE

TIME COMPLETED

COMPLETED BY

FOR USE IN UNIT I ONLY

19.0

ATTACHMENT I SECTION IV

PROTECTIVE ACTION RECOMMENDATION GUIDELINES

THESE RECOMMENDATIONS MAY BE DELIVERED ON BY
THE EMERGENCY DIRECTOR

1. Consideration shall be given to sheltering if:
 - a. Release time is expected to be short (Puff release, <2 hours)
(AND)
 - b. Evacuation could not be well underway prior to expected plume arrival due to short warning time, high wind speeds, and/or foul weather.

2. Consideration shall be given to evacuation if:
 - a. A release is expected to occur with projected doses approaching or exceeding:
 - 1 Rem Whole Body and/or
 - 5 Rem Child Thyroid(AND)
 - b. Release time is expected to be long (>2 hours)
(AND)
 - c. Evacuation can be well underway prior to plume arrival for above release, based upon wind speed and travel conditions.

ATTACHMENT II
EMERGENCY STATUS REPORT

SECTION I

1. Description of Emergency: _____

2. Has the Reactor tripped Yes / No

3. Did the Emergency Safeguard Systems actuate Yes / No

If so, which ones

a. High Pressure Injection Yes / No

b. Low Pressure Injection Yes / No

c. Core Flood Yes / No

d. 4 No. Reactor Building Isolation Yes / No

4. What is the status of the plant

a. At power

b. Hot standby

c. Hot shutdown

d. Cooling down

e. Reactor Pressure _____ psig

f. Reactor Temperature _____ °F

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5. Is offsite power available Yes / No

6. Are both diesel generators operable Yes / No

7. Have any personnel injuries occurred Yes / No

If so, is the injured person(s) contaminated Yes / No

What are the approximate radiation and/or contamination levels

_____ mR/hr

_____ DPM/100 cm²

8. Are there excessive radiation levels and/or contamination

Levels Yes / No

If so, list below:

a) Radiation levels: (Whole body) _____

b) Contamination levels _____ DPM/100 cm²

At location: _____

DATE

TIME

COMPLETED BY

ATTACHMENT II
EMERGENCY STATUS REPORT
SECTION II

Fill out if a release has (is) occurring. Provide BRP all available information for verification call.

1. What is the approximate radioactive source term discharge rate from the plant (As determined by the Projected Dose Rate Calculation procedure 1004.7).
 - a) Noble gases _____ Ci/sec
 - b) Iodine _____ Ci/sec

2. What is the approximate meteorology
 - a) Wind speed _____ mph
 - b) Wind direction _____
 - c) Stability class - Stable/Neutral/Unstable

3. What is the projected whole body dose rate and the iodine concentration at the nearest offsite downwind point
 - a) _____ mR/hr
 - b) _____ uCi/cc Iodine
 - c) _____ (Location)

4. Estimated duration of the release
 - a) If the release is terminated:
Start time _____ Stop time _____ Duration _____

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b) If the release is still in progress:

Start time _____

Estimated duration _____ (hrs/min/sec)

5. a) Based on projected dose rates, iodine concentration and duration or estimated duration (if still in progress) of the release, will the lower limits of EPA Protective Action Guides be exceeded

(i.e., 1 Rem whole body, 5 Rem Child Thyroid) Yes / No

b) If yes, estimate time to exceeding PAG: _____ hours

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THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.5
COMMUNICATIONS AND RECORDKEEPING

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Regulation*

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Unit 1 Staff Recommends Approval

Approval N/A
Cognizant Dept. Head

Date _____

Unit 1 PORC Recommends Approval

Robert Nelson
Chairman of PORC

Date 12/15/80

Manager TMI I Approval

G. Toole

12/15

Date 12-15-80

QA Modifications/Operations Mgr

_____ Date _____

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THREE MILE ISLAND NUCLEAR STATION
UNIT I EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.5
COMMUNICATIONS AND RECORDKEEPING

1.0 PURPOSE

The purpose of this procedure is to 1) provide a list of all logs to be taken and records to be kept, and 2) delineate when each log and record should be maintained.

This procedure is implemented when referenced by any Emergency Plan Implementing Procedure.

2.0 ATTACHMENTS

2.1 Attachment I, Emergency Director's Log

2.2 Attachment II, Telephone Communications Logsheet

2.3 Attachment III, Master Log to be completed by the appropriate persons (Group Leaders, Chemistry, Health Physics, Administration, Security Support, etc., see above responsibility for implementation).

3.0 EMERGENCY ACTION LEVELS

3.1 This procedure to be initiated upon declaration of any of the following:

3.1.1 Unusual Event (1004.1)

3.1.2 Alert (1004.2)

3.1.3 Site Emergency (1004.3)

3.1.4 General Emergency (1004.4)

Initial

4.0 REQUIREMENTS

4.1 Communications

All significant communications should be documented on a telephone communications log sheet. (Attachment II).

4.2 Record Keeping

Ensure the Logs and Records are used as follows:

4.2.1 Emergency Director's Log

- 1) When conditions permit, the Emergency Director's Log (Attachment I) should be started shortly after an emergency is declared, and maintained by the Emergency Director, or his designated Logkeeper, until the emergency is closed-out by the Emergency Director.
- 2) The following is a list that is indicative of the type of information that should be considered for documentation in this Log:
 - a) Time, shift, date the emergency is declared.
 - b) Names of personnel assuming key positions in the emergency organization.
 - c) Plant status at the time of the declaration of the emergency.
 - d) Major steps taken during the emergency (i.e., alarms sounded, procedures implemented, major equipment status changes, etc.)
 - e) Important data received (i.e. major plant parameters pertaining to the Emergency, ECT).

Initial

- f) Recommendations given to or received from Off-Site agencies, not recorded by communications assistant, (i.e., the NRC, Pennsylvania Bureau of Radiation Protection, Dauphin County Emergency Management Agency, etc.).
- g) Final notifications of Off-Site agencies upon close-out of the emergency or change of emergency classification by the Emergency Director.

4.2.2 Radiological Assessment Coordinator's Log

- 1) Conditions Permitting, this Log (Attachment III) should be started shortly after the duties and responsibilities of the Radiological Assessment Coordinator are assumed, and maintained by the Radiological Assessment Coordinator, or his designated Log-keeper, until the emergency is closed-out by the Emergency Director.
- 2) Items for consideration in this Log are as follows:
 - a) Time responsibilities are assumed.
 - b) Names of personnel filling key positions under the Radiological Assessment Coordinator.
 - c) Results from radiation surveys.
 - d) Results from dose projections and release calculations, etc.

Initial

- e) Recommendations to or from the Bureau of Radiation Protection.
- f) Transfer of responsibility for control of Off-Site Radiological and Environmental Monitoring to the Environmental Assessment Coordinator at the Environmental Assessment Command Center.
- g) Time of close-out of the emergency, as directed by the Emergency Director.

4.2.3 Operations Support Center Coordinator's Log

- 1) Conditions Permitting, this Log (Attachment III) should be started shortly after the duties and responsibilities of the Operations Support Center Coordinator are assumed, and maintained by the Operations Support Center Coordinator or his designated Logkeeper, until the emergency is closed-out by the Emergency Director.
- 2) Items for consideration in this Log are as follows:
 - a) Time, shift, and date duties are assumed.
 - b) Names of personnel assuming key positions in the emergency support organization.
 - c) Significant events that occur or important data/information recieved.
 - d) Recommendations exchanged with other affected agencies.

Initial

- e) Any teams (Search and Rescue, onsite/offsite radiation monitoring) assembled and dispatched, the names of the team leaders, and the purpose of team dispatch.

4.2.4 Emergency Support Director

1) Emergency Support Director's Log

- a) Conditions permitting, this Log (Attachment III) should be started shortly after the duties and responsibilities of the Emergency Support Director are assumed, and maintained by the Emergency Support Director, or his designated Logkeeper, until the emergency is closed-out by the Emergency Director.
- b) Items for consideration in the Log are as follows:
 - 1) Time responsibilities are assumed.
 - 2) Names of personnel assumimng key positions in the Off-Site emergency organization.
 - 3) Significant events that occur or important data received, (i.e., radiation survey results, major plant parameters pertaining to the emergency etc.).

Initial

- 4) Major steps taken during the emergency (i.e. procedures implemented, organization changes/re-locations due to special considerations, etc.).
- 5) Recommendations given to or received from Off-Site agencies (i.e. the NRC, Pennsylvania Bureau of Radiation Protection, Dauphin County Emergency Management Agency, etc.).
- 6) Time of close-out or re-classification of the emergency as directed by the Emergency Director.

2) Technical Support Representative Log

- a) Conditions permitting, this Log (Attachment III) should be started shortly after the duties and responsibilities of the Technical Support Representative are assumed.
- b) Items for consideration in the Log are as follows:
 - 1) Time duties are assumed.
 - 2) Names of personnel on support staff.
 - 3) Significant events that occur or information pertaining to recommendations or observations made (i.e., time, recommendation/observation, to whom, etc.).

Initial

- 4) Information transferred from Parsippany technical functions
- 5) Time of the close-out or re-classification of the emergency, as directed by the Emergency Director.

_____ 3) Group Leader - Chemistry Support Log

- a) Conditions permitting, this Log (Attachment III) should be started shortly after the duties and responsibilities of the Group Leader - Chemistry Support are assumed.
- b) Items for consideration in the Log are as follows:
 - 1) Time duties are assumed.
 - 2) Names of personnel on support staff.
 - 3) Significant events that occur or information pertaining to recommendations or observation made (i.e., time, recommendation/observation, to whom, etc.).
 - 4) Time of close-out or re-classification of the emergency as directed by the Emergency Director.

_____ 4) Assistant Environmental Assessment Coordinator Log

- a) Conditions permitting, this Log (Attachment III) should be started shortly after the duties and

the responsibilities of the Assistant Environmental Assessment Coordinator are assumed.

b) Items for Consideration in this Log are as follows:

- 1) Time responsibilities are assumed.
- 2) Names of personnel filling key positions under the Environmental Assessment Coordinator.
- 3) Results from environmental, radiological, and meteorological surveys.
- 4) Any teams (Environmental, Offsite, Meteorological, Monitoring) assembled and dispatched, their purpose and names of team leaders.
- 5) Recommendations to or from the Radiological Assessment Coordinator.
- 6) Time of announcement of assumption of responsibility for receipt of all offsite radiological and environmental monitoring data.
- 7) Time of notification to the Radiological Assessment Coordinator (via dedicated Line) of assumption of responsibilities for offsite monitoring.

Initial

- 8) Time of close-out of the emergency as directed by the Emergency Director.

4.2.5 The following Logs should be kept by key personnel at the Alternate Near-Site Emergency Operations Facility. (Crawford Station)

1) Group Leader - Security Support Log

- a) Conditions permitting, this Log (Attachment III) should be started shortly after the duties and responsibilities of the Group Leader - Security Support are assumed.
- b) Items for consideration in this Log are as follows:
 - 1) Time duties are assumed.
 - 2) Location duties are performed.
 - 3) Any changes in location due to special considerations, etc.
 - 4) Any special orders received and person issuing these orders.

2) Group Leader - Radiological Controls Support Log

- a) Conditions permitting, this Log (Attachment III) should be started shortly after the duties and responsibilities of the Group Leader - Health Physics Support are assumed.
- b) Items for consideration in this Log are as follows:

Initial

- 1) Time duties are assumed.
- 2) Names of personnel filling key positions under the Group Leader - Health Physics.
- 3) Important data received (i.e. results from radiation and contamination surveys, contaminated personnel, etc.).
- 4) Locations of monitoring/sampling stations and any subsequent relocation for special considerations, etc.
- 5) Time of close-out or reclassification of the emergency, as directed by the Emergency Director.

3) Group Leader - Administrative Support

- a) Conditions permitting, this Log (Attachment III) should be started shortly after the duties and responsibilities of the Group Leader - Administrative Support are assumed.
- b) Items for consideration in this Log are as follows:
 - 1) Time duties are assumed.
 - 2) Names of personnel filling key positions under Group Leader Administrative Support.
 - 3) Offsite services contacted and expected time of arrival of support.
 - 4) If applicable, time of notification of local and state police.

Initial

- 5) Time of close-out or reclassification of the emergency as directed by the Emergency Director.
- 4) Group Leader - Maintenance Support Log
 - a) Conditions permitting, this Log (Attachment III) should be started shortly after the duties and responsibilities of the Group Leader - Maintenance Support are assumed.
 - b) Items for consideration in the Log are as follows:
 - 1) Time duties are assumed.
 - 2) Names of personnel filling key positions under the Group Leader Maintenance Support.
 - 3) Time of the close-out or reclassification of the emergency as directed by the Emergency Director.

4.2.6 The following Log should be kept by the Environmental Assessment Coordinator at the Environmental Assessment Command Center.

- 1) Environmental Assessment Coordinator's Log

Conditions permitting, this Log (Attachment III) should be started shortly after activation of the Environmental Assessment Command Center and maintained by the Environmental Assessment Coordinator, or his

Initial

designated Logkeeper, until the emergency is closed-out by the Emergency Director.

- 2) Items for consideration in this Log are as follows:
 - a) Time duties are assumed.
 - b) Names of personnel filling key positions under Environmental Assessment Coordinator.
 - c) Important data received (i.e. results from radiation and contamination surveys, contaminated personnel, etc.).
 - d) Time of assumption of offsite monitoring responsibilities.
 - e) Results from environmental radiological, and meteorological surveys.
 - f) Any teams assembled and dispatched, their purpose and names of team leaders.
 - g) Recommendations to or from the Radiological Assessment Coordinator.
 - h) Time of close-out or reclassification of emergency.

5.0 FINAL CONDITIONS

- 5.1 Communication Lines are established and being maintained as required.
- 5.2 Logs are started and maintained as required.
- 5.3 Completed Logs are forwarded to the Shift Supervisor/Emergency Director.

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ATTACHMENT 1

THREE MILE ISLAND NUCLEAR STATION
UNIT 1
EMERGENCY DIRECTOR'S LOG

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Date _____

Time _____

Shift _____

Emergency Director _____
Radiological Assessment
Coordinator _____
Operations Coordinator _____
Technical Support
Center Coordinator _____
Communicator _____

ATTACHMENT II
FOR USE IN UNIT I ONLY
 TELEPHONE COMMUNICATIONS LOGSHEET

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DATE:	TIME:	INCOMING	OUTGOING	Phone Circuit Used:
TO:		FROM:		
Message:				
Received by:				

DATE:	TIME:	INCOMING	OUTGOING	Phone Circuit Used:
TO:		FROM:		
Message:				
Received by:				

DATE:	TIME:	INCOMING	OUTGOING	Phone Circuit Used:
TO:		FROM:		
Message:				
Received by:				

POOR ORIGINAL

FOR USE IN UNIT I ONLY

Date _____
Time _____
Shift _____

ATTACHMENT III (Typical)
THREE MILE ISLAND NUCLEAR STATION
UNIT I

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Dissemination:

Title of Log

Name of person assuming position

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THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.6
ADDITIONAL ASSISTANCE AND NOTIFICATION

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12/15/80

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Unit 1 Staff Recommends Approval

Approval N/A
Cognizant Dept. Head

Date

Unit 1 PORC Recommends Approval

MacVehon
Chairman of PORC

Date 12/15/80

Manager TMI I Approval

R. J. Toole

12/15

Date 12-15-80

QA Modifications/Operations Mgr

Date

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THREE MILE ISLAND NUCLEAR STATION UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.6 ADDITIONAL ASSISTANCE AND NOTIFICATION

1.0 PURPOSE

To provide the Emergency Director with a directory of additional emergency response personnel, organizations and agencies by organizational duties, responsibilities and disciplines.

The Emergency Director is responsible for implementing this procedure.

2.0 ATTACHMENTS

- 2.1 Attachment I - Unit 1 Onsite Emergency Response Directory.
- 2.2 Attachment II - Unit 2 Onsite Emergency Response Directory.
- 2.3 Attachment III - Offsite Emergency Response Directory.
- 2.4 Attachment IV - Emergency Response Assistance Checklist.

3.0 EMERGENCY ACTION LEVELS

- 3.1 This procedure shall be implemented with the declaration of any class of emergency when additional emergency response personnel, organizations or agencies than those listed on the appropriate Emergency Procedures are needed to assist TMI, or,
- 3.2 As requested by the Emergency Director.

4.0 EMERGENCY ACTIONS

- 4.1 In the event of a declared emergency at TMI that requires additional emergency response personnel, organizations or agencies, the following steps should be taken:
 - 4.1.1 Determine the discipline of personnel or necessary equipment that will be needed for the class of emergency declared.

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4.1.2 Refer to Attachment I, II, or III to find the appropriate discipline, choose the personnel, organization or agency wanted and telephone number of that organization.

4.2 When called party answers, provide the following message:

THIS IS _____ AT THE THREE MILE ISLAND NUCLEAR STATION UNIT 1_
(name/title)

CALLING. WE HAVE DECLARED A _____ AT _____ HOURS.
(Type of emergency) (time)

TMI REQUESTS YOUR ASSISTANCE AS FOLLOWS: (State any assistance required using Attachment IV if applicable).

4.2.1 Identify existing problem and give brief description of problem.

4.2.2 Identify necessary personnel/equipment needed and request assistance.

4.2.3 Refer to Attachment IV for assistance to be provided.

4.3 If further assistance is required, repeat 4.1 and 4.2 as needed.

5.0 FINAL CONDITIONS

N/A

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ATTACHMENT I

UNIT 1 ONSITE EMERGENCY RESPONSE DIRECTORY

! NOTE: Numbers prefixed with 948 are site extensions. !

OPERATIONS

WORK PHONE NO.

Ron Toole	948-8005
	948-8506
M. Ross	948-8015
	948-8202

EMERGENCY CONTROL CENTER (CONTROL ROOM)

Shift Foreman's Office	948-8069
	948-8070
	948-8071
Control Room - Communications Console	944-0839
Control Room - Shift Foreman	948-8069
	948-8070
	948-8071
Control Room - Dose Assessment (RAC)	948-8069
	948-8070
	948-8071
	948-0839
Control Room Computer Area	948-8525

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OPERATIONS SUPPORT CENTER

OCS Coordinator	948-8083
Radiological Controls Technicians	948-8082

TECHNICAL SUPPORT CENTER

TSC Coordinator	948-8079
Engineers	948-8349

INSTRUMENT LAB

Lab Area	948-8214
Offices	948-8072
	948-8073
	948-8074
	948-8213

PROCESSING CENTER

Security - Duty Sergeant	948-8038
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TECHNICAL SUPPORT CENTER

TSC Coordinator

948-8352

Engineers

948-8352

UNIT 2 INSTRUMENT LABORATORY

Lab Area

948-8274

Offices

948-8156

948-8272

948-8273

948-8155

TRAILER 214

Unit 2 Security Sergeant

948-8594

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ATTACHMENT III

OFFSITE EMERGENCY RESPONSE DIRECTORY

NEAR SITE EMERGENCY OPERATIONS FACILITY (OBSERVATION CENTER)

944-0940
944-0303
944-1501
367-0475
367-0518
367-0511

ALTERNATE EMERGENCY OPERATIONS FACILITY (CRAWFORD STATION)

948-8535
944-4644
944-5111

ENVIRONMENTAL ASSESSMENT COMMAND CENTER (OLMSTED AIRPORT)

General No.	944-3173
Bill Reithle	944-6709
Gary Baker	944-2648
William Ressler	944-3737

TECHNICAL FUNCTIONS PARSIPPANY

Group Leader Technical Support	7686-6645
	7686-6378
	7686-6297
Commercial Number	1-201-263-6500

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POLICE

Pennsylvania State Police (24 Hours)	9-234-4051
Pennsylvania State Police Helicopters (0815-1615) (M-F)	9-783-5511
Middletown Police Department (24 Hours)	9-944-4311
Police Forces in York County (24 Hours)	73-1-843-5111

FIRE

Londonderry Township Fire Department	9-911 or 9-236-7976
Middletown Fire Department - including:	9-944-6344
Union Hose Company	
Rescue Hose Company, No. 3	
Liberty Fire Company	
Bainbridge Fire Department (Lancaster Co.)	73-1-653-2046
(24 Hours)	
York County Fire Departments	73-1-843-5111

AMBULANCE

Londonderry Township Vol. Ambulance	9-911 or 9-236-7976
Middletown Ambulance Service	9-944-6344
Bainbridge Ambulance Service (Lancaster Co.)	73-1-653-2001
(24 Hours)	

STATION MEDICAL CONSULTANT

Dr. William Albright III	General 9 939-7831
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HOSPITALS

Hershey Medical Center (Emergency Room)	9-534-8333
Harrisburg General Hospital	General 9-782-3131
	Emergency Room 9-782-3297

METROPOLITAN EDISION COMPANY AND GENERAL PUBLIC UTILITIES MANAGEMENT

Met-Ed - System Safety Director (0800-1700) (M-F)	73-1-215-921-6227
Met-Ed - Div. Safety Director (0800-1700) (M-F) Office	73-1-215-921-6023
	Home 73-1-215-777-3951
Met-Ed - Dispatcher, Lebanon (24 Hours)	73-1-272-1281
	*73-1-272-5623

*During Duty Hours, Ask for Dispatch

Met-Ed - Distric Manager, Middletown	9-944-4621
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General Public Utilities

0830 - 1700	74-1-201-263-6500
after 1700	74-1-201-263-6111

GOVERNMENTAL AGENCIES

Dept. of Energy (24 Hours)	74-1-516-345-2200
NRC - Office of I and E, Region 1 (24 Hours)	73-1-215-337-5000
PA Dept. of Env. Res. (BRP)	9-787-2480
EPA - Region III Office (24 Hours) Emergency No.	73-1-215-597-9898

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Civil Defense Organization (24 Hours)

Pennsylvania Emergency Management Agency	9-783-8150
Dauphin Co.	9-911 or 9-236-7976
Lancaster Co. (24 Hours)	73-1-299-8373
York Co.	73-1-843-5111
Cumberland Co.	9-238-9676
Lebanon Co. (0800-1630)	73-1-272-7621
U.S. Coast Guard (Harrisburg, PA) (General)	717-782-3737
(Nights, Weekends) (24 Hours)	74-1-212-668-7055
National Weather Service	9-782-3927

PARSIPPANY TECHNICAL FUNCTIONS GROUP

Group Leader Technical Support	7686-6645
	7686-6378
	7686-6297

METROPOLITAN EDISON COMPANY CONSULTANTS

Radiation Management Corp. (0800-1700) Office	73-1-215-243-2950
Office Hours - Emergency	73-1-215-243-2990
Pickard, Lowe and Garrick Assoc. Washington, D.C.	74-1-202-296-8633
Gilbert Associates Inc., Reading, PA	73-1-215-775-2600
Teledyne Isotopes, Westwood, NH	74-1-201-664-7070
Burns and Roe, Paramus, NJ	74-1-201-265-9500
MPR Associates Inc., Washington, D.C.	74-1-202-659-2320
Institute of Nuclear Power Operations (24 hours-Emergency)	404-953-0904
Emergency Teletypewriter (24 Hours)	404-953-0904

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DOWNSTREAM RIVER WATER USERS

Brunner Island (PP and L) (24 Hours)	73-1-266-3691
Wrightsville Water Supply Company	73-1-252-3711
or	
Mr. Miller, V.P. of Water Co. (Unlisted)	9-564-8220
Columbia Water Company Plant (24 Hours)	73-1-684-2712
Lancaster Water Company (24 Hours)	73-1-684-5056
Safe Harbor Water and Power, Inc.	73-1-872-5441
	73-1-872-5442
	73-1-872-5443
Holtwood Generating Station	73-1-284-4101
Chester Water Authority (Exec. Manager)	73-1-215-876-8181
(24 Hours Ans. Svc.)	
Baltimore Water Supply Auth. Mr. Hudson (Bus. Hrs.)	74-1-301-396-1277
(Weekends, Holidays) (24 Hours)	74-1-301-396-5352
Ask for John Caprio	74-1-301-396-7800
or	
Water Facilities Division (Pumping and Purification)	74-1-301-396-0287
Walter Koterwas	

OTHER

Harrisburg International Airport Control Tower	9-944-4502
Middletown Line Department	8535 or 9-944-4621
York Company Office	73-1-846-7800
Lebanon Company Office (Business Hours)	73-1-272-5661
(Weekends, Holidays)	73-1-272-1281

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Capital Trailways Bus Company	9-233-7673
Conrail Railroad Train Movement Coordinator	9-657-3552
	9-255-1414
Insurance - American Nuclear Insurers	74-1-203-677-7305

UTILITIES

Pennsylvania Power and Light, Allentown, PA	73-1-215-821-5151
Philadelphia Electric - Peach Bottom (Gen.)	73-1-717-456-7014
(Operations Dept.)	Ext 223 or 423
Baltimore Gas and Electric	74-1-301-234-5000
Dusquesne Light/Beaver Valley (Control Rm.)	73-1-412-643-8002
Dusquesne Light (Corporate)	73-1-412-456-6000
Nine Mile Point Unit 1 (Business Hours)	74-1-315-343-2110
(Control Room)	74-1-315-342-3046
Power Authority State of NY (James A. Fitzpatrick Plant)	
(General)	74-1-315-342-3840
Control Room Ext. 311	
Oyster Creek (Control Room)	74-1-609-693-6066
(Main Gate Desk at Guard House)	74-1-609-693-6950

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EMERGENCY RESPONSE ASSISTANCE CHECKLIST

ATTACHMENT IV

	OYS.		PCH	BER-	CALV.
	CRK	SALEM	BTM	WICK	CLIFFS
A. Personnel					
1. H.P. Supervisors	2	2	5	2	3
2. H.P. Techs	5	5	20	5	10
3. Radio Chem Supervisors	0	0	2	0	2
4. Radiochem Techs	3	2	2	1	2
5. Engr-Effl. Ass.	0	0	1	1	1
6. TLD Reader	0	1	1	1	1
7. EE-RMS Spec.	1	0	1	0	1
8. Security Sgt.	1		0		2
9. Sec. Officers	8		0		1
B. Radiaton Detection Equipment					
1. Survey Meter-Hi	20	0	12	5	8
2. Survey Meter Hi-Telescoping	4	5	0	4	1

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	OYS.		PCH	BER-	CALV.
	CRK	SALEM	BTM	WICK	CLIFFS
3. Survey Meter-Lo	5	5	4	10	8
4. SAM II	0	1	0	2	1
5. Portable Geli	1	1	1	1NaI	0
6. Shield for Geli	1	1	1	1	0
7. Computer and Output for Geli	1	1	1	0	0
8. uR/hr ratemeter and recorder	0	0	0	1	0
9. RM-14 Frisker	15	10	15	5	3
10. Air Sampler-lo vol.	5	3	6	2	2
11. Air Sampler-hi vol.	10	5	3	2	2
12. Gas Sampler (for later Geli Analysis	0	0	2	2	0
13. Pocket Dosimeters	200	100	100	20	200

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	OYS.		PCH	BER-	CALV.
	CRK	SALEM	BTM	WICK	CLIFFS
14. Proportional Count	0	0	1	0	1
15. Liq. Scint.	1	0	0	0	0
16. Scaler-Timer <i>and</i> Detector	1	1	0	1	1
17. Shields for above	1	1	0	1	0
18. Rad tads	0	0	24	0	0
19. Ion Telemetry	0	0	1	0	0
C. Vehicles					
1. Station Wagon or Truck or <i>Van</i> for Survey Team	1	1	1	1	1
2. 110 generator	1	1	0	1	0
3. Inverter for vehicle battery	0	1	0	1	1

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	OYS.		PCH	BER-	CALV.
	CRK	SALEM	BTM	WICK	CLIFFS
4. GeFi Counting Lab Van	0	0	0	1	1
5. Beta Count Lab	0	0	0	0	1
6. Wind Speed and Direction Indic.	0	0	0	0	0
D. Supplies					
1. Coverall and Access: Set	2000	1000	500	500	0
2. Disposable coveralls	1000	1000	0	200	200
3. Rainsuits	500	50	200	250	10
4. Respirators	100	150	100	100	100
5. Respirator Cartridges	1000	500	400	200	100
6. Iodine Sampler Cartridges	500	200	200	250	100

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	OYS.		PCH	BER-	CALV.
	CRK	SALEM	BTM	WICK	CLIFFS
7. Silver Zeolite					
Cartridges	0	200	0	0	0
8. 50 gal. plastic bags	5000	500	500	2000	1000
9. Decon Kit (skin)	1	0	0	0	0
10. Absolute Filter					
Vacuum Cleaner	2	1	0	1	0
11. Filters for above	2	1	0	2	0
12. Resp. Test Booth	0	0	0	0	0
13. SCBA (4.5)	10	20	6	5	10
14. SCBA Tanks	10	20	6	10	30
15. Port. Air Comp.	0	1	0	0	0
16. Glove Box for					
Sample Prep.	2	0	0	0	0
17. Lead Bricks	0	20	0	100	500

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CALV.

	OYS. CRK	SALEM	PCH BTM	BER- WICK	CALV. CLIFFS
18. 1/4" Lead Sheet 4x4x1/4	50	10	10	20	100
19. Lead Blankets	0		25	15	100
20. Air Sample Papers	1000	200	200	500	10000
21. Radiacwash/gal	0	0	55	55	5
22. Rad. Cal. Source	0	0	0	2	0
23. Misc. Std. for Lab Equip.	1	0	0	1	0

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Revision 1
02/10/81

THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.7
OFFSITE DOSE PROJECTIONS

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8.0	0	33.0	1	58.0	1		
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10.0	1	35.0	0	60.0	1		
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24.0	1	49.0	1				
25.0	1	50.0	1				

Unit 1 Staff Recommends Approval

Approval: NA Date
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

Michael E. Nelson Date 2/6/81
Chairman of PORC

Manager Unit 1 Approval

Bill Toole Date 2-10-81
02/9/81

QA Modifications/Operations Mgr

NA Date

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THREE MILE ISLAND NUCLEAR STATION
UNIT I EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.7
OFFSITE DOSE PROJECTIONS

1.0 PURPOSE

The purpose of the procedure is to provide:

- a. Techniques and methods for calculating projected doses (whole body and thyroid) which might result from monitored releases of radioactive materials from TMI Unit I.
- b. Techniques and methods for predicting the downstream concentrations of radioactive liquids resulting from a major accidental release of radioactive liquids to the Susquehanna River.
- c. Contingency methods for estimating projected doses if monitors are out of service or off-scale high.

The Radiological Assessment Coordinator is responsible for implementing this procedure.

2.0 ATTACHMENTS

- 2.1 Attachment I Computerized Dose Calculations
- 2.2 Attachment II Dispersion Calculation
- 2.3 Attachment III Reactor Building Releases
- 2.4 Attachment IV Station Vent Releases
- 2.5 Attachment V Condenser Off-Gas Releases
- 2.6 Attachment VI Reactor Building Purge Releases

- 2.7 Attachment VII Total Source Term
- 2.8 Attachment VIII Projected Dose Rates
- 2.9 Attachment IX Contingency Calculations
- 2.10 Attachment X Liquid Release Calculations
- 2.11 Attachment XI Table 1 - River Flow vs. River Level

3.0 EMERGENCY ACTION LEVELS

- 3.1 As required by an Emergency Plan Implementing Procedure.
- 3.2 As directed by the Emergency Director or his designee.

4.0 EMERGENCY ACTIONS

INITIALS

NOTE: Perform steps in order:

If release is radioactive gases to the atmosphere, perform steps 4.1 through 4.9.

If release is of radioactive liquids to the Susquehanna River perform steps 4.10 through 4.13.

_____ 4.1 Perform computer dose calculations using Attachment I

NOT. The following steps are to be performed in the event the computer is unavailable.

_____ 4.2 Perform Dispersion Calculation by completing forms in Attachment II.

_____ 4.3 Perform calculation of activity release terms from the Reactor Building by completing forms in Attachment III.

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Initials

- _____ 4.4 Perform calculation of activity release terms from the Station Vent by completing forms in Attachment IV.
- _____ 4.5 Perform calculation of activity release terms from the condenser off-gas by completing forms in Attachment V.
- _____ 4.6 Confirm Reactor Building Purge Valves Shut. If not, perform calculation of activity releases from this pathway by completing forms in Attachment VI.
- _____ 4.7 Calculate the total activity releases from the plant by completing forms in Attachment VII.
- _____ 4.8 Calculate the Whole Body Dose Rate and Thyroid Dose by completing the forms in Attachment VIII.
- _____ 4.9 Determine projected whole body dose by multiplying dose rates in Attachment VIII by the expected time duration of the release. If no other estimate of time is available, use 2 hours. Always report dose rate, dose, time used, and basis for the time estimate to the Emergency Director, or his designee.
- _____ 4.10 For liquid release calculations, perform computer dose calculations using Attachment I.
- NOTE: The following steps are to be performed in the event the computer is unavailable.
- _____ 4.11 Compile the expected downstream concentrations by performing the steps and completing the forms in Attachment X.
- _____ 4.12 Compile the time for the plume to reach downstream users and a 24 hour average concentration by completing the remaining steps in Attachment I.
- _____ 4.13 Report results to the Emergency Director or his designee.

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ATTACHMENT I

COMPUTERIZED DOSE CALCULATIONS

1. Ensure computer components are connected as pictured in Attachment 1A.
2. Energize the system components in the following order:
 - a. Quick Printer II
 - b. Video Display
 - c. Keyboard Terminal
3. Computer will respond with the following message:
MEMORY SIZE -

Strike the 'ENTER' Key
4. Computer will respond with:
RADIO SHACK LEVEL II BASIC
READY
>

NOTE: For liquid release, go to step 6.
5. For airborne release:
Place cassette labeled 'Program "D" Projected Dose Calculations' in recorder and ensure cassette is rewound. Depress the PLAY button and set volume to '4'.
6. For liquid release:
Place cassette labeled 'Program "L" Liquid Release Calculations: in recorder and ensure cassette is rewound. Depress the PLAY button set volume level to '4'.

ATTACHMENT I

COMPUTERIZED DOSE CALCULATIONS

7. Enter the following command from the keyboard:

CLOAD "D" for airborne; CLOAD "L" for liquid

and strike the 'ENTER' key. At this time the cassette will begin loading the program into the computer memory. Program loading will take approximately 2 1/2 to 3 minutes. One steady and one blinking star will appear in the upper right corner of the video display to signify program loading is in progress.

NOTE: If both stars appear, with neither blinking; i.e. both steady replace cassette with new copy and start over at step 5.

8. When program loading is completed, the computer will respond with:

READY

>_

Depress stop button, rewind the cassette and remove it from the recorder.

9. To begin program execution, enter the following command from the keyboard:

RUN

and strike the 'ENTER' key.

10. General notes on program operation:

- a. All responses must be followed by striking the 'ENTER' key
- b. Numbers in scientific notation should be entered using the following formats

$$9.2 \times 10^3 = 9.2E3$$

$$4.0 \times 10^{-4} = 4E-4$$

- c. All responses requiring a yes or no, are to be answered with a Y or N.

ATTACHMENT I

RMS-PROJECTED DOS₂ CALCULATIONS INFORMATION CHECKLIST

1. RECORDER NDS-501: Available _____ Yes/No _____
Wind Direction _____ °
Wind Speed _____ mph
Mean Wind Range _____ ° (Previous 20 minutes, ignore single "spikes")
2. RECORDER TR-926: Available _____ Yes/No _____
Δ T = _____ °
3. REACTOR BUILDING ACTIVITY RELEASE MONITOR RM-A2:
Gaseous Activity _____ CPM
Iodine Activity _____ CPM
Recorder RM-R4 Iodine Activity _____ CPM (10 Minutes Previous Count)
4. Reactor Building Dome Monitor RM-G8
Monitor Reading _____ R/hr
5. STATION VENT ACTIVITY RELEASE MONITOR RM-A8
Inservice, Onscale: Yes / No
Station Vent Flowrate Recorder FR-151 _____ CFM
Gaseous Activity _____ CPM
Iodine Activity _____ CPM
Recorder RM-R6 Iodine Activity _____ CPM (10 Minutes Previous Count)

ATTACHMENT I

RMS-PROJECTED DOSE CALCULATIONS INFORMATION CHECKLIST

6. CONDENSER OFF-GAS ACTIVITY RELEASE MONITOR RM-A5

Inservice, Onscale: Yes / No

Gaseous Activity ____ ____ CPM

7. REACTOR PURGE ACTIVITY RELEASE MONITOR RM-A9

Reactor Purge Flowrate ____ ____ CFM

Gaseous Activity ____ ____ CPM

Iodine Activity ____ ____ CPM

Recorder RM-R6 Iodine Activity ____ ____ CPM (10 Minutes Previous)

ATTACHMENT I
DOSE PROJECTION SUMMARY

Time _____
Date _____

	EXC AREA	LPZ	5 Mile EPZ	10 Mile EPZ
Whole Body (mR/hr)	_____	_____	_____	_____
Iodine (mR/hr)	_____	_____	_____	_____
Comments:				

ATTACHMENT I

LIQUID RELEASE CALCULATIONS INFORMATION CHECKLIST

1. RM-L7 Recorder RMR-11: Available Yes/No
Average cpm Maximum cpm

2. Recorder FR-146: Available Yes/No

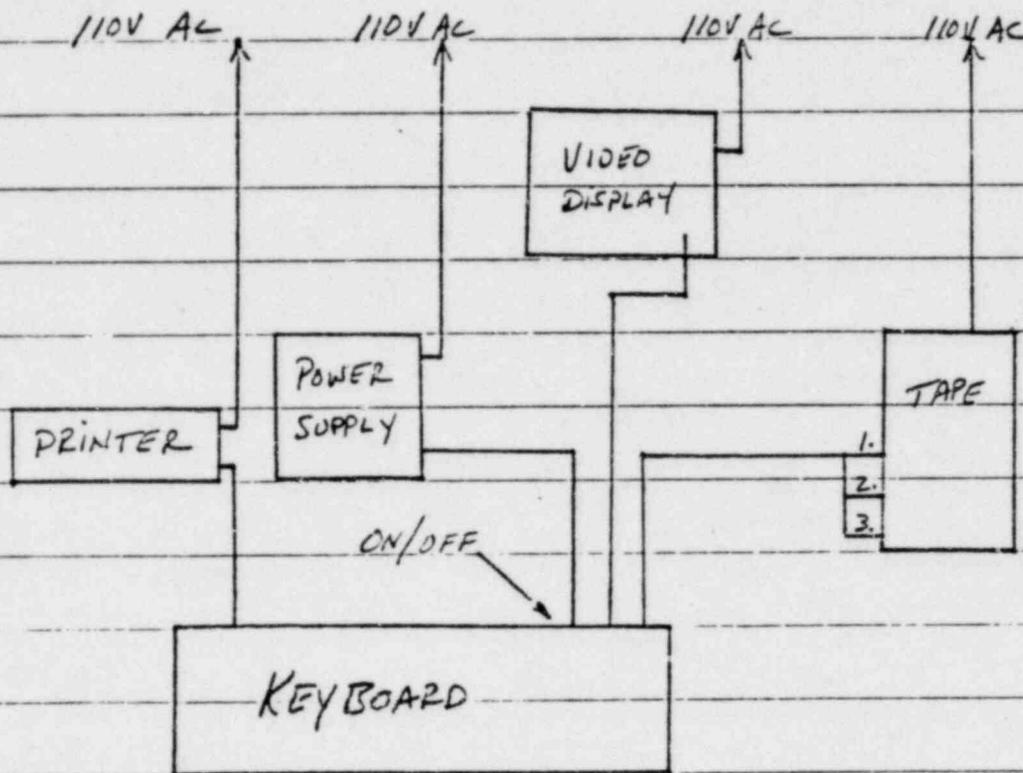
3. River level: call River Forcast Center in Harrisburg
(9-782-2256/9-782-3488)
Level in feet

4. Average and Maximum downstream concentrations:
Average uCi/ml Maximum uCi/ml

5. 24 Hour concentration in unrestricted areas:
concentration uCi/ml

6. Estimated fraction of MPC:

Attachment IA
Computer Connections



PRINTER SWITCH POSITIONS

1. PRINTER - ONLINE
2. INPUT SELECT - TRS BUS

TAPE PLAYER

1. BLACK PLUG - EAR
2. LARGE GREY PLUG - AUX
3. SMALL GREY PLUG - MIC

POOR ORIGINAL

ATTACHMENT II

DISPERSION CALCULATION

1. Record time of day (1) A.M. and date
P.M.

2. Record the following wind information from recorder NDS-501.
Wind Direction ° (From Direction)
(2a)

Wind Speed mph
(2b)

2.1 Calculate plume direction (to direction) from wind direction as follows:

If wind direction (2a) > 180°:

$$\text{Plume direction } \frac{\quad}{(2c)} \text{ } ^\circ = \frac{\quad}{(2a)} \text{ } ^\circ - 180^\circ$$

If wind direction (2a) < 180°:

$$\text{Plume direction } \frac{\quad}{(2c)} \text{ } ^\circ = \frac{\quad}{(2a)} \text{ } ^\circ + 180^\circ$$

3. If wind direction (as read on NDS-501) is > 360°, correct the wind direction as follows:

3.1 If (2a) is > 360°: Wind Direction ° = ° - 360°
(3) (2a)

ATTACHMENT II
DISPERSION CALCULATION

4. Record the temperature difference ΔT from recorder TR926:

$$\Delta T = \underline{\hspace{2cm}}^{\circ}$$

(4)

5. Select the appropriate stability category using the chart below (circle appropriate one):

ΔT	Category	Pasquale Class
> -0.3°F	Stable	F
Between -1.0 and -0.3°F	Neutral	D
< -1.0°F	Unstable	B

- 5.1 If recorder TR926 is not available, determine the stability category as follows: Measure the average extremes of the wind direction range for the previous 20 minute period. (Do not consider single peaks in determining range). The total of wind direction extremes over the 20 minute period is defined wind range.

Wind Range	Category	Pasquale Class
< 45°	Stable	F
Between 45° and 75°	Neutral	D
> 75°	Unstable	B

ATTACHMENT II
DISPERSION CALCULATION

NOTE: If recorders are not available, circle and use the STABLE category.

6. Isoleths and X/Q are for 1 mph wind speeds.
7. Determine the Dispersion Value (X/Q in sec/m³) to the exclusion area (2,000 ft./600 m) from the table below (circle appropriate one):

Stable (F)	$\frac{X/Q = 1.3 \times 10^{-3} \text{ sec./m}^3}{(7)}$
Neutral (D)	$\frac{X/Q = 5.4 \times 10^{-4} \text{ sec./m}^3}{(7)}$
Unstable (B)	$\frac{X/Q = 1.1 \times 10^{-4} \text{ sec./m}^3}{(7)}$

8. Determine the Dispersion Value (X/Q in sec/m³) to the low population zone (2 miles) from the table below (circle the appropriate one):

Stable (F)	$\frac{X/Q = 2.0 \times 10^{-5} \text{ sec./m}^3}{(8)}$
Neutral (D)	$\frac{X/Q = 5.1 \times 10^{-5} \text{ sec./m}^3}{(8)}$
Unstable (B)	$\frac{X/Q = 2.2 \times 10^{-6} \text{ sec./m}^3}{(8)}$

ATTACHMENT II
DISPERSION CALCULATION

9. Determine the Dispersion Value (X/Q in sec/m³) to the EPZ Boundary (5 miles) from the table below (Circle the appropriate one):

Stable (F)	$\frac{X/Q = 7.0 \times 10^{-5} \text{ sec./m}^3}{(9)}$
Neutral (D)	$\frac{X/Q = 1.3 \times 10^{-5} \text{ sec./m}^3}{(9)}$
Unstable (B)	$\frac{X/Q = 7.4 \times 10^{-7} \text{ sec./m}^3}{(9)}$

10. Determine the Dispersion Value (X/Q in sec/m³) to the EPZ Boundary (10 miles) from the table below (Circle the appropriate one).

Stable (F)	$\frac{X/Q = 3.2 \times 10^{-5} \text{ sec./m}^3}{(10)}$
Neutral (D)	$\frac{X/Q = 5.2 \times 10^{-6} \text{ sec./m}^3}{(10)}$
Unstable (B)	$\frac{X/Q = 4.7 \times 10^{-9} \text{ sec./m}^3}{(10)}$

11. Determine the Dispersion Value (X/Q in sec/m³) for any other locations of interest by using the appropriate isopleth. Record distance and X/Q below: (These should be locations where monitoring teams will be sent to take readings)

	Monitoring Point		Dispersion Value
	Distance	Location	sec./m ³
11a)	_____ miles	_____	$\frac{\text{_____}}{(11d)}$
11b)	_____ miles	_____	$\frac{\text{_____}}{(11e)}$
11c)	_____ miles	_____	$\frac{\text{_____}}{(11f)}$

ATTACHMENT II

DISPERSION CALCULATION

12. Calculate the Final Dispersion Factor to the exclusion area, low population zone, 5 mile EPZ, and 10 mile EPZ using the formula below:

a) Exclusion Area - 2000 ft.

$$\frac{\text{sec. m}^3}{(7)} \div \frac{(2b)}{(2b)} = \frac{\text{sec./m}^3}{(12a \text{ X/Q Final})}$$

b) LPZ - 2 miles

$$\frac{\text{sec. m}^3}{(8)} \div \frac{(2b)}{(2b)} = \frac{\text{sec./m}^3}{(12b \text{ X/Q Final})}$$

c) EPZ - 5 miles

$$\frac{\text{sec. m}^3}{(9)} \div \frac{(2b)}{(2b)} = \frac{\text{sec./m}^3}{(12c \text{ X/Q Final})}$$

d) EPZ - 10 miles

$$\frac{\text{sec. m}^3}{(10)} \div \frac{(2b)}{(2b)} = \frac{\text{sec./m}^3}{(12d \text{ X/Q Final})}$$

13. Calculate the Final Dispersion Factor for the other locations of interest by inserting appropriate data into the following:

a) For _____ miles

$$\frac{\text{sec./m}^3}{(11d)} \div \frac{(2b)}{(2b)} = \frac{\text{sec./m}^3}{(13a \text{ X/Q Final})}$$

b) For _____ miles

$$\frac{\text{sec./m}^3}{(11e)} \div \frac{(2b)}{(2b)} = \frac{\text{sec./m}^3}{(13b \text{ X/Q Final})}$$

c) For _____ miles

$$\frac{\text{sec./m}^3}{(11f)} \div \frac{(2b)}{(2b)} = \frac{\text{sec./m}^3}{(13c \text{ X/Q Final})}$$

ATTACHMENT III

REACTOR BUILDING ACTIVITY RELEASES

1. Record time of day _____ A.M. and date _____.
P.M.
2. Confirm that monitor RM-A2 is in-service and on-scale and unisolated.
If RM-A2 is inoperable for any of the above reasons, proceed to step 8.

3. Record the gaseous activity from radiation monitor RM-A2:

$$\frac{\quad}{(3)} \text{ cpm}$$

4. Compute the gaseous activity from containment leakage using the formula below:

$$\frac{\quad}{(3)} \text{ cpm} \times 2.53 \times 10^{-14} \frac{\text{ci}}{\text{cc}} \times 1.31 \times 10^3 \frac{\text{cc}}{\text{sec}} = \frac{\quad}{(4)} \text{ ci/sec}$$

5. a. Record the iodine activity from radiation monitor RM-A2

$$\frac{\quad}{(5a)} \text{ cpm}$$

- b. Record the iodine activity ten minutes earlier from recorder RM-R4 channel 5:

$$\frac{\quad}{(5b)} \text{ cpm}$$

- c. Compute counts/min/min for the iodine channel by using the following:

$$\frac{\quad}{(5c)} \frac{\text{cpm}}{\text{min}} = \left(\frac{\quad}{(5a)} \text{ cpm} - \frac{\quad}{(5b)} \text{ cpm} \right) \div 10 \text{ min.}$$

ATTACHMENT IIIREACTOR BUILDING ACTIVITY RELEASES

6. Compute the iodine source term using the following equation:

$$\frac{\text{cpm}}{(5c) \text{ min}} \times 8.2 \times 10^{-16} \frac{\text{ci/sec}}{\text{cpm/min}} = \frac{\text{ci/sec}}{(6)}$$

7. Convert monitor I-131 value to total radioiodine using:

$$\frac{\text{ci}}{(6) \text{ sec}} \times 3 = \frac{\text{ci}}{(7) \text{ sec}}$$

NOTE: Steps 9, 10, and 11, are used if RM-A2 is unavailable.

8. If RM-68 is unavailable, proceed to Attachment IX.
9. Record dose rate reading from RM-G8.

$$\frac{\text{R/hr}}{(8)}$$

10. Determine noble gas source term for the dose rate in (8) from Figure/III-1.

$$\text{R/hr} = \frac{\text{Ci}}{(9) \text{ sec}}$$

11. Determine the iodine source term for the dose rate in (8) from Figure III-1.

$$\text{R/hr} = \frac{\text{Ci}}{(10) \text{ sec}}$$

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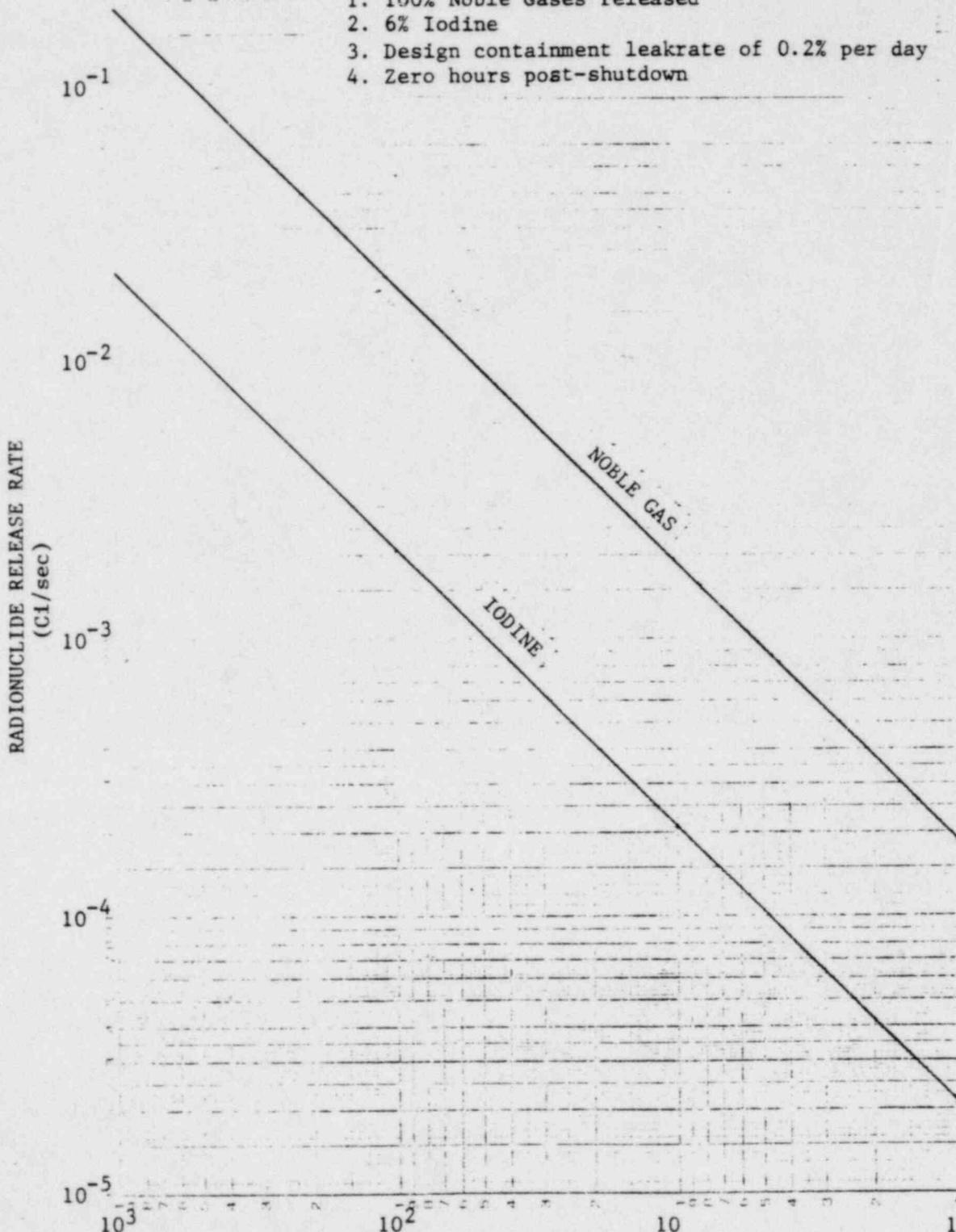
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Note: RM-G8 is shielded. Reactor Building radiation level is 100 times RM-G8 meter readings. However, the numbers specified in this figure are meter readings.

The figure assumes:

1. 100% Noble Gases released
2. 6% Iodine
3. Design containment leakrate of 0.2% per day
4. Zero hours post-shutdown



Emergency Plan
Implementing Procedure

ATTACHMENT III
FIGURE III-1
DOME MONITOR READING VS RADIONUCLIDE RELEASE RATE

Procedure 1004.7

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RM-G8 METER READING
(R/hr)
18.0

POOR ORIGINAL



ATTACHMENT IV

STATION VENT ACTIVITY RELEASE

1. Record time of day _____ A.M. and date _____.
P.M.
2. Confirm that monitor RM-A8 is in service and onscale. If RM-A8 is out of service or offscale high and releases are occurring via the station vent proceed to Attachment IX.
3. Record the gaseous activity from radiation monitor RM-A8:

$$\frac{\text{cpm}}{(3)}$$

4. Record the flow rate for the station vent from recorder FR151

$$\frac{\text{cfm}}{(4)}$$

5. Compute the gaseous source term using the following equation:

$$\frac{\text{cpm}}{(3)} \times \frac{\text{cfm}}{(4)} \times 1.27 \times 10^{-11} \frac{\text{Ci/sec}}{\text{cfm-cpm}} = \frac{\text{Ci}}{(5) \text{ sec}}$$

ATTACHMENT IV
STATION VENT ACTIVITY RELEASE

- 6.. a. Record the iodine activity from monitor RM-A8:

$$\frac{\text{cpm}}{(6a)}$$

- b. Record the iodine activity ten minutes earlier from recorder RM-R6 channel 2:

$$\frac{\text{cpm}}{(6b)}$$

- c. Compute counts/min/min for the iodine channel by using the following:

$$\frac{\text{cpm}}{(6c) \text{ min}} = \left(\frac{\text{cpm}}{(6a)} - \frac{\text{cpm}}{(6b)} \right) \div 10 \text{ min.}$$

7. Compute the iodine source term using the following equation:

$$\frac{\text{cpm}}{(6c) \text{ min}} \times \frac{\text{cfm}}{(4)} \times 3.62 \times 10^{-13} \frac{\text{Ci/sec}}{\frac{\text{cfm-cpm}}{\text{min}}} = \frac{\text{Ci}}{(7) \text{ sec}}$$

8. Convert monitor I-131 value to total radioiodine using

$$\frac{\text{cpm}}{(7)} \times 3 = \frac{\text{Ci}}{(8) \text{ sec}}$$

ATTACHMENT V

CONDENSER OFF-GAS ACTIVITY RELEASE

1. Record time of day _____ a.m. and date _____.
(1) p.m.
2. Confirm that monitor RM-A5 is in service and onscale. If RM-A5 is out of service or offscale high and releases are occurring from the condenser off-gas, proceed to Attachment IX.
3. Record the gaseous activity from radiation monitor RM-A5:

_____ cpm
(3)

4. Compute the gaseous source term from the condenser off-gas using the following equation:

$$\frac{\text{cpm}}{(3)} \times 1.75 \times 10^{-10} \frac{\text{ci/sec}}{\text{cpm}} = \frac{\text{ci}}{(4) \text{ sec}}$$

ATTACHMENT VI

REACTOR PURGE ACTIVITY RELEASES

1. Record time of day _____ A.M. and date _____.
P.M.
2. If RM-A9 is off-scale, out of service or unavailable, proceed to Attachment IX.
3. High alarm on RM-A9 shuts the purge valves . If this pathway can be verified shut, proceed to other calculations. If not, compute releases below:
4. Record the gaseous activity from radiation monitor RM-A9:

$$\frac{\text{_____}}{(3)} \text{ cpm}$$

5. Record the flow rate for the reactor purge from recorder FR-148:

$$\frac{\text{_____}}{(4)} \text{ cfm}$$

6. Compute the gaseous source term using the following equation:

$$\frac{\text{_____}}{(3)} \text{ cpm} \frac{\text{_____}}{(4)} \text{ cfm} \times 1.21 \times 10^{-11} \frac{\text{ci/sec}}{\text{cfm-cpm}} \frac{\text{_____}}{(5)} \frac{\text{ci}}{\text{sec}}$$

ATTACHMENT VI

REACTOR PURGE ACTIVITY RELEASES

6. a. Record the iodine activity from monitor RM-A9:

$$\frac{\text{cpm}}{(6a)}$$

- b. Record the iodine activity ten minutes earlier from recorder RM-R6 channel 5:

$$\frac{\text{cpm}}{(6b)}$$

- c. Compute counts/min/min for the iodine channel by using the following:

$$\frac{\text{cpm}}{(6c) \text{ min}} = \left(\frac{\text{cpm}}{(6a)} - \frac{\text{cpm}}{(6b)} \right) \div 10 \text{ min.}$$

7. Compute the iodine source term using the following equation:

$$\frac{\text{cpm}}{(6c) \text{ min}} \times \frac{\text{cfm}}{(4)} \times 3.36 \times 10^{-13} \frac{\text{Ci/sec}}{\text{cfm-cpm/min}} = \frac{\text{Ci}}{(7) \text{ sec}}$$

8. Convert monitor I-131 value to total radioiodine using:

$$\frac{\text{Ci}}{(7)} \times 3 = \frac{\text{Ci}}{(8) \text{ sec}}$$

ATTACHMENT VII
TOTAL SOURCE TERM

Time: _____ a.m.
p.m.

Date: _____

1. Transfer and sum the values of gaseous source term activity from items noted below:

a. Attachment III item (4) or (9)	_____	Ci/sec
b. Attachment IV item (5)	+ _____	Ci/sec
c. Attachment V item (4)	+ _____	Ci/sec
d. Attachment VI item (5)	+ _____	Ci/sec
TOTAL GASEOUS SOURCE	= _____	Ci/sec

(1)

2. Transfer and sum the values of the iodine source term activity from the items noted below:

a. Attachment III item (7) or (10)	_____	Ci/sec
b. Attachment IV item (8)	+ _____	Ci/sec
c. Attachment VI item (8)	+ _____	Ci/sec
TOTAL IODINE SOURCE	= _____	Ci/sec

(2)

ATTACHMENT VIII

PROJECTED DOSE RATE CALCULATIONS

- Record time of day _____ a.m. and date _____
p.m.

Exclusion Area

- To calculate the exclusion area noble gas concentration, multiply the values required below:

- Attachment VII item (1) _____ Ci/sec
- Attachment II item (12a) x _____ sec/m³
- Noble Gas Concentration _____ uCi/cc

(2)

- Locate the dose rate corresponding to the concentration in (2) above on Figure VIII-1 and record below:

_____ mR/hr Exclusion Area Whole Body Dose Rate
(3)

NOTE: If 100 mR/hr, declare a General Emergency

- Determine the projected whole body dose for the estimated duration of the release from Figure VIII-1.

_____ mR Exclusion Area Whole Body Dose
(4a)

Estimated Duration of Release _____ hrs.
(4b)

NOTE: If the duration of the release cannot be estimated, use 2
hours.

ATTACHMENT VIII

PROJECTED DOSE RATE CALCULATION

5. To calculate the exclusion area boundary iodine concentration perform the calculation below:

- a. Attachment VII item (2) _____ Ci/sec
- b. Attachment II item (12a) x _____ sec/m³
- c. Iodine Concentration = $\frac{\text{_____}}{(5)}$ uCi/cc

6. Locate the child thyroid dose corresponding to a 1 hour exposure to the concentration (5) on figure VIII-2 and record below.

$\frac{\text{_____}}{(6)}$ mR Exclusion Area 1 Hour Child Thyroid Dose

NOTE: if 500 mR declare a General Emergency

7. Locate the child thyroid dose corresponding to the estimated exposure time (4b) by using figure VIII-2 and record below:

$\frac{\text{_____}}{(7)}$ mR Exclusion Area $\frac{\text{_____}}{(4b)}$ Hour Child Thyroid Dose

ATTACHMENT VIII

PROJECTED DOSE RATE CALCULATION

Low Population Zone

8. To calculate the Low Population Zone noble gas concentration perform the calculation below:

- a. Attachment VII item (1) _____ Ci/sec
- b. Attachment II item (12b) x _____ Ci/sec
- c. Noble Gas Concentration = $\frac{\text{_____}}{(8)}$ uCi/cc

9. Locate the dose rate corresponding to the concentration in (8) above on figure VIII-1 and record below:

$\frac{\text{_____}}{(9)}$ mR/hr LPZ Whole Body Dose Rate

10. Determine the projected whole body dose for the estimated duration of the release (4b) or any other projected exposure time from Figure VIII-1 and record below:

$\frac{\text{_____}}{(10)}$ mR LPZ (2 mile) $\frac{\text{_____}}{(4b \text{ or other})}$ Hour Whole Body Dose

11. To calculate the LPZ (2 mile) boundary iodine concentration perform the calculation below:

- a. Attachment VII item (2) _____ Ci/sec
- b. Attachment II item (12b) x _____ sec/m³
- c. Iodine Concentration = $\frac{\text{_____}}{(11)}$ uCi/cc

ATTACHMENT VIII

PROJECTED DOSE RATE CALCULATION

16. Determine the projected whole body dose for the estimated duration of the release (4b) or any other projected exposure time from Figure VIII-1 and record below:

$$\frac{\text{_____ mR EPZ (5 mile)}}{(16)} \times \frac{\text{_____ Hour Whole Body Dose}}{(4b \text{ or other})}$$

17. To calculate the EPZ (5 mile) boundary iodine concentration, multiply the values below:

- a. Attachment VII item (2) _____ Ci/sec
- b. Attachment II item (12c) x _____ sec/m³
- c. Iodine Concentration = $\frac{\text{_____}}{(17)}$ uCi/cc

18. Determine the child thyroid dose corresponding to a 1 hour exposure to the concentration (17) on figure VIII-2 and record below:

$$\frac{\text{_____ mR EPZ (5 mile) 1 Hour Child Dose}}{(18)}$$

19. Determine the child thyroid dose corresponding to the estimated duration of the release (4b) or any other projected exposure time by using figure VIII-2 and record below:

$$\frac{\text{_____ mR EPZ (5 mile)}}{(19)} \times \frac{\text{_____ Hour Child Thyroid Dose.}}{(4b \text{ or other})}$$

ATTACHMENT VIII

PROJECTED DOSE RATE CALCULATION

10 Mile Emergency Planning Zone

20. To calculate the 10 mile EPZ Noble Gas Concentrations perform the calculations below:

- a. Attachment VII item (1) _____ Ci/sec
- b. Attachment II item (12d) x _____ sec/m⁵
- c. Noble Gas Concentration = $\frac{\text{_____}}{(20)}$ $\mu\text{Ci/cc}$

21. Locate the dose rate corresponding to the concentration in (20) above on figure VIII-2 and record below:

$\frac{\text{_____}}{(21)}$ mR/hr 10 mile EPZ Whole Body Dose Rate.

22. Determine the projected whole body dose for the estimated duration of the release (46) or any other projected exposure time from Figure VIII-1 and record below:

$\frac{\text{_____}}{(22)}$ mR 10 mile EPZ $\frac{\text{_____}}{40 \text{ or other}}$ hour Whole Body Dose.

23. To calculate the EPZ (10 mile) boundary iodine concentration, multiply the values below:

- a. Attachment VII item (2) _____ Ci/sec
- b. Attachment II item (12d) x _____ sec/m³
- c. Iodine Concentration = $\frac{\text{_____}}{(23)}$ $\mu\text{Ci/cc}$

ATTACHMENT VIII

PROJECTED DOSE RATE CALCULATION

24. Determine the child thyroid dose corresponding to a 1 hour exposure to the concentration (23) on figure VIII-2 and record below:

$\frac{\text{mR EPZ (10 mile)}}{(24)}$ 1 hour Child Dose.

25. Determine the child thyroid dose corresponding to the estimated duration of the release (4b) or any other projected exposure time by using figure VIII-2 and record below:

$\frac{\text{mR EPZ (10 mile)}}{(25)}$ $\frac{\text{hour}}{(4b \text{ or other})}$ Child Thyroid Dose.

ATTACHMENT VIII

PROJECTED DOSE RATE CALCULATION

Other Areas

26. To calculate the noble gas concentration at any other location of interest, multiply the following: (These should be locations where monitoring teams will be sent to monitor).

a) Attachment VII item (1) _____ Ci/sec
Attachment II item (11d) x _____ sec/m³
Noble Gas Concentration = _____ uCi/cc
(20a)

b. Attachment VII item (1) _____ Ci/sec
Attachment II item (11e) x _____ sec/m³
Noble Gas Concentration = _____ uCi/cc
(20b)

c. Attachment VII item (1) _____ Ci/sec
Attachment II item (11f) x _____ sec/m³
Noble Gas Concentration = _____ uCi/cc
(20c)

ATTACHMENT VIII

PROJECTED DOSE RATE CALCULATION

27. Determine the whole body dose rate corresponding to the concentration in 26 a, b, c alone on Figure VIII-1 and record below:

For 26a _____ mR/hr Whole Body Dose Rate at _____
Location

For 26b _____ mR/hr Whole Body Dose Rate at _____
Location

For 26c _____ mR/hr Whole Body Dose Rate at _____
Location

28. To calculate the iodine concentration at any other location of interest, multiply the following: (These should be locations where monitoring teams will be sent to monitor).

a. Attachment VII item (2) _____ Ci/sec
Attachment II item (11d) x _____ sec/m³
Iodine Gas Concentration = _____ uCi/cc
(27a)

b. Attachment VII item (2) _____ Ci/sec
Attachment II item (11e) _____ sec/m³
Iodine Gas Concentration = _____ uCi/cc
(27b)

c. Attachment VII item (2) _____ Ci/sec
Attachment II item (11f) x _____ sec/m³
Iodine Gas Concentration = _____ uCi/cc
(27c)

ATTACHMENT VIII

PROJECTED DOSE RATE CALCULATION

29. Determine the child thyroid dose rate corresponding to a 1 hour exposure to the concentration (26 a, b, c) on Figure VIII-2 and record below:

For 27a _____ mR/hr Child Thyroid 1 Hour Dose Rate
at _____
(Location)

For 27b _____ mR/hr Child Thyroid 1 Hour Dose Rate
at _____
(Location)

For 27c _____ mR/hr Child Thyroid 1 Hour Dose Rate
at _____
(Location)

30. Recalculation for Corrected Source Term (Figure VIII-3)

- a. Transfer predicted Iodine Concentration and Noble Gas whole body dose rate data to Section 1 on the Corrected Source Term Calculation Sheet (Figure VIII-3).
- b. When information is received from off-site monitoring teams for the specific location calculated, record this in Section 2 of Figure VIII-3.
- c. Determine the Source Term Correction Factor by dividing the actual data by the predicted data.
- d. Record the Original Source terms for noble gas (Attachment VII Item 1) and iodine (Attachment VII Item 2) in Section 4 of Figure VIII-3.

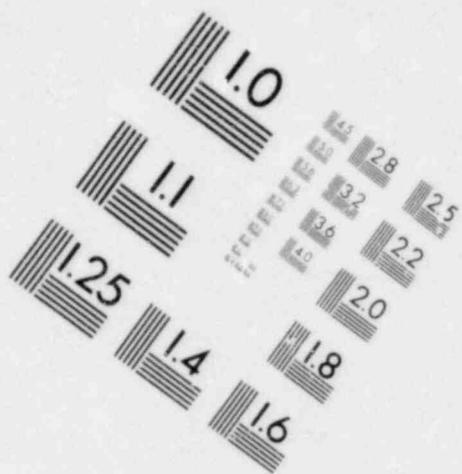
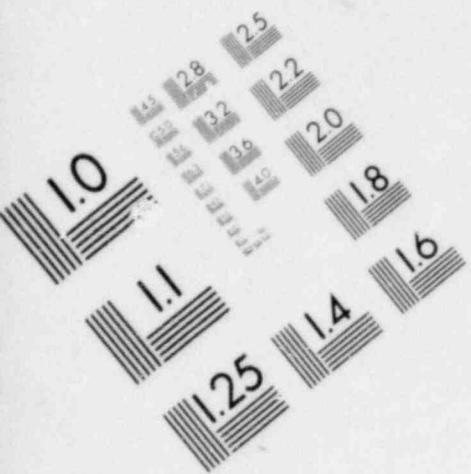
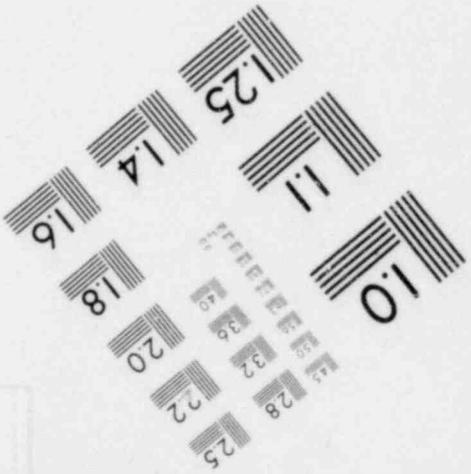
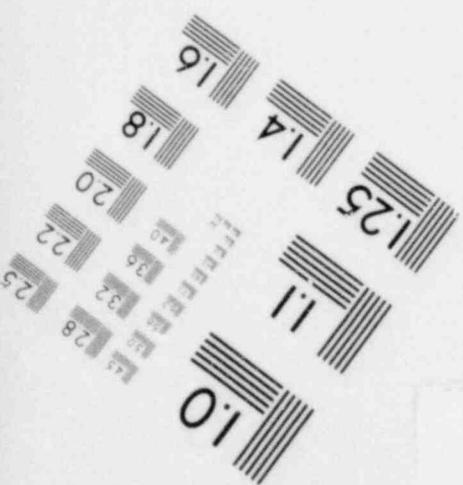
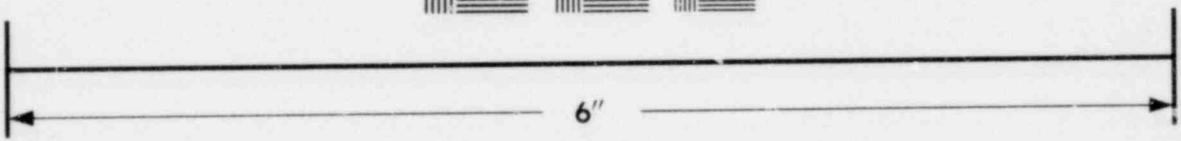
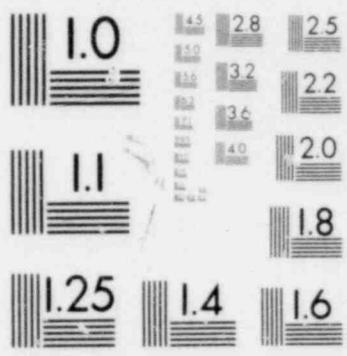
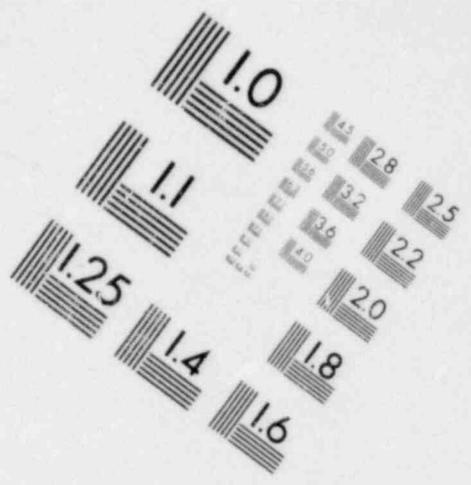
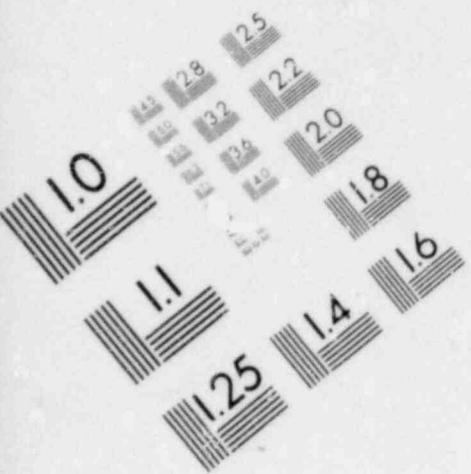
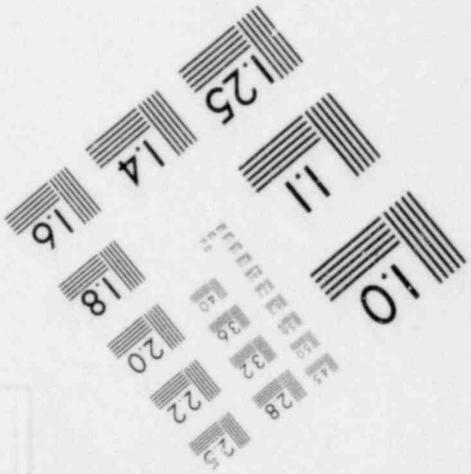
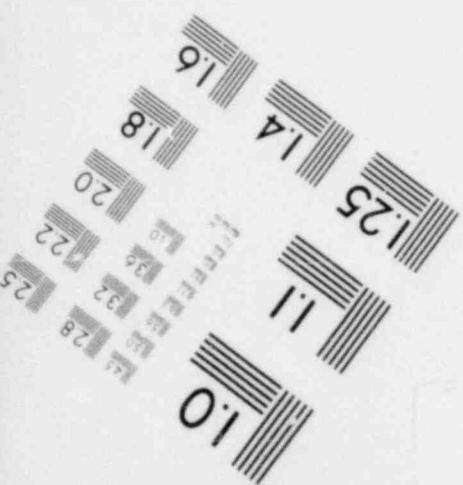
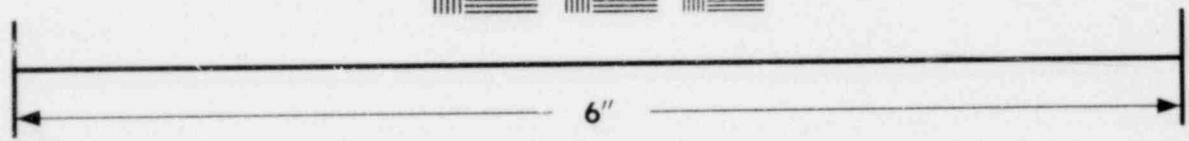
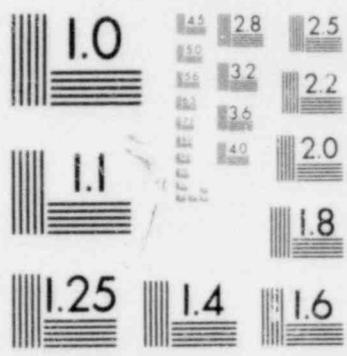


IMAGE EVALUATION
TEST TARGET (MT-3)





**IMAGE EVALUATION
TEST TARGET (MT-3)**



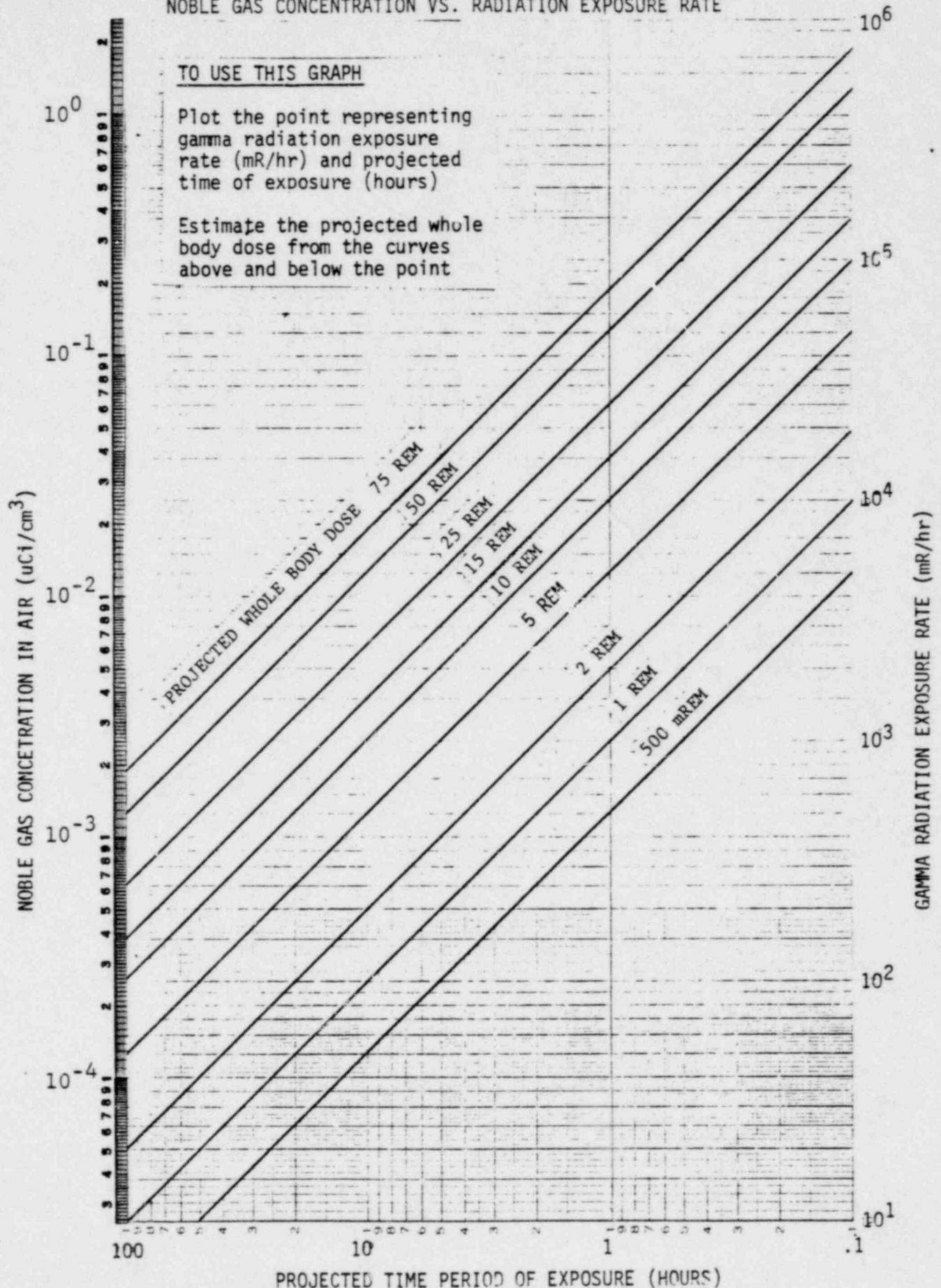
ATTACHMENT VIII

PROJECTED DOSE RATE CALCULATION

- e. Multiply the original source terms by the Source Term Correction Factor to determine the Corrected Source Term. Use these Corrected Source Terms for further calculations of estimated dose at various locations.
- f. Report the Corrected Source Term to the Radiological Assessment Coordinator.

FOR USE IN UNIT I ONLY

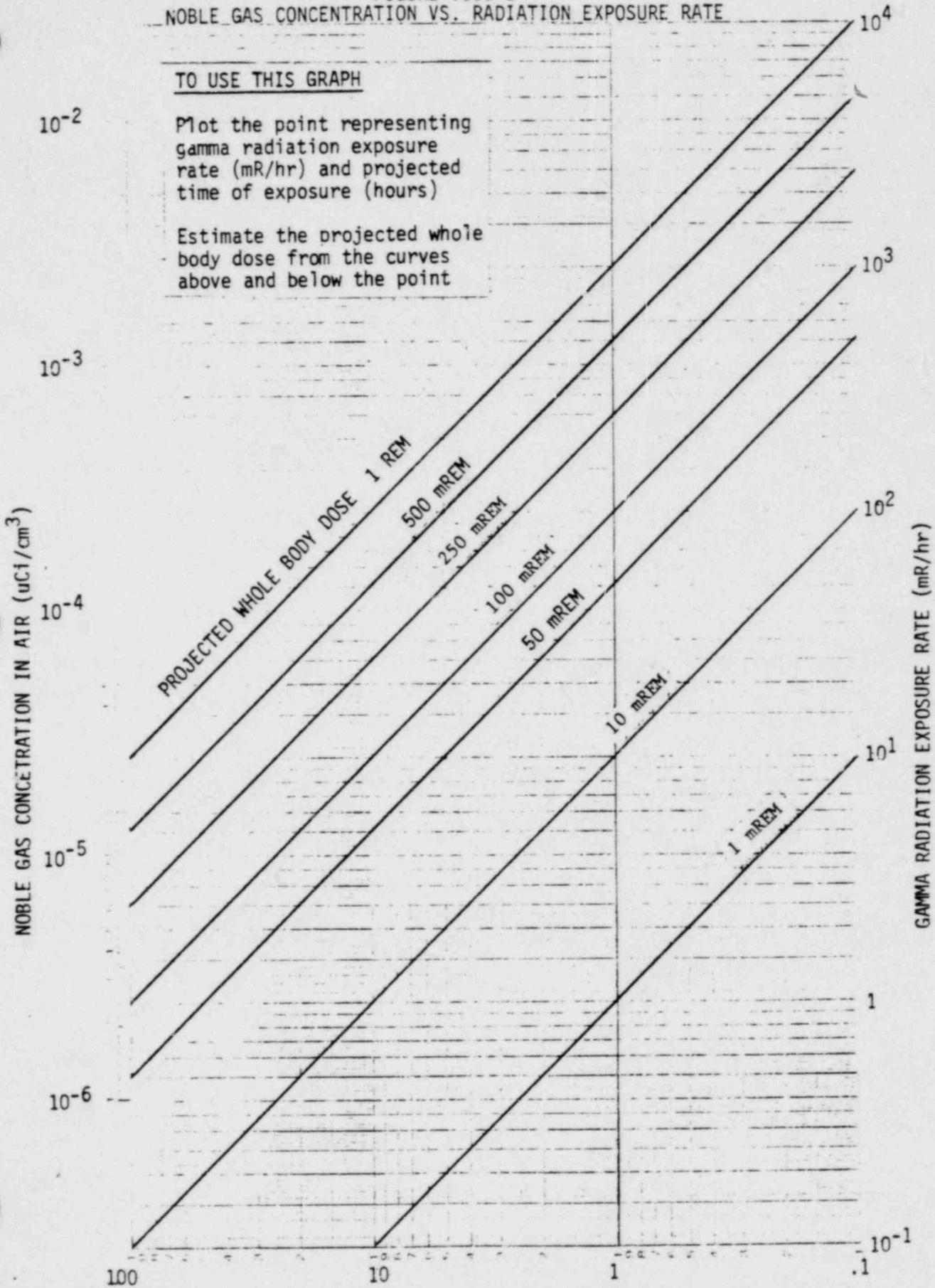
NOBLE GAS CONCENTRATION VS. RADIATION EXPOSURE RATE



FOR USE IN UNIT I ONLY

POOR ORIGINAL

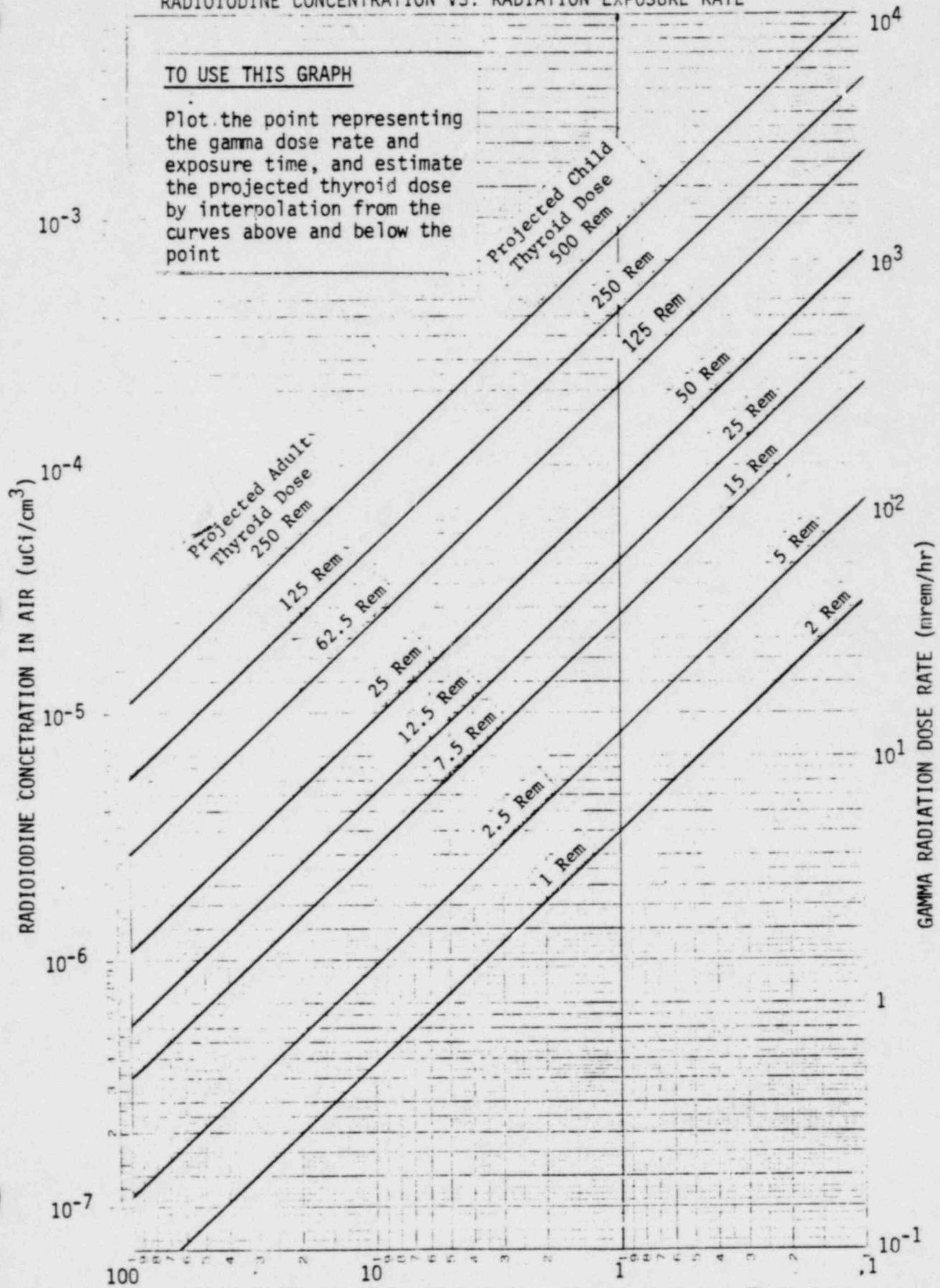
FIGURE VIII-1
NOBLE GAS CONCENTRATION VS. RADIATION EXPOSURE RATE



FOR USE IN UNIT 1 ONLY

POOR ORIGINAL

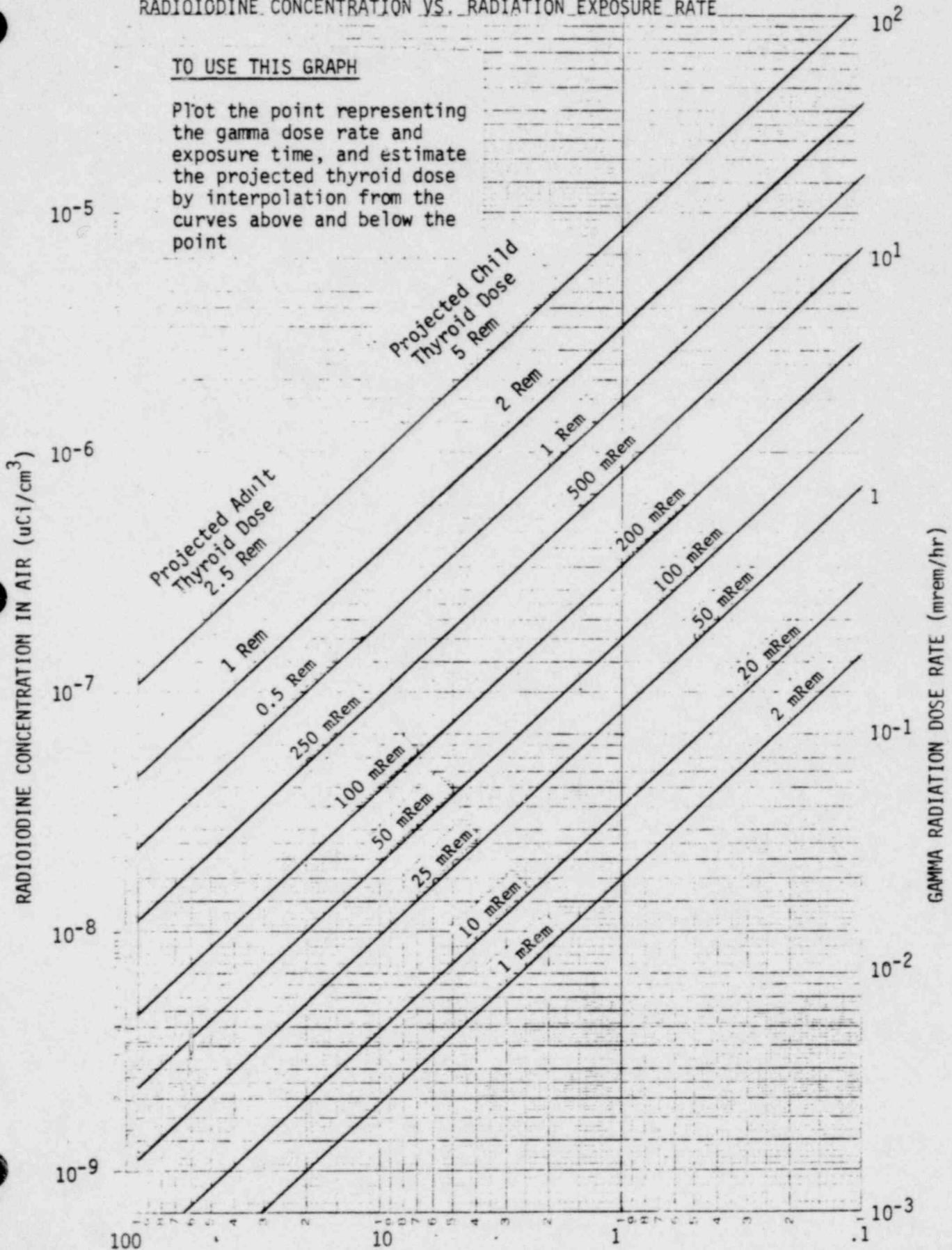
RADIOIODINE CONCENTRATION VS. RADIATION EXPOSURE RATE



RADIOIODINE CONCENTRATION VS. RADIATION EXPOSURE RATE

TO USE THIS GRAPH

Plot the point representing the gamma dose rate and exposure time, and estimate the projected thyroid dose by interpolation from the curves above and below the point



FOR USE IN UNIT 1 ONLY

LOCATION 1 2 3 4 5
TIME PREDICTED ACTUAL CORRECTION FACTOR I ORIGINAL SOURCE TERM CORRECTED SOURCE TERM

Iodine
Noble
Gas

Iodine
Noble
Gas

Iodine
Noble
Gas

Iodine
Noble
Gas

Iodine
Noble
Gas

Iodine
Noble
Gas

Iodine
Noble
Gas

Iodine
Noble
Gas

FOR USE IN UNIT 1 ONLY

PROJECTED DOSE CALCULATION
FIGURE VIII-3
CORRECTED SOURCE TEAM CALCULATION SHEET
40.0

Date _____

Calculated by _____

ATTACHMENT IX

CONTINGENCY CALCULATIONS

1. Record time of day _____ a.m. and date _____.
(1a)
2. This attachment is used if the radiation monitors normally used to monitor the containment and/or other plant effluent paths are out of service or off-scale high.
3. The Emergency Director shall select a release scenario from the five presented below and computations shall be made using the equations presented in the following sections.

Case I LOCA (Reference Unit 1, FSAR, 14.2.2.4)

A LOCA assuming severe core damage - fuel melting, no core cooling (Regulatory Guide 1.4 assumptions) 100 percent of the noble gases and 25 percent of the iodines contained in the core are assumed released to the containment. The containment initially leaks at the maximum design leak rate.

Case II LOCA (Reference Unit 1 FSAR, 14.2.2.3)

LOCA assuming fuel damage but no core melting - core cooling maintained. Primary coolant leaks at a rate fast enough to increase the temperature of

ATTACHMENT IXCONTINGENCY CALCULATIONS

the core to the point where there is damage to the fuel rods. For this case it is assumed that all the gap activity (the gases contained between the fuel and fuel rod) is released to the containment. The containment is assumed to initially leak at the maximum design leak rate. In this accident it is up to the Emergency Director to assure that there has been no fuel melting. If there is any question a Case I LOCA should be assumed.

Case III Gas Decay Tank Rupture (Reference Unit 1 FSAR, 14.2.2.5)

This procedure is used only if actual radiological monitoring equipment is unavailable for release evaluation (monitors out of service, read off scale, etc.).

Case IV Fuel Handling Accident (Reference Unit 1 FSAR, 14.2.2.1) Any activity occurring as a result of a fuel handling accident is normally drawn into the Fuel Handling Building Ventilation System and vented to the plant vent for release. Process monitors are used to monitor these releases; however, should these monitors be out of service or off-scale, this technique is used to evaluate off site doses.

ATTACHMENT IX

CONTINGENCY CALCULATIONS

Case V Steam Generator Tube Rupture (Reference Unit 1 FSAR, 14.1.2.10)

Assume that all fission products leaking from reactor coolant system go directly to the secondary system. Some of the noble gases and radioiodines would be released to the atmosphere through the condenser air removal system and the steam line safety valves.

Calculation of Whole Body and Thyroid Doses

Case I LOCA - Whole Body Dose

1A. Calculate the X/Q at the downwind exclusion area boundary, the Low Population Zone boundary, and the Emergency Planning Zone (5 mile) boundary and the Emergency Planning Zone (10 mile) boundary. (From Attachment II).

Downwind Exclusion area Boundary X/Q _____ sec/m³
(12a)

Downwind LPZ X/Q _____ sec/m³
(12b)

Downwind 5 mile EPZ Boundary X/Q _____ sec/m³
(12c)

Downwind 10 mile EPZ Boundary X/Q _____ sec/m³
(12d)

1B. To calculate the whole body dose at the exclusion area boundary, multiply the dispersion factor (12a) above by the dose release factor to obtain a reading in mrem/hour

at exclusion area boundary

$$\frac{\text{_____}}{(12a \text{ X/Q})} \times 3.6 \times 10^5 \frac{\text{mRem}}{\text{hour}} \frac{\text{sec}}{\text{m}^3} = \text{_____ mRem/hour}$$

ATTACHMENT IX
CONTINGENCY CALCULATIONS

1C. To calculate the whole body dose at the LPZ Boundary, multiply the dispersion factor (12b) by the dose release factor to obtain a reading in mRem/hour.

at LPZ area boundary

$$\frac{\text{_____}}{(12b \ X/Q)} \times 3.6 \times 10^5 \frac{\text{mRem}}{\text{hour}} \frac{\text{sec}}{\text{m}^3} = \text{_____ mRem/hour}$$

1D. To calculate the whole body dose at the LPZ Boundary, multiply the dispersion factor (12c) by the dose release factor to obtain a reading in mrem/hour.

at 5 mile EPZ boundary

$$\frac{\text{_____}}{(12c \ X/Q)} \times 3.6 \times 10^5 \frac{\text{mRem}}{\text{hour}} \frac{\text{sec}}{\text{m}^3} = \text{_____ mRem/hour}$$

1E. To calculate the whole body dose at the 10 mile EPZ boundary multiply the dispersion factor (12d) above by the dose release factor to obtain a reading in mRem/hour.

at 10 mile EPZ boundary

$$\frac{\text{_____}}{(12d \ X/Q)} \times 3.6 \times 10^5 \frac{\text{mRem}}{\text{hour}} \frac{\text{sec}}{\text{m}^3} = \text{_____ mRem/hour}$$

1F. To calculate the whole body dose at any other location of interest, multiply the dispersion factor (X/Q) by the dose release factor ($3.6 \times 10^5 \frac{\text{mRem/hour}}{\text{sec/m}^3}$) to obtain a reading in mRem/hour.

ATTACHMENT IX
CONTINGENCY CALCULATIONS

Case I LOCA - Thyroid (Iodine) Dose

1A. To calculate the thyroid (Iodine) dose at the exclusion Area Boundary, multiply the dispersion factor (12a) by the dose release factor to obtain a reading in mRem/hour.

at exclusion area boundary

$$\frac{\text{_____}}{(12a \text{ X/Q})} \times 9.1 \times 10^7 \frac{\text{mRem}}{\text{hour}} \frac{\text{sec}}{\text{m}^3} = \text{_____} \text{ mRem/hour}$$

1B. To calculate the thyroid (Iodine) dose at the LPZ boundary, multiply the dispersion factor (12b) by the dose release factor to obtain a reading in mRem/hour.

at LPZ area boundary

$$\frac{\text{_____}}{(12b \text{ X/Q})} \times 9.1 \times 10^7 \frac{\text{mRem}}{\text{hour}} \frac{\text{sec}}{\text{m}^3} = \text{_____} \text{ mRem/hour}$$

1C. To calculate the thyroid (Iodine) dose at the 5 mile EPZ boundary, multiply the dispersion factor (12c) by the dose release factor to obtain a reading in mRem/hour.

at 5 mile EPZ boundary

$$\frac{\text{_____}}{(12c \text{ X/Q})} \times 9.1 \times 10^7 \frac{\text{mRem}}{\text{hour}} \frac{\text{sec}}{\text{m}^3} = \text{_____} \text{ mRem/hour}$$

1D. To calculate the thyroid (Iodine) dose of the 10 mile EPZ boundary multiply the dispersion factor (12d) by the dose release factor to obtain a reading in mRem/hour.

at 10 mile EPZ boundary

$$\frac{\text{_____}}{(12d \text{ X/Q})} \times 9.1 \times 10^7 \frac{\text{mRem}}{\text{hour}} \frac{\text{sec}}{\text{m}^3} = \text{_____} \text{ mRem/hour}$$

ATTACHMENT IX
CONTINGENCY CALCULATIONS

1E. To calculate the thyroid (Iodine) dose at any other location of interest, multiply the dispersion factor (X/Q) by the dose release factor (9.1×10^7 mRem/hr/sec/m³) to obtain a reading in mrem/hr.

Case II LOCA- whole Body Dose

1A. To calculate the whole body dose at the Exclusion Area Boundary, multiply the dispersion factor (12a) by the dose release factor to obtain a reading in mRem/hour (for the first 2 hours).

at exclusion area boundary

$$\frac{\text{_____}}{(12a \ X/Q)} \times 2.6 \times 10^4 \frac{\text{mRem}}{\frac{\text{hour}}{\frac{\text{sec}}{\text{m}^3}}} = \text{_____} \text{ mRem/hour}$$

1B. To calculate the whole body dose at the LPZ boundary, multiply the dispersion factor (12b) by the dose release factor to obtain a reading in mRem/hour.

at LPZ area boundary

$$\frac{\text{_____}}{(12b \ X/Q)} \times 2.6 \times 10^4 \frac{\text{mRem}}{\frac{\text{hour}}{\frac{\text{sec}}{\text{m}^3}}} = \text{_____} \text{ mRem/hour}$$

ATTACHMENT IX
CONTINGENCY CALCULATIONS

- 1C. To calculate the thyroid (Iodine) dose at the 5 mile EPZ boundary, multiply the dispersion factor (12c) by the dose release factor to obtain a reading in mRem/hour.

at 5 mile EPZ boundary

$$\frac{\text{_____}}{(12c \ X/Q)} \times 2.6 \times 10^4 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \text{_____ mRem/hour}$$

- 1D. To calculate the thyroid (Iodine) dose at the 10 mile EPZ boundary, multiply the dispersions factor (12d) by the dose release factor to obtain a reading in mRem/hour.

at 10 mile EPZ boundary

$$\frac{\text{_____}}{(12d \ X/Q)} \times 2.6 \times 10^4 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \text{_____ mRem/hour}$$

- 1E. To calculate the whole body dose at any other location of interest, multiply the dispersion factor (X/Q) by the dose release factor ($2.6 \times 10^4 \text{ mRem/hour/sec/m}^3$) to obtain a reading in mRem/hour.

Case II LOCA - Thyroid (Iodine) Dose

- 1A. To calculate the thyroid (Iodine) dose at the exclusion area boundary, multiply the dispersion factor (12a) by the dose release factor to obtain a reading in mRem/hour.

at exclusion area boundary

$$\frac{\text{_____}}{(12a \ X/Q)} \times 9.0 \times 10^5 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \text{_____ mRem/hour}$$

ATTACHMENT IX
CONTINGENCY CALCULATIONS

- 1B. To calculate the thyroid (Iodine) dose at the LPZ boundary, multiply the dispersion factor (12b) by the dose release factor to obtain a reading in mRem/hour.

at LPZ area boundary

$$\frac{\text{_____}}{(12b \ X/Q)} \times 9.0 \times 10^5 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \text{_____} \text{ mRem/hour}$$

- 1C. To calculate the thyroid (Iodine) dose at the 5 mile EPZ boundary, multiply the dispersion factor (12c) by the dose release factor to obtain a reading in mRem/hour.

at 5 mile EPZ boundary

$$\frac{\text{_____}}{(12c \ X/Q)} \times 9.0 \times 10^5 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \text{_____} \text{ mRem/hour}$$

- 1D. To calculate the thyroid (Iodine) dose at the 10 mile EPZ boundary, multiply the dispersion factor (12d) by the dose release factor to obtain a reading in mRem/hour.

at 10 mile EPZ boundary

$$\frac{\text{_____}}{(12d \ X/Q)} \times 9.0 \times 10^5 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \text{_____} \text{ mRem/hour}$$

- 1E. To calculate the thyroid (Iodine) dose at any other location of interest, multiply the dispersion factor (X/Q) by the dose release factor ($9.0 \times 10^5 \text{ mRem/hour} / \text{sec}/\text{m}^3$) to obtain a reading in mRem/hour.

ATTACHMENT IX
CONTINGENCY CALCULATIONS

Case III Gas Decay Tank Rupture - Whole Body Dose

1A. To calculate the whole body dose at the Exclusion Area Boundary, multiply the dispersion factor (12a) by the dose release factor to obtain a reading in mRem/hour.

at exclusion area boundary

$$\frac{\text{_____}}{(12a X/Q)} \times 3.0 \times 10^6 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \text{_____ mRem/hour}$$

1B. To calculate the whole body dose at the LPZ boundary, multiply the dispersion factor (12b) by the dose release factor to obtain a reading in mRem/hour.

at LPZ area boundary

$$\frac{\text{_____}}{(12b X/Q)} \times 3.0 \times 10^6 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \text{_____ mRem/hour}$$

1C. To calculate the whole body dose at the 5 mile EPZ boundary, multiply the dispersion factor (12c) by the dose release factor to obtain a reading in mRem/hour

at 5 mile EPZ boundary

$$\frac{\text{_____}}{(12c X/Q)} \times 3.0 \times 10^6 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \text{_____ mRem/hour}$$

1D. To calculate the whole body dose at the 10 mile EPZ boundary, multiply the dispersion factor (12d) by the dose release factor to obtain a reading in mRem/hour.

at 10 mile EPZ boundary

$$\frac{\text{_____}}{(12d X/Q)} \times 3.0 \times 10^6 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \text{_____ mRem/hour}$$

ATTACHMENT IX
CONTINGENCY CALCULATIONS

1E. To calculate the whole body dose at any other location of interest, multiply the dispersion factor (X/Q) by the dose release factor (3.0×10^6 mRem/hour/sec/m³) to obtain a reading in mRem/hour.

Case IV Fuel Handling Accident- Whole Body Dose

1A. To calculate the whole body dose at the Exclusion Area Boundary, multiply the dispersion factor (12a) by the dose release factor to obtain a reading in mRem/hour.

at exclusion area boundary

$$\frac{\text{_____}}{(12a \ X/Q)} \times 2.5 \times 10^6 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \text{_____} \text{ mRem/hour}$$

1B. To calculate the whole body dose at the LPZ area boundary, multiply the dispersion factor (12b) by the dose release factor to obtain a reading in mRem/hour.

at LPZ area boundary

$$\frac{\text{_____}}{(12b \ X/Q)} \times 2.5 \times 10^6 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \text{_____} \text{ mRem/hour}$$

1C. To calculate the whole body dose at the 5 mile EPZ boundary, multiply the dispersion factor (12c) by the dose release factor to obtain a reading in mRem/hour.

at 5 mile EPZ boundary

$$\frac{\text{_____}}{(12c \ X/Q)} \times 2.5 \times 10^6 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \text{_____} \text{ mRem/hour}$$

ATTACHMENT IX
CONTINGENCY CALCULATIONS

- 1D. To calculate the whole body dose at the 10 mile EPZ boundary, multiply the dispersion factor (12d) by the dose release factor to obtain a reading in mRem/hour.

at 10 mile EPZ boundary

$$\frac{\quad}{(12d \ X/Q)} \times 3.0 \times 10^6 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \frac{\quad}{\quad} \text{mRem/hour}$$

- 1E. To calculate the whole body dose at any other location of interest, multiply the dispersion factor (X/Q) by the dose release factor (3.0 x 10⁶ mRem/hour/sec/m³) to obtain a reading in mRem/hour.

ATTACHMENT IX
CONTINGENCY CALCULATIONS

Case IV Fuel Handling Accident- Whole Body Dose

1A. To calculate the whole body dose at the Exclusion Area Boundary, multiply the dispersion factor (12a) by the dose release factor to obtain a reading in mRem/hour.

at exclusion area boundary

$$\frac{\text{---}}{(12a \ X/Q)} \times 1.9 \times 10^7 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \text{---} \text{mRem/hour}$$

ATTACHMENT IX
CONTINGENCY CALCULATIONS

- 1B. To calculate the thyroid (Iodine) dose at the LPZ boundary, multiply the dispersion factor (12b) by the dose release factor to obtain a reading in mRem/hour.

at LPZ area boundary

$$\frac{\text{_____}}{(12b \ X/Q)} \times 1.9 \times 10^7 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \text{_____} \text{ mRem/hour}$$

- 1C. To calculate the thyroid (Iodine) dose at the 5 mile EPZ boundary, multiply the dispersion factor (12c) by the dose release factor to obtain a reading in mRem/hour.

at 5 mile EPZ boundary

$$\frac{\text{_____}}{(12c \ X/Q)} \times 1.9 \times 10^7 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \text{_____} \text{ mRem/hour}$$

- 1D. To calculate the thyroid (Iodine) dose at the 10 mile EPZ boundary, multiply the dispersion (12d) by the dose release factor to obtain a reading in mRem/hour.

at 10 mile EPZ boundary

$$\frac{\text{_____}}{(12d \ X/Q)} \times 1.9 \times 10^7 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \text{_____} \text{ mRem/hour}$$

- 1E. To calculate the thyroid (Iodine) dose at any other location of interest, multiply the dispersion factor (X/Q) by the dispersion factor ($1.9 \times 10^7 \text{ mRem/hour/ sec/m}^3$) to obtain a reading in mRem/hour.

ATTACHMENT IX
CONTINGENCY CALCULATIONS

Case V Steam Generator Tube Rupture - Whole Body Dose

1A. To calculate the whole body dose at the Exclusion Area Boundary, multiply the dispersion factor (12a) by the dose release factor to obtain a reading in mRem/hour.

at exclusion area boundary

$$\frac{\text{_____}}{(12a \ X/Q)} \times 4.2 \times 10^5 \frac{\text{mRem}}{\text{hour}} \frac{\text{sec}}{\text{m}^3} = \text{_____ mRem/hour}$$

1B. To calculate the whole body dose at the LPZ boundary, multiply the dispersion factor (12b) by the dose release factor to obtain a reading in mRem/hour.

at LPZ area boundary

$$\frac{\text{_____}}{(12b \ X/Q)} \times 4.2 \times 10^5 \frac{\text{mRem}}{\text{hour}} \frac{\text{sec}}{\text{m}^3} = \text{_____ mRem/hour}$$

1C. To calculate the whole body dose at the 5 mile EPZ boundary, multiply the dispersion factor (12c) by the dose release factor to obtain a reading in mRem/hour.

at 5 mile EPZ boundary

$$\frac{\text{_____}}{(12c \ X/Q)} \times 4.2 \times 10^5 \frac{\text{mRem}}{\text{hour}} \frac{\text{sec}}{\text{m}^3} = \text{_____ mRem/hour}$$

1D. To calculate the whole body dose at the 10 mile EPZ boundary, multiply the dispersion factor (12d) by the dose release factor to obtain a reading in mRem/hour.

at 10 mile EPZ boundary

$$\frac{\text{_____}}{(12d \ X/Q)} \times 4.2 \times 10^7 \frac{\text{mRem}}{\text{hour}} \frac{\text{sec}}{\text{m}^3} = \text{_____ mRem/hour}$$

ATTACHMENT IX
CONTINGENCY CALCULATIONS

- 1E. To calculate the whole body dose at any other location of interest, multiply the dispersion factor (X/Q) by the dose release factor (4.2×10^5 mRem/hour/sec/m³) to obtain a reading in mRem/hour.

Case V Steam Generator Tube Rupture - Thyroid (Iodine) Dose

- 1A. To calculate the thyroid (Iodine) dose at the Exclusion Area Boundary, multiply the dispersion factor (12a) by the dose release factor to obtain a reading in mRem/hour.

at exclusion area boundary

$$\frac{\text{_____}}{(12a \ X/Q)} \times 5.6 \times 10^5 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \text{_____} \text{ mRem/hour}$$

- 1B. To calculate the thyroid (Iodine) dose at the LPZ boundary, multiply the dispersion factor (12b) by the dose release factor to obtain a reading in mRem/hour.

at LPZ area boundary

$$\frac{\text{_____}}{(12b \ X/Q)} \times 5.6 \times 10^5 \frac{\text{mRem}}{\text{hour} \frac{\text{sec}}{\text{m}^3}} = \text{_____} \text{ mRem/hour}$$

ATTACHMENT IX
CONTINGENCY CALCULATIONS

- 1C. To calculate the thyroid (Iodine) dose at the 5 mile EPZ boundary, multiply the dispersion factor (12c) by the dose release factor to obtain a reading in mRem/hour.

at 5 mile EPZ boundary

$$\frac{\text{_____}}{(12c \ X/Q)} \times 5.6 \times 10^5 \frac{\text{mRem}}{\text{hour}} \frac{\text{sec}}{\text{m}^3} = \text{_____} \text{ mRem/hour}$$

- 1D. To calculate the thyroid (Iodine) dose at the 10 mile EPZ boundary, multiply the dispersion factor (12d) by the dose release factor to obtain a reading in mRem/hour.

at 10 mile EPZ boundary

$$\frac{\text{_____}}{(12d \ X/Q)} \times 5.6 \times 10^5 \frac{\text{mRem}}{\text{hour}} \frac{\text{sec}}{\text{m}^3} = \text{_____} \text{ mRem/hour}$$

- 1E. To calculate the thyroid (Iodine) dose at any other location of interest, multiply the dispersion factor (X/Q) by the dose release factor ($5.6 \times 10^5 \text{ mRem/hour/sec/m}^3$) to obtain a reading in mRem/hour.

ATTACHMENT X
LIQUID RELEASE CALCULATIONS

6. Find the river flow corresponding to the river level, (No. 5 above,) in Attachment XI, and record: _____ CFS.
(6)

7. Calculate the average and maximum downstream concentrations of radioactive material as follows:

Average

$$\frac{\text{uCi}}{(3a) \text{ ml}} \times \frac{\text{gpm}}{(4)} \times 2.33 \times 10^{-3} \frac{\text{cfs}}{\text{gpm}} \div \frac{\text{cfs}}{(6)} = \frac{\text{uCi}^{**}}{(7a) \text{ ml}}$$

Maximum

$$\frac{\text{uCi}}{(3b) \text{ ml}} \times \frac{\text{gpm}}{(4)} \times 2.33 \times 10^{-3} \frac{\text{cfs}}{\text{gpm}} \div \frac{\text{cfs}}{(6)} = \frac{\text{uCi}^{**}}{(7b) \text{ ml}}$$

****NOTE:** If the average or maximum downstream concentration is $\geq 1 \times 10^{-6}$ uCi/ml, notify downstream users to curtail intake (Table 2).

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Complete the following table to determine the estimated time for the flume to reach each of the downstream users.

Downstream Water Users (8)	Distance To User (miles) (9)	River Velocity (MPH) (10)	Flume Time To Reach (hrs) User (11)	Flume ETA (12)
Brunner Island Steam Electric Station	5.0			
Wrightsville Water Supply Company	16.25			
Borough of Columbia	16.75			
City of Lancaster	16.75			
Safe Harbor Water and Power Corp.	27.25			
Holtwood Reservoir	34.75			
Chester Water Authority	43			
City of Baltimore	49			

10. Determine river velocity in mph corresponding to river flow, see Attachment XI. Record in table above.
11. Divide the distance to user (9) by river velocity (10) to determine time for flume to reach downstream user (11).
12. Add time to reach user (11) to time of release (1) to determine flume estimated time of arrival (ETA).

ATTACHMENT X
LIQUID RELEASE CALCULATIONS

24 Hour Average Concentration in Unrestricted Areas

12. Record the duration of the release in minutes: _____ min.
13. Calculate a 24 hour average concentration in unrestricted areas:

$$\frac{\mu\text{Ci}}{(3a) \text{ ml}} \times \frac{\text{min}}{(12)} \times 6.95 \times 10^{-4} = \frac{\mu\text{Ci}}{(13) \text{ ml}}$$

14. Determine the estimated fraction of MPC: *

$$\frac{\mu\text{Ci}}{(13) \text{ ml}} \div \text{MPC}_w^{**} = \text{Fraction of MPC} \quad (14)$$

NOTE: *If the ratio obtained in (14) of Attachment is > 500, notification of NRC is required with 24 hours per 10CFR20.403. If the ratio obtained is > 5,000, immediate notification is required per 10CFR20.403.

NOTE: **MPC_w is the weighted MPC for the isotopes released found in 10 CFR 20, Appendix B, Column 2, Table 2. If unknown, use 3 x 10⁻⁸ μCi/ml. MPC_w will be listed as μCi/ml.

ATTACHMENT XI

TABLE I

RIVER FLOW VS. RIVER LEVEL

A	B	C	D
River Elevation	River Elevation	River Flow	River
Market Street	at TMI	(Cubic Feet)	Velocity
Bridge, Hbg.	(Feet Above)	(Cubic Feet)	Velocity
(Feet)	Sea Level)	per Second)	(MPH)
4.3	278.7	20,000	.9
5.3	279.5	40,000	1.4
6.2	280.1	60,000	1.7
7.1	280.7	80,000	2.0
8.1	281.3	100,000	2.3
10.4	282.5	150,000	2.6
12.5	283.6	200,000	3.1
14.3	284.9	250,000	3.3
16.1	285.8	300,000	3.5
17.9	287.0	350,000	3.7
19.5	288.1	400,000	3.9
21.2	289.7	450,000	4.1
22.7	291.0	500,000	4.3
24.3	292.6	550,000	4.5
25.6	294.0	600,000	4.7
26.9	295.2	650,000	4.9
28.1	296.1	700,000	5.1

ATTACHMENT XI

TABLE I

RIVER FLOW VS. RIVER LEVEL

A	B	C	D
River Elevation	River Elevation	River Flow	River
Market Street	at TMI	(Cubic Feet)	Velocity
Bridge, Hbg.	(Feet Above)	per Second)	(MPH)
(Feet)	Sea Level)		
29.3	297.1	750,000	5.3
30.4	298.1	800,000	5.5
31.3	299.2	850,000	5.7
32.0	300.1	900,000	5.9
32.6	301.1	950,000	6.1
33.1	302.0*	1,000,000	6.3

NOTE: *River elevation 302.0 feet at water intake structure TMI requires initiation of EPIP 1004.2 ALERT.

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THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 EMERGENCY PLANNING IMPLEMENTING PROCEDURE 1004.8 CONTROLLED COPY FOR
CALLOUT OF ONSITE AND OFFSITE DUTY ROSTER PERSONNEL USE IN UNIT 1 ONLY

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Unit 1 Staff Recommends Approval

Approval N/A
Cognizant Dept. Head

Date _____

Unit 1 PORC Recommends Approval

Alfred Nelson
Chairman of PORC

Date 12/15/80

Manager TMI I Approval

Ry Toole

12/15

Date 12-15-80

QA Modifications/Operations Mgr

Date _____

FOR USE IN UNIT 1 ONLY

THREE MILE ISLAND NUCLEAR STATION

UNIT NO. I EMERGENCY PLANNING IMPLEMENTING PROCEDURE 1004.8

CALLOUT OF ONSITE AND OFFSITE DUTY ROSTER PERSONNEL

1.0 PURPOSE

The purpose of this procedure is to provide guidance for the notification of the appropriate members of the onsite and offsite Emergency Duty Section(s).

The Communications Assistant is responsible for implementing this procedure when directed by the Emergency Director.

2.0 ATTACHMENTS

2.1 None

3.0 EMERGENCY ACTION LEVELS

Onsite Duty Section

3.1 This procedure to be initiated upon declaration of the following:

3.1.1 Unusual event (1004.1)

3.1.2 Alert (1004.2)

3.1.3 Site Emergency (1004.3)

3.1.4 General Emergency (1004.4)

3.1.5 As directed by the Emergency Director

4.0 EMERGENCY ACTIONS

4.1 Onsite Duty Roster

4.1.1 Request the Emergency Director to indicate which Duty Section members are to be contacted.

____ 4.1.2 Check the following locations to determine which members of the duty section have already reported in response to the emergency announcement.

- a. Control room (visual check), Shift Supervisors Office (visual check).
- b. Operations Support Center -
 - 1. Phone number - 948-8082 or 8083
- c. Technical Support Center -
 - 1. Phone number - 948-8079 or 8349

____ 4.1.3 Reflect the presence of any duty members on the status board in the manner described in step 4.1.9.

____ 4.1.4 Contact the Manager of Unit I.

- a. R. J. Toole (if Toole is the Duty Section Superintendent proceed to the next step).
- b. Work phone - 8005
- c. Home phone - 533-5632
- d. Beeper 782-8147
- e. Message:

This is the Communications Assistant at Three Mile Island Unit I.

We have declared a(n) _____
(emergency classification)

at _____
(time)

____ 4.1.5 Contact the Supervisor of Operations of Unit I

- a. M. J. Ross
- b. Work phone - 8115
- c. Home phone - 653-5109
- d. Beeper - 782-1507
- e. Message:

This is the Communications Assistant at the Three Mile Island Unit I.

We have declared a(n) _____

(emergency classification)

at _____

(time)

____ 4.1.6 Contact the Director of Unit I

- a. H. D. Hukill
- b. Work phone - 8161
- c. Home phone - 367-8642
- d. Beeper - 782-1790
- e. Message:

This is the Communications Assistant at Three Mile Island Unit I.

We have declared a(n) _____

(emergency classification)

at _____

(time)

____ 4.1.7 Contact the V.P. of Nuclear Assurance Unit I

- a. J. G. Herbein
- b. Work phone - 8116
- c. Home phone - 1-838-5222
- d. Beeper - 782-8151
- e. Message:

This is the Communications Assistant at Three Mile Island Unit I.

We have declared a(n) _____
(emergency classification)

at _____
(time)

____ 4.1.8 Contact the York Haven Power Station

- a. Telephone 71-82-2356 or 266-3654/3655
- b. Message:

This is the Communications Assistant at Three Mile Island Unit I.

We have declared a(n) _____
(emergency classification)

at _____
(time)

____ 4.1.9 Using the Duty Roster Board as a reference make all the remaining notifications as instructed below:

a. DURING NORMAL WORKING HOURS

(WEEKDAYS 8:00 a.m. to 4:30 p.m.)

1. Call the office number listed and tell the individual to respond to his designated duty station.
2. If the person is not there or if the party doesn't answer, activate the beeper, by dialing the number listed on the board.
3. Periodically rewind the phone recording device to determine who has responded to the phone pager activation. See Note

b. AFTER HOURS/HOLIDAYS, ETC.

1. Call the home phone number listed and tell the individual to respond to his designated duty station.
2. If the person is not there or if the party doesn't answer, activate the beeper, by dialing the number listed on the board.
3. Periodically rewind the phone recording device to determine who has responded to the beeper activation. See Note

NOTE The Emergency Director or his designee will record a message on the phone answering machine. This message will give the classification of emergency and require the duty section member to confirm his response. A rewind of the message tape will provide you with a status of responding duty section members.

4.1.10 Emergency Duty Status Board as follows:

- a. As the duty section individual is called or beeped turn over the appropriate tag. For example if R. Toole is called at home turn over the home phone number to indicate this. Likewise for the work number or beeper number.
- b. If the duty section individual has responded to his beeper turn over the responded tag.
- c. If the duty section individual is present in his designated location (check by phone) turn over the name tag.

4.1.11 Inform the Emergency Director when all contacts have been made and provide him with a list of individuals that can not be reached.

NOTE: If the duty section individual has not responded to beeper activations, notify the Emergency Director of this and request that he designate a suitable replacement.

4.2 Offsite Duty Roster - Obtain a copy of the offsite duty roster from the Emergency Director.

- 4.2.1 Request the Emergency Director to indicate which offsite duty members are to be contacted.

NOTE: The offsite duty roster is divided into three priority groups. The Priority one member is to be contacted initially, if no contact, then try the priority two member then the priority three, until one member is reached see 4.2.3 for Parsippany Activation.

- 4.2.2 Contact the offsite duty members in the following manner:

- a. During Normal Working Hours
(Workdays 8 a.m. to 4:30 p.m.)
1. Call the office number listed for each required priority one position and tell the individual to respond to his designated duty station.
 2. If the person is not there, or if the priority one party doesn't answer, try the priority two, then the priority three office number.
 3. If there is no response at the office from any of the three priorities, then activate the beeper.
 4. Periodically rewind the phone recording device to determine who has responded to the beeper activation.
- b. After hours/holidays, etc.
1. Call the home number listed for each required priority one position and tell the individual to respond to his designated duty section.

2. If the person is not there, or if the priority one party doesn't answer, try the priority two, then the priority three home number.
3. If there is no response at the residence phone of any of the three priorities then activate the beeper.
4. Periodically, rewind the phone recording device to determine who has responded to the phone pager activation.

4.2.3 The Group Leader Technical Support, the Technical Support Staff the Engineering Section Management and other personnel as indicated by asterisks are Parsippany based personnel and are reached through the GPU offices in Parsippany, or through the Jersey Central Power and Light Company dispatcher in Morristown, NJ (201-539-9600/9601). The dispatcher must be requested to activate the pager of the Parsippany duty member

4.2.4 Update the duty roster with the appropriate information and status as to the phone calls made, the pagers activated and members responding.

4.2.5 Inform the Emergency Director when all contacts have been made and provide the Emergency Director with a list of individuals that cannot be reached.

: NOTE: If any of the duty roster positions have not been :
: filled, notify the Emergency Director or the Emer- :
: gency Support Director and request that he designate :
: a suitable replacement. :

5.0 FINAL CONDITIONS

- ___ 5.1 The members of the onsite duty section have been notified and are responding.

- ___ 5.2 If applicable, the members of the offsite duty roster have been notified and are responding.

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THREE MILE ISLAND NUCLEAR STATION UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE NO. 1004.9 IN-PLANT RADIOLOGICAL CONTROLS DURING EMERGENCIES

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Office of Nuclear Reactor Reg.

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8.0		0	33.0			58.0
9.0		0	34.0			59.0
10.0		0	35.0			60.0
11.0			36.0			61.0
12.0			37.0			62.0
13.0			38.0			63.0
14.0			39.0			64.0
15.0			40.0			65.0
16.0			41.0			66.0
17.0			42.0			67.0
18.0			43.0			68.0
19.0			44.0			69.0
20.0			45.0			70.0
21.0			46.0			71.0
22.0			47.0			72.0
23.0			48.0			73.0
24.0			49.0			74.0
25.0			50.0			75.0

Unit 1 Staff Recommends Approval Approval <u>N/A</u> Date <u> </u> Cognizant Dept. Head	Unit 2 Staff Recommends Approval Approval _____ Date _____ Cognizant Dept. Head
Unit 1 PORC Recommends Approval <u>Mark Nelson</u> Date <u>12/15/80</u> Chairman of PORC	Unit 2 PORC Recommends Approval _____ Date _____ Chairman of PORC
Unit 1 Superintendent Approval <i>p. 12/15</i> <u>R. Toole</u> Date <u>12-15-80</u>	Unit 2 Superintendent Approval _____ Date _____
Manager Generation Quality Assurance Approval _____ Date _____	

THREE MILE ISLAND NUCLEAR STATION
UNIT NO. I EMERGENCY PLAN IMPLEMENTING PROCEDURE NO. 1004.9
IN-PLANT RADIOLOGICAL CONTROLS DURING EMERGENCIES

1.0 PURPOSE

The purpose of this procedure is to provide guidelines for implementation of the in-plant radiological program during emergency conditions and for re-entry operations during and after the declaration of a radiological emergency to assure maximum protection of plant personnel and emergency teams without restricting necessary operations and maintenance.

The Health Physics Coordinator is responsible for implementing this procedure.

2.0 ATTACHMENTS

- 2.1 Attachment I - Personnel Briefing/Debriefing
- 2.2 Attachment II - Radiological Supplies Checklist
- 2.3 Attachment II - In-Plant Radiological Checklist

3.0 EMERGENCY ACTION LEVELS

3.1 This procedure shall be implemented under the following conditions:

3.1.1 In-Plant radiological problems exist and one of the following emergencies has been declared:

- a. Unusual Event (1004.1)
- b. Alert (1004.2)
- c. Site Emergency (1004.3)
- d. General Emergency (1004.4)

3.1.2 It is necessary to enter an area, before or after a radiation related emergency, in which the radiological conditions are unknown but are suspected to be hazardous.

3.1.3 As referenced by other emergency procedures.

3.1.4 As directed by the Emergency Director.

4.0 EMERGENCY ACTIONS

INITIALS

___ 4.1 If exposures in excess of the limits of 10CFR20.101 are anticipated, ensure that each member of the team (Search and Rescue, Emergency Repair, In-Plant Monitoring, etc.) understands that this exposure is voluntary. Exposure in excess of the limits of 10CFR20.101 shall be authorized by the Emergency Director only.

___ 4.2 Ensure that each team member is current in his Radiation Workers Training.

___ 4.3 When re-entry to a hazardous or potentially hazardous area is necessary, ensure that re-entry team members are briefed on all known hazards in the re-entry area (i.e., heat, smoke, steam, flooding, fire, toxic materials, direct radiation levels and airborne radioactive material) and that they are properly prepared. If time permits, the re-entry should be planned in detail and every effort should be made to minimize exposure. Complete Attachment I, Personnel Briefing/Debriefing Checklist.

___ 4.4 Ensure that each re-entry team is properly equipped. See Attachment II checklist.

- ___ 4.5 Report to the Operations Support Center Coordinator that the team(s) is (are) briefed and ready to perform the assigned task.
- ___ 4.6 Ensure that communications at predetermined intervals, are maintained with the Operations Support Center.
- ___ 4.7 Implement the following guidelines and controls when deviations from routine procedures are determined to be necessary. The specifics of the implementation will be dependent on the radiological conditions. Assign individuals to be responsible for each designated area and make appropriate entries on Attachment III.

___ 4.7.1 Access Control

Insure that inadvertent entry into areas of extreme dose rate does not occur by implementing one or more of the following controls:

- (a) Lock all doors at all possible entry points.
- (b) Post "Danger-High Radiation" signs at all possible entry points
- (c) Post personnel at all possible entry points.

___ 4.7.2 Personnel Radiation Exposure Monitoring

Track and accumulate exposures for personnel required to enter high radiation exposure rates. The RWP Log sheet can be used to document exposures and stay times.

___ 4.7.3 Radiation Surveys

When extreme dose-rate conditions exist, Radiological Control personnel should not be used for the sole purpose of

performing dose-rate surveys. Radiation levels must be determined while performing other duties (in conjunction with 4.7.5) with all information documented for use as guidance by others requiring access.

4.7.4 Airborne Surveys

Where emergency access is required to areas where known or suspected airborne radioactivity exists, maximum respiratory protection shall be provided. Air samples will be taken if they can be obtained without significant additional personnel exposure. Air samples (preferably lapel sampling) should be obtained by personnel making entries for other purposes, if practical, to minimize exposure. Whole Body Counts on personnel should be used to evaluate the effectiveness of the respiratory program and the need for additional concern of personnel who have made entries. Unless real-time monitoring is available, air samples should not be used as guidance in determining respiratory requirements during accident conditions. Maximum protection shall be afforded each individual.

4.7.5 Personnel Briefing/Debriefing

Insure that each individual entering an area of extreme radiation exposure rate has appropriate authorization to enter. A briefing and debriefing should be accomplished before and after each entry. Attachment I provides guidance

in briefing/debriefing information requirements. The Health Physics Coordinator should assign a specific individual(s) to conduct the briefing/debriefing.

NOTE: These individuals may be located at the access control point and also provide positive access control required by 4.7.1.

4.7.6 Supplies

As soon as possible, individuals should be assigned to maintain radiological controls supplies and equipment. Segregation of contaminated materials for eventual decontamination or discarding should occur. Attachment III provides specific logistic concerns which must be addressed.

4.7.7 Personnel Decontamination

Assign a specific individual to insure all contaminated personnel are properly decontaminated and evaluated as necessary. Control Point personnel must be aware of the location of decontaminated facilities and insure contaminated personnel are directed to the facility. (See procedure 1004.16 Radiation Overexposure and Decontamination, for personnel decontamination).

4.7.8 Bioassay

All personnel entering known high airborne radioactivity areas shall be scheduled for whole body counts. An individual shall be assigned, as soon as practical, to

coordinate the whole body counts, assuring that all scheduled personnel are in fact counted, reviewing and evaluating the results and scheduling follow-up counts. Health Physics Consultants (i.e., Porter Consultants, Inc., Radiation Management Corporation, etc.) can be used for this function. If airborne tritium is suspected or known to exist, obtain 24-hour urine samples from all persons who have entered these areas. Analyze the samples for the "maximum risk" individuals within 48 hours.

___ 4.8 Debrief the team(s) in accordance with Attachment I, Personnel Briefing/Debriefing checklist.

5.0 FINAL CONDITIONS

___ 5.1 The normal plant Radiological Controls Procedures are fully implemented.

ATTACHMENT I

PERSONNEL BRIEFING/DEBRIEFING

1. Briefing prior to entry into High Radiation Area.

INITIAL

- A) Voluntary nature of reentry. Initials of Reentry Team if applicable: , , .
- B) Potential Hazards.
- C) Dose rates and activity levels.
- D) Proper Dosimetry (TLD and High range self-reading) issued and use understood.
- E) Proper Respiratory Protection.
- F) Proper Protective Clothing.
- G) Stay times discussed and understood. Initials of Reentry Team:
 , .
- H) Instrumentation to be used.
- I) Use mock-up situation if time permits.
- J) Review Documentation required for entry and for personnel records if time permits.
- K) Safety and Health Concerns i.e., gases present, toxic materials, equipment malfunction, etc.
- L) Define and explain as detailed any system malfunctions, breaks or hazards from operating equipment.

ATTACHMENT I

PERSONNEL BRIEFING/DEBRIEFING

2. Debriefing after exiting High Radiation Area.

INITIAL

- A) Determine exposure and time in Area.
- B) Monitor for Personnel Contamination, document positive findings.
- C) Determine approximate dose-rates from survey meter.
- D) Document exposure, time and survey information.
- E) Any noticeable radiological or operations concern, i.e., gas leaks, liquid spills, alarms, equipment malfunction, etc.
- F) Document recommended bioassay.
- G) Take nasal swabs of persons in airborne contamination areas.

ATTACHMENT II

RADIOLOGICAL CONTROLS SUPPLIES - CHECKLIST

Depending on hazards involved, teams should be equipped with appropriate equipment from the list below:

	Number	Type
1) Protective Clothing for each individual	_____	_____
2) Respirators for each individual	_____	_____
3) Scott-Air Paks (refill of bottles)	_____	_____
4) Gamma Dose-rate instruments: Beta Dose-rate instruments	_____	_____
5) Self-Reading dosimeters (two high range for each individual)	_____	_____
6) TLD's, Extremity TLD's (at least one TLD for each individual: if available, three TLD's should be worn by each individual—two at chest level, one at waist level)	_____	_____
7) Wet Suits	_____	_____
8) Air Samplers	_____	_____
9) Air Particulate Filters	_____	_____
10) Charcoal Filters	_____	_____
11) Poly Bags	_____	_____
12) Absorbent materials	_____	_____
13) Maranelli beakers for grab air samples	_____	_____
14) First Aid Kit	_____	_____
15) Additional survey equipment per procedure 1004.10 (Onsite Radiological Monitoring).	_____	_____

ATTACHMENT III

IN-PLANT RADIOLOGICAL CHECKLIST

1. Access Control: Individual Assigned: _____

2. Radiation Exposure Monitoring Individual Assigned: _____

3. Radiation Surveys: Individual Assigned: _____

4. Airborne Surveys: Individual Assigned: _____

5. Personnel Briefing/Debriefing: Individual Assigned: _____

6. Supplies: Individual Assigned: _____

7. Personnel Decontamination: Individual Assigned: _____

8. Bioassay - scheduling and data review: Individual
Assigned: _____

FOR USE IN UNIT 1 ONLY

1004.10
Revision 0
12/15/80

THREE MILE ISLAND NUCLEAR STATION UNIT 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.10 ONSITE RADIOLOGICAL MONITORING

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13.0			38.0			63.0		
14.0			39.0			64.0		
15.0			40.0			65.0		
16.0			41.0			66.0		
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18.0			43.0			68.0		
19.0			44.0			69.0		
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22.0			47.0			72.0		
23.0			48.0			73.0		
24.0			49.0			74.0		
25.0			50.0			75.0		

Unit 1 Staff Recommends Approval

Approval N/A Date
Cognizant Dept. Head

Unit 2 Staff Recommends Approval

Approval Date
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

M. A. Kehon Date 12/15/80
Chairman of PORC

Unit 2 PORC Recommends Approval

 Date
Chairman of PORC

Unit 1 Superintendent Approval

R. Toole Date 12-15-80
12/15

Unit 2 Superintendent Approval

 Date

Manager Generation Quality Assurance Approval Date

FOR USE IN UNIT 1 ONLY

THREE MILE ISLAND NUCLEAR STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.10
ONSITE RADIOLOGICAL MONITORING

1.0 PURPOSE

The purpose of this procedure is to provide guidance to radiation monitoring teams for adequate onsite monitoring of radiation levels, following the accidental release of radioactive materials to the environment. The procedure establishes monitoring team actions to be performed to supplement normal Health Physics procedures. The Radiation Monitoring Team is responsible for implementing this procedure.

2.0 ATTACHMENTS

- 2.1 Attachment I, Radiation Survey Log
- 2.2 Attachment II, Dosimeter Log

3.0 EMERGENCY ACTION LEVELS

- 3.1 This procedure is to be initiated upon any of the following conditions:
- a) Alert (as determined by Alert procedure 1004.2)
 - b) Site Emergency (as determined by Site Emergency Procedure 1004.3)
 - c) General Emergency (as determined by General Emergency Procedure 1004.4)
 - d) As directed by the Emergency Director.

4.0 EMERGENCY ACTIONS

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Revision 0

INITIALS

- ____ 4.1 Proceed to the Processing Center and obtain an emergency kit, portable radio, and pager.
- ____ 4.2 Verify seals on the emergency kit and then operationally check radiation meters. (Battery Check, Source Response Check, Visual Inspection)
- ____ 4.3 If seals are broken, conduct a brief inventory of equipment.
- ____ 4.4 Prior to leaving the Processing Center, conduct a radio check with the Radiological Assessment Coordinator (RAC) in the Control Room using channel 3. Inform the RAC of your telephone pager number.
- ____ 4.5 Obtain a designated emergency vehicle at the Processing Center.
- ____ 4.6 Proceed to the designated onsite monitoring location as directed by the RAC. (See onsite map in emergency kit for specifically designated monitoring point locations.)
- ____ 4.7 Ensure your dose rate meter is turned on from the time you leave the Processing Center.
- ____ 4.8 Perform dose rate surveys and Airborne Radioactivity monitoring (in accordance with Airborne Radioactivity Sampling and Analysis, Procedure 1004.31), at the designated onsite monitoring location. Record all dose rates and air samples on Attachment I.
- ____ 4.9 Call in sampling results to the RAC and await further instructions.
- ____ 4.10 If radio communications are lost and the pager is activated, attempt to re-establish radio communications with the RAC. If radio communications cannot be re-established, drive to the nearest plant page system phone and contact the RAC.

FOR USE IN UNIT I ONLY

- ___ 4.11 Minimize personnel exposures by moving out of areas of high radiation when recording data or awaiting further instructions by the RAC.
- ___ 4.12 Ensure all team members keep track of their exposure on Attachment II.
- ___ 4.13 Maintain all completed Attachments I for permanent records. Request direction from the RAC as to the disposition of these completed forms.

5.0 FINAL CONDITIONS

- ___ 5.1 Onsite radiation monitoring established and being maintained as required.

H S P CODE 11

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APC HOURS USED
TENTHS
07

TOTAL TIME
HR. MIN
06 55

TIME IN/
TIME OUT

TOTAL EXPOSURE RECEIVED
MREM
40 43

SR. READING IN/
SR. READING OUT

EXPOSURE LIMIT
MREM

SOCIAL SECURITY NUMBER
23 31

NAME
INIT

5.0

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POOR ORIGINAL

FOR USE IN UNIT 1 ONLY

THREE MILE ISLAND NUCLEAR STATION UNIT 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.11 OFFSITE RADIOLOGICAL MONITORING

1004.11
Revision 0
12/15/80

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24.0			49.0			74.0		
25.0			50.0			75.0		

Unit 1 Staff Recommends Approval

Approval N/A Date
Cognizant Dept. Head

Unit 2 Staff Recommends Approval

Approval Date
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

M. A. Kehon Date 12/15/80
Chairman of PORC

Unit 2 PORC Recommends Approval

 Date
Chairman of PORC

Unit 1 Superintendent Approval

R. Toole Date 12-15-80

Unit 2 Superintendent Approval

 Date

Manager Generation Quality Assurance Approval Date

THREE MILE ISLAND NUCLEAR STATION
UNIT 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.11
OFFSITE RADIOLOGICAL MONITORING

1.0 PURPOSE

The purpose of this procedure is to provide guidance to radiation monitoring teams for adequate offsite monitoring of radiation levels, following the accidental release of radioactive materials to the environment. This procedure establishes monitoring team actions in order to supplement normal Health Physics procedures.

2.0 ATTACHMENTS

- 2.1 Attachment I, Radiation Survey Log
- 2.2 Attachment II, Dosimeter Log

3.0 EMERGENCY ACTION LEVELS

- 3.1 This procedure is to be initiated upon any of the following conditions:
 - a. Alert (as determined by Alert procedure 1004.2).
 - b. Site Emergency (as determined by Site Emergency procedure 1004.3).
 - c. General Emergency (as determined by General Emergency procedure 1004.4).
 - d. As directed by the Emergency Director.

4.0 EMERGENCY ACTIONS

Initials

- ___ 4.1 Proceed to the Processing Center and obtain an emergency kit, portable radio, and pager.

- ___ 4.2 Verify seals on the emergency kit and then operationally check radiation meters (Battery Check, Source Response Check, Visual Inspection).
- ___ 4.3 If seals are broken, conduct a brief inventory of equipment.
- ___ 4.4 Prior to leaving the Processing Center, conduct a radio check with the Radiological Assessment Coordinator (RAC), in the Control Room, using Channel 3. Inform the RAC of your telephone pager number.
- ___ 4.5 Obtain a designated emergency vehicle at the Processing Center.
- ___ 4.6 Proceed to the designated offsite monitoring location as directed by the RAC. (See offsite map in emergency kit, for specifically designated monitoring point locations).
- ___ 4.7 Ensure your dose rate meter is turned on from the time you leave the Processing Center.
- ___ 4.8 Perform dose rate surveys and Airborne Radioactivity monitoring (in accordance with Airborne Radioactivity Sampling and Analysis, Procedure 1004.31), at the designated offsite monitoring location. Record all dose rates and air samples on Attachment I.
- ___ 4.9 Call in sampling results to the RAC and await further instructions.
- ___ 4.10 If radio communications are lost and the pager is activated, attempt to re-establish radio communications with the RAC. If radio communications cannot be re-established, attempt to contact

another monitoring team to relay information. If contact cannot be established, drive to the nearest telephone and call the RAC (948-8069, 948-8070, 948-8071).

- _____ 4.11 Minimize personnel exposures by moving out of areas of high radiation when recording data or awaiting further instructions by the RAC.
- _____ 4.12 Ensure all team members keep track of their exposure on Attachment II.
- _____ 4.13 Maintain all completed Attachment I for permanent records. Request direction from the RAC as to the disposition of these completed forms.
- _____ 4.14 When the Environmental Assessment Command Center (EACC) is activated and takes control of offsite monitoring, begin reporting offsite surveys to the EACC.

5.0 FINAL CONDITIONS

- 5.1 Offsite radiation monitoring established, being maintained and controlled by the EACC.

FOR USE IN UNIT 1 ONLY

1004.12
Revision 0
12/15/80

THREE MILE ISLAND NUCLEAR STATION EMERGENCY PLAN IMPLEMENTING PROCEDURE ENVIRONMENTAL MONITORING

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24.0			49.0			74.0		
25.0			50.0			75.0		

Unit 1 Staff Recommends Approval

Approval N/A Date
Cognizant Dept. Head

Unit 2 Staff Recommends Approval

Approval Date
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

Alfred Velton Date 12/15/80
Chairman of PORC

Unit 2 PORC Recommends Approval

 Date
Chairman of PORC

Unit 1 Superintendent Approval

R. J. Toole ^{#12/15} Date 12-15-80

Unit 2 Superintendent Approval

 Date

Manager Generation Quality Assurance Approval Date

THREE MILE ISLAND NUCLEAR STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURE
ENVIRONMENTAL MONITORING

1.0 PURPOSE

The purpose of this procedure is to provide the requirements and methods for environmental monitoring during or after a declared emergency at Three Mile Island. The Environmental Assessment Coordinator is responsible for implementing this procedure.

2.0 ATTACHMENTS

2.1 Attachment I - TMINS TLD Program

2.2 Attachment II - Radiological Environmental Sampling Program

3.0 EMERGENCY ACTION LEVELS

3.1 This procedure is to be initiated upon declaration of the following:

- a. Site Emergency (as determined by the Site Emergency Procedure 1004.3).
- b. General Emergency (as determined by the General Emergency Procedure 1004.4).
- c. As directed by the Emergency Director.

4.0 EMERGENCY ACTIONS

Initial

- ___ 4.1 Obtain effluent monitoring data (type of release, release rate, flow rate, release pathways, wind speed and direction, etc.) from the Radiological Assessment coordinator to determine the appropriate environmental sample locations.
- ___ 4.2 Dispatch offsite monitoring teams and the mobile monitoring lab when the Environmental Assessment Command Center is activated per procedure 1004.30.
- ___ 4.3 Ensure communications are established between the monitoring teams and the Environmental Assessment Command Center.
- ___ 4.4 When mobile lab reports to designated location, ensure that additional meteorological information from its portable tower is obtained.
- ___ 4.5 Ensure that field data from the mobile lab and the monitoring teams is relayed to the Control Room and the Near-site Emergency Operations Facility.
- ___ 4.6 Ensure that all effluent monitoring data is fed into the Environmental Assessment computer.
- ___ 4.7 Determine the frequency for the changeout of the thermoluminescent dosimeters (TLD's) listed in Attachment I.
- ___ 4.8 Determine specific types of samples and sampling frequencies required to determine offsite radiological conditions. Refer to Attachment II.

- ____ 4.9 Ensure that environmental monitoring is continued to completion in all situations, even though the emergency status has terminated before sampling is complete.
- ____ 4.10 Ensure that required sampling records are completed and maintained in accordance with procedure 1004.5 (Communications and Recordkeeping). Attach log to procedure.

5.0 FINAL CONDITIONS

- ____ 5.1 All samples have been analyzed and the results reported and evaluated.

ATTACHMENT I

ENVIRONMENTAL MONITORING
TMINS TLD PROGRAM

FOR USE IN UNIT 1 ONLY

FOR USE IN UNIT 1 ONLY

<u>LOCATION</u>	<u>HEIGHT FEET</u>	<u>DISTANCE MILES</u>	<u>ASIMUTH o</u>	<u>DESCRIPTION</u>	<u>STATUS</u>
TM-ID-1S2	4	0.4	0	North Weather Station	E, Q
TM-ID-2S2	3 1/2	0.7	25	North Bridge	E
TM-ID-4S2	3 1/2	0.3	71	Top of Dike	Q
TM-5S2	4	0.2	95	Top of Dike	Q
TM-ID-8S1	6	0.4	167	Pole No.33-ME-T-60	E, N
TM-ID-9S2	4 1/2	0.8	184	South TMI	E
TM-ID-10S2	6	0.4	200	Pole No.ME-33-T-28	E, N
TM-ID-11S1	4	0.1	221	Mechanical Draft Towers	Q
TM-ID-13S1	7	0.4	270	Due West on Shelley's Island	N
TM-ID-14S2	3 1/2	0.4	293	Shelley's Island	
TM-ID-15S1	6 1/2	0.5	317	Shelley's Island	N
TM-ID-16S1	4	0.2	340	North Boat Dock	E, Q
TM-ID-3A1	3	0.6	35	Route 441	E, N, Q
TM-ID-4A1	7	0.5	65	Laurel Road	E
TM-ID-5A1	3	0.4	86	Observation Center	E, Q
TM-ID-6A1	6	0.5	117	Route 441 on Light Pole	E, N

Status: E = ETS Location, N = New Location, Q = Quality Control Location

ATTACHMENT I (Cont'd)

<u>LOCATION</u>	<u>HEIGHT FEET</u>	<u>DISTANCE MILES</u>	<u>ASIMUTH 0</u>	<u>DESCRIPTION</u>	<u>STATUS</u>
TM-ID-7A3	3	0.6	143	Route 441	E, N, Q
TM-ID-11A2	6	0.5	221	Beech Island	N
TM-ID-16A1	4	0.4	332	Kohr Island	
TM-ID-10B1	2 1/2	1.1	204	Shelley's Island	
TM-ID-11B1	6	1.9	227	Route 262 Pole No.ME2890, BK722-306	E, N
TM-ID-12B1	4	1.3	253	Goldsboro Air Station	E
TM-ID-13B1	7	1.2	265	Goldsboro Marine on Light Pole	E, N, Q
TM-ID-14B1	7	1.4	290	Still House Road on Tree	E, N
TM-ID-15B1	6	1.8	304	Still House Road No.ME2397NB, 233L-35L	E, N
TM-ID-1C1	4	2.6	0	Middletown Substation	E
TM-ID-8C1	4	2.3	159	Falmouth-Collins Substation	Q
TM-ID-1E4	6	4.3	3	Vine Street Exit From Route 283, Pole No.ME2481-10	E, N
TM-ID-2E1	6	4.8	18	School House Lane and Miller Road, Pole No.ME782-10	
TM-ID-3E3	6	4.5	46	Kennedy Lane, Pole No.74-ME-97	E, N
TM-ID-4E5	4	4.9	71	Beagle Road	E, N

Status: E = EST Location, N = New Location, Q = Quality Control Location

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FOR USE IN UNIT 1 ONLY

ATTACHMENT I (Cont'd)

<u>LOCATION</u>	<u>HEIGHT FEET</u>	<u>DISTANCE MILES</u>	<u>ASIMUTH o</u>	<u>DESCRIPTION</u>	<u>STATUS</u>
TM-ID-5E1	6	4.6	85	N. Market Street (Route 230) and Zaeger Road, Pole No.PP and L 31084, S30386	E, N
TM-ID-6E6	6	4.6	115	Amosite Road, Pole No.PP and L 31016, S29272	E, N
TM-ID-7E6	6	4.8	131	Bainbridge Road (Route 241) and Risser Road, Pole No.ME825	E, N
TM-ID-8E2	6 1/2	4.1	161	Guard Shack at Brunner Road	E, N
TM-ID-9E1	6	4.9	182	Canal Road, Conewago Heights, Pole No.ME497EM, BK244122	E, N
TM-ID-10E3	6	5.0	200	Conewago Creek Road, Strines- town Pole No.ME924CE, BANK 231-139	E, N
TM-ID-11E3	6	4.1	228	Stevens and Wilson Roads, Pole No. ME2521NB	E, N
TM-ID-12E4	6	4.3	245	Lewisberry and Roxberry Roads, Newberrytown, Pole No.ME725NB	E, N
TM-ID-13E1	6	4.9	268	Yocumtown Road and Old Trail, No. ME1050NB	E, N
TM-ID-14E4	6	4.9	281	Route 262 and Beinhower Road, Pole No.ME135FA	E, N
TM-ID-15E1	6	5.0	313	Lumber Street, Highspire, Pole No.PP and L 26827, S31990	E, N
TM-ID-2F1	6	9.0	15	West Areba Ave., and Mill Street, Hershey, Pole No.PP and L 30383, S34608	E, N

Status: E = ETS Location, N = New Location, Q = Quality Control Location

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ATTACHMENT I (Cont d)

<u>LOCATION</u>	<u>HEIGHT FEET</u>	<u>DISTANCE MILES</u>	<u>AZIMUTH o</u>	<u>DESCRIPTION</u>	<u>STATUS</u>
TM-ID-5F1	6	6.8	89	Hummelstown Street, Eliza- bethtown, Pole No PP and L 32190, S30207	E, N
TM-ID-7F1	4	9.0	132	Drager Farm	Q
TM-ID 3G1	4	19.7	47	Cumberland Street (Route 422) at 16th Street, Sub station, Lebanon	N
TM-ID-4G1	6	10.0	68	Route 241	E, Q
TM-ID 6G2	6	21.1	113	Steel Way and Loop Road, Lancaster, Pole PP and L 21274 39808, S36930	N
TM-ID-7G1	5 1/2	15.0	124	Columbia	E
TM-ID 9G1	4	13.0	183	North York Substation	E
TM-ID-14G1	6	12.2	300	Erford Road, Camp Hill, Pole No.PP and L (ATTACHMENT) 23347, S33615	N
TM-ID-15G1	3 1/2	15.0	308	West Fairview	E, Q
TM-ID-15G2	6	11.5	307	Penn and Forster Sts. Hbg. Pole No.PP and L 25874, S35291	N
TM-ID-16E1	6	4.9	339	Spring Garden Drive and Route 441. Pole No. PP and L 27716, S232497	E, N

Status: E = EFS Location, N = New Location, Q = Quality Control Location

FOR USE IN UNIT 1 ONLY

FOR USE IN UNIT 1 ONLY

ATTACHMENT I (Cont'd)

FOR USE IN UNIT 1 ONLY

FOR USE IN UNIT 1 ONLY

<u>LOCATION</u>	<u>HEIGHT FEET</u>	<u>DISTANCE MILES</u>	<u>AZIMUTH o</u>	<u>DESCRIPTION</u>	<u>STATUS</u>
TM-ID-3F1	6	7.16	48	(Conewago School) Met-Ed 1039 CW 764/185 on School House Road Rd. 1/8 mi. W of Schanks Church	N
TI-ID-4F1	6 1/2	8.53	72	Bellaire PP and L 32920 S 31503 1/4 mi. E. of Bellaire Crossroads on Mt. Gretna Rd.	N
TI-ID-6F1	6 1/2	9.36	113	(Donegal Springs) PP and L 33225 S28173 1/8 mi. W of Colebrook Rd and Donegal Springs Rd inter- section on Donegal Springs Rd.	
TI-ID-8F1	6 1/2	7.37	163	(Starview) Met-Ed 193 EM 1/8 mi. N of Starview Methodist Church in Starview on Saginaw Road	N
TI-ID-8G1	6 1/2	13.15	157	(Wilshire Hills) ME793SE SW corner of Orchard Rd and Stonewood Rd Wilshire Hills	N
TI-ID-9F1	6 1/2	6.48	177	(Manchester C53-LIM ME240 MT on Maple Street in Manchester across from High Street at corner of Cemetary Drive	N
TI-ID-10F1	6 1/2	7.39	196	(Zion's View) ME1459 CE 5E corner of Coppenhaffer Road and Rt. 295 Intersection	N
TI-ID-10G1	6 1/2	12.96	204	(Weiglestown) EL and P (old Met-Ed) 6632 opposite corner of Alta Vista Road and Fox Run Rd 100 yds East of Rt 74	N

Status: E = ETS Location, N = New Location, Q = Quality Control Location

ATTACHMENT I (Cont'd)

<u>LOCATION</u>	<u>HEIGHT FEET</u>	<u>DISTANCE MILES</u>	<u>AZIMUTH o</u>	<u>DESCRIPTION</u>	<u>STATUS</u>
TI-ID-11F1	6 1/2	7.96	225	(Andersontown) ME611 DO 2017/ 100 on Andersontown Rd R 1/8 mi SW of Orchard	N
TI-ID 11G1	6 1/2	11.71	225	(Mt. Royal) ME3053 DO Bank 321 232 W Side of Rt. 74 at Mt. Royal Full Gospel Church	N
TI-ID-12F1	6 1/2	8.56	242	(Maytown) 16E/78/End Dj/63 on Alpine Rd. 150 yds S on Rt. 177 at Maytown	N
TI-ID-12G2	6 1/2	11.94	236	(Rossville) ME574 WR Bank 474-100 W. Side of Rt 74- 1/4 mi. from Rt. 177 cross- roads by Earch Craft Barn	N
TI-ID-13F1	6 1/2	7.77	260	(Lewisberry) PP and L 24599 S 29513 W side Rt 382 ~1/2 mi. N of Lewisberry	N
TI-ID-13G2	6 1/2	10.4	274	(Lisburn) PP and L 23149 S 30533 NW corner of Lisburn Rd and Main St. of Lisburn (Rt 114)	N
TI-ID-13G1	6 1/2	13.19	276	(Mt. Allen) Attach 21728 S 30984 of Orchard Lane and Hertzler Rd due S of water tower	N
TI-ID-14F1	6 1/2	7.96	292	(Reeser's Summit) Attach 24757 S 31644 on Evergreen Rd by Fairview Brethren in Christ Church Reeser's Summit	N

Status: E = ETS Location, N = New Location, Q = Quality Control Location

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ATTACHMENT I (Cont'd)

<u>LOCATION</u>	<u>HEIGHT FEET</u>	<u>DISTANCE MILES</u>	<u>AZIMUTH o</u>	<u>DESCRIPTION</u>	<u>STATUS</u>
TI-ID-15F1	6 1/2	8.49	308	(Steelton) PP and L 21570 S 32926 across from parking lot of Steelton Water Co.	N
TI-ID-16F1	7	8.07	340	(Rutherford Heights) Attach 27280 S 34073 on Derry St. at 66th St. Rutherford Heights, NE corner	N

(Twenty TLD's collected monthly.
Fifty-three additional collected quarterly).

Status: E = ETS Location, N = New Location, Q = Quality Control Location

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ENVIRONMENTAL MONITORING
ATTACHMENT II
RADIOLOGICAL ENVIRONMENTAL SAMPLING PROGRAM

The basic objective of radiological environmental analysis is the protection of people in the surrounding area from exposure to radiation in excess of the maximum permissible levels and guidelines, or fractions thereof.

The following table should be used in determining environmental samples (and quantity to be sampled):

TABLE I

Medium Sampled	Quantity/Volume Each Sample	Analysis	Preferred Sample Location
Air-particulate	7E4 cc (25 ft ³)	Beta,gamma	Gross Downwind from site
Air-Iodine	7E4 cc (25 ft ³)	Beta,gamma	Gross Downwind from site
Air-Noble Gases	7E4 cc (25 ft ³)	Beta,gamma	Gross Downwind from site
Water-River (Note 1)	2 liters	Beta,gamma Isotope	Gross 10 downriver from site 2 upstream from site for control
Water-Tap (Note 2)	2 liters	Gamma Isotope	2 from control ~25km from site 4 downwind from site
Soil (Note 3)	1 kg.	Gamma Isotope	2 from control ~25km from site 6 downwind from site

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TABLE I (Cont'd)

Medium Sampled	Quantity/Volume Each Sample	Analysis	Preferred Sample Location
Vegetation (Note 3)	1 kg.	Gamma Isotope	2 from control ~25 km from site 6 downwind from site
Milk (Note 4)	2 liters	I 131 Cs 137 Sr-90	4 from control ~25km from site 10-20 downwind from site
Precipitation	2 liters	Gamma	Onsite collection

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ENVIRONMENTAL MONITORING

ATTACHMENT II

RADIOLOGICAL ENVIRONMENTAL SAMPLING PROGRAM

- Note 1: Upstream samples should be a minimum of 10km upstream of plant outfall.
- Note 2: Control samples should come from least prevalent wind direction from township (municipal) water supply.
- Note 3: Control samples should come from least prevalent wind direction at nearest TLD site for sample accountability. Downwind samples should be taken at/near TLD locations for sample accountability.
- Note 4: Milk samples should be raw, untreated milk from dairies in least prevalent wind direction for control purposes

NOT ALL SAMPLES ON TABLE I NEED TO BE COLLECTED DURING EMERGENCY CONDITIONS, HOWEVER, A REPRESENTATIVE SAMPLE SHOULD BE TAKEN ON THOSE LISTED, AS TIME PERMITS.

This procedure may continue for a relatively long period of time after the emergency has been cancelled. As a minimum, this procedure should continue in effect until all required samples have been collected, prepared, and analyzed.

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THREE MILE ISLAND NUCLEAR STATION UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.14 MONITORING/CONTROLLING LIQUID DISCHARGES FOR NORMALLY UNCONTAMINATED SYSTEMS

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*Unit 1 Nuc.
Reactor Reg.*

Unit 1 Staff Recommends Approval

Approval N/A
Cognizant Dept. Head

Date _____

Unit 1 PORC Recommends Approval

Alfred Wilson
Chairman of PORC

Date 12/15/80

Manager TMI I Approval

R. Toole

12/15

Date 12-15-80

QA Modifications/Operations Mgr

Date _____

FOR USE IN UNIT I ONLY

THREE MILE ISLAND NUCLEAR STATION
UNIT 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.14
MONITORING/CONTROLLING LIQUID DISCHARGES FOR
NORMALLY UNCONTAMINATED SYSTEMS

1.0 PURPOSE

1.1 To define the methods and requirements for releasing contaminated liquids from the following normally uncontaminated systems during accident conditions:

- A. IWTS
- B. IWFS
- C. Secondary Plant Neutralizing Tanks
- D. WECST - Unit II

The Chemistry Coordinator is responsible for implementing this procedure.

2.0 ATTACHMENTS

- 2.1 Attachment I, MPC Fraction Calculation
- 2.2 Attachment II, Release Form

3.0 EMERGENCY ACTION LEVELS

- 3.1 Analyses indicate, or the potential exists, for contamination of normally uncontaminated liquid discharge sources.
- 3.2 As requested by the Emergency Director or Radiological Assessment Coordinator.

RCP 1621.11 shall be used for guidance for discharge of the WECST.

4.0 EMERGENCY ACTIONS

: NOTE: RCP 1621.11 shall be used for guidance for discharge of :
: the WECST. :

Initials

- ___ 4.1 Establish a program to release those sources previously identified, requiring discharge.
- ___ 4.2 Obtain sample from the sources to be released and determine by tritium, gross beta and gamma analysis if the source(s) is contaminated.

 ! NOTE: Gamma analysis is for RAC info only. !

- ___ 4.3 If the source(s) is not contaminated, obtain the Radiological Assessment Coordinator's concurrence to release the source(s) in accordance with normal discharge procedures and the Emergency Release Form (Attachment II).
- ___ 4.4 Complete Attachment I, "MPC Fraction Calculation" and RCP 1621.1 (if applicable) for all contaminated source(s), and Attachment II, Emergency Release Form and forward to the RAC.
- ___ 4.5 Sum the source MPC's for each ongoing source and the planned release. If the summation is less than 0.5, inform the RAC who may recommend to the Emergency Director to release the source. The Emergency Director shall make the final approval of all releases.
- ___ 4.6 Obtain a sample of the discharge every four(4) hours if the potential for contamination exists.

 ! NOTE: Terminate the discharge immediately if the activity of !
 ! the source(s) is determined to be above MPC limits. !

5.0 FINAL CONDITIONS

- ___ 5.1 All releases are being monitored and controlled as required.

ATTACHMENT I

MPC FRACTION CALCULATION

(Based on Gross Beta and Tritium)

RELEASE No. _____

SOURCE (1) _____ DATE _____ SAMPLE No. _____

ISOTOPE	CONCENTRATION ($\mu\text{Ci/ml}$)	MPC ($\mu\text{Ci/ml}$)	CONCENTRATION :MPC
Tritium		3×10^{-3}	
Gross B		1×10^{-7}	

(Sum to Obtain) Sample MPC Fraction _____

Dilution Flow _____

Source Flow _____

Dilution Factor DF = Dilution Flow : Source Flow = _____

Source MPC Fraction = Sample MPC Fraction : DF = _____

Source

Source MPC Fraction

IWFS

IWTS

WECST

Neutralizer Tank

STATION MPC FRACTION

(not to be greater than 0.5)

Completed by _____ Date _____

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12/23/80

THREE MILE ISLAND NUCLEAR STATION UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE POST ACCIDENT IN-PLANT SAMPLING

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Unit 1 Staff Recommends Approval

Approval _____ Date _____
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

all of Nelson

Chairman of PORC Date 12/23/80

Manager TMI I Approval

R. J. Toole

Date 12-23-80 *12/23*

QA Modifications/Operations Mgr

Date _____

FOR USE IN UNIT 1 ONLY

THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE
POST ACCIDENT IN-PLANT SAMPLING

1.0 PURPOSE

This procedure specifies the method of obtaining and analyzing primary coolant samples under accident conditions.

2.0 DISCUSSION

A requirement exists for timely analysis of primary coolant under emergency conditions without overexposure of personnel. Since radiation levels associated with sampling and analysis may be very high, special precautions are required. The Radiological Assessment Coordinator is responsible for implementing this procedure.

3.0 REFERENCES

None

4.0 EQUIPMENT

- 4.1 Protective clothing
- 4.2 Self-contained breathing apparatus
- 4.3 Lead-glass shield
- 4.4 Remote handling tools
- 4.5 Leaded gloves
- 4.6 Source shield
- 4.7 Analytical equipment
- 4.8 Reagents
- 4.9 Glassware

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- 4.10 Eberline Model 6112 Survey Meter (or equivalent)
- 4.11 Wheeled cart
- 4.12 Lead bricks

5.0 INSTRUCTION

5.1 Prerequisites

1. The Nuclear Service Closed Cooling System is in operation per OP 1104-11.
2. The Instrument Air System is in operation per OP 1104-25.
3. The 480 volt supplies 1A ESV and 1B ESV are energized.
4. The DC Engineered Safeguards buses A and B are energized.
5. The Reclaimed Water Portion of the Nuclear Chemical Addition System is operational per OP 1104-47.
6. The Aux. Bldg. Sump has adequate capacity to receive water from the sample sink.
7. Hood Ventilation System in operation.

: NOTE 1: All E.S. Valves which are normally used in sampling have :
: controls in the sample room as well as on the vertical :
: E.S. panel. However, in order for a sample room control :
: to operate, the corresponding switch on the E.S. panel :
: must be in the "remote" position. Call the Control Room :
: before and after sampling. :

: NOTE 2: Prior to sampling of R.C. Letdown or Pressurizer ensure :
: that CAV110 and CAV16 are closed. Close the sample hood. :

: NOTE 3: When making adjustments to CAV110, no personnel will :
: stand near the drain funnel in which relief valve CA-RV5 :
: discharges. :

! NOTE 4: The Shift Supervisor must be notified prior to sampling. !
! The RM-R6 recorder chart should be marked accordingly. !

5.2 Precautions

- 5.2.1 Ensure that all required sampling equipment is available before initiating sampling.
- 5.2.2 Three technicians will be equipped as follows before any entrance to Sampling Room:
- a. Full protective clothing with double coveralls, booties, hood, cotton gloves and surgeons gloves and rainsuit.
 - b. Self-contained breathing apparatus.
 - c. Whole-body TLD, TLD finger ring for each hand, high range (0-5R) self-reading dosimeter for whole body and each wrist.

! NOTE: Should also use TLD wrist badge if available. !

- 5.2.3 Personnel performing sampling will leave Sample Room and notify their Supervisor immediately if it appears that their quarterly exposure limit might be exceeded.

! NOTE: Monitor self-reading dosimetry frequently. !

5.3 Procedure

! NOTE: Ensure that CAV13, CAV1, CAV2 and CAV3 are Closed. !

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5.3.1 Technician 1 will proceed as follows:

5.3.1.1 Don leaded gloves.

5.3.1.2 Enter Sampling Room carrying Teletektor with probe extended and perform rapid survey of radiation levels.

! NOTE: Radiation levels are expected to be relatively low until !
! sampling begins. !

5.3.1.3 Ensure that leaded glass shield is in place in front of hood.

5.3.1.4 Ensure that wheeled cart with sample shield is in place at hood.

5.3.1.5 Place polyethylene sample bottle into hood with remote handling tool locked on.

5.3.1.6 Open CAV35, CAV33, CAV34, CAV25A, CAV26B.

5.3.1.7 Close CAV26A, CAV25B, CAV26C, CAV25C, CAV110, CAV30, CAV31, CAV16.

5.3.1.8 Open CAV13, CAV2.

5.3.1.9 Slowly open CAV110 (flow restriction device) to obtain pressure of 40-60 PSIG on CA6 PI.

CAUTION: Adjust CAV110 carefully since pressure of 125 PSIG downstream will cause CA-RV5 to lift.

5.3.1.10 Return to step-off pad with Teletektor, check self-reading dosimeters and inform others of radiation levels encountered and exposure received.

! NOTE: Allow the sample to recirculate through the cooler at !
! least five minutes before proceeding. !

5.3.2 Technician 2 will proceed as follows:

5.3.2.1 Don leaded gloves.

5.3.2.2 Enter Sample Room with Teletektor extended and quickly check radiation levels.

5.3.2.3 Verify that temperature of 150° or less is indicated on CA4TI.

5.3.2.4 Raise hood door, open CAV107 (demineralized water) and CAV16.

5.3.2.5 Lower hood to 10JLFPM line.

! NOTE: Allow time to purge for approximately 15 seconds. !

CAUTION: Check dosimeters while purging line.

5.3.2.6 Obtain grab sample by placing bottle under drain line (hold sample bottle with remote handling tool).

CAUTION: Obtain only 20-30 ML. in sample bottle (1-2 inch level in bottle).

5.3.2.7 Raise hood door.

5.3.2.8 Close CAV16.

5.3.2.9 Move sample bottle to shield on cart leaving remote handling tool attached.

5.3.2.10 Close hood.

5.3.2.11 Return to step-off pad with Teletektor (checking radiation levels), check self-reading dosimeters and notify others of radiation levels.

5.3.3 Technician 3 will proceed as follows:

5.3.3.1 Enter Sampling Room CLOSE CAV13, CAV2, CAV110.

5.3.3.2 Move cart to HOT lab.

5.3.3.3 Move sample bottle from shield on cart to shielded area of laboratory bench using remote tool.

CAUTION: Return to step-off pad and check dosimetry.

5.3.3.4 Obtain Teletektor and perform rapid survey of Hot Lab.

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THREE MILE ISLAND NUCLEAR STATION UNIT 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.16 CONTAMINATED INJURIES/RADIATION OVEREXPOSURE

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6.0		0	31.0			56.0		
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9.0			34.0			59.0		
10.0			35.0			60.0		
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23.0			48.0			73.0		
24.0			49.0			74.0		
25.0			50.0			75.0		

Unit 1 Staff Recommends Approval

Approval N/A Date
Cognizant Dept. Head

Unit 2 Staff Recommends Approval

Approval Date
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

Alfred Nelson Date 12/15/80
Chairman of PORC

Unit 2 PORC Recommends Approval

 Date
Chairman of PORC

Unit 1 Superintendent Approval

P. Toole Date 12-15-80

Unit 2 Superintendent Approval

 Date

Manager Generation Quality Assurance Approval Date

THREE MILE ISLAND NUCLEAR STATION
UNIT 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.16
CONTAMINATED INJURIES/RADIATION OVEREXPOSURE

1.0 PURPOSE

To define the conditions where person(s) injured while working at Three Mile Island and exposed to ionizing radiation and/or contaminated with radioactive material will be removed from site to Milton S. Hershey Medical Center (HMC), Hershey, PA. To further define the steps involved in notifying HMC to allow time for preparation of the Radiation Emergency Area (REA) to receive the injured person(s). To provide for several levels of treatment based on the severity of the injury(ies) and the degree of exposure/contamination involved.

2.0 ATTACHMENTS

None

3.0 EMERGENCY ACTION LEVELS

- 3.1 Person(s) are injured in a radiologically controlled area and have a contaminated injury that can be treated on-site and released.
- 3.2 Person(s) are injured in a radiologically controlled area and must be transported off-site for medical observation/treatment.
- 3.3 Person(s) are injured or ill and have radioactive contamination on their clothing or skin and must be transported off-site for medical observation/treatment.

4.0 EMERGENCY ACTIONS

4.1 The Control Room shall be notified immediately upon discovery of the injured personnel.

: NOTE: The following steps may be performed concurrently. :

4.1.1 The Shift Supervisor, upon notification of injured personnel, shall:

- a. Notify Site Medical Personnel at 8450. If Site Medical Personnel are unavailable, the Shift Supervisor shall have first aid administered to the injured or ill personnel.
- b. The Shift Supervisor concurrent with medical personnel, shall evaluate the injury, to determine the need of medical treatment beyond that provided by on site first aid.
- c. Notify Radiological Controls at 8081, 8082, 8083, to evaluate radiological condition of victim.
- d. If off-site medical assistance is required, the Shift Supervisor (or his designee) will notify Dauphin Co. EOC by dialing 9-911 and repeat the following message:
"THIS IS NAME/TITLE AT TMI NUCLEAR STATION. WE REQUEST AN AMBULANCE AND MEDIC TO REPORT TO TMI UNIT 1 PROCESSING CENTER. WE HAVE PERSONNEL WITH FOLLOWING INJURIES: (BRIEF DESCRIPTION OF INJURIES) REQUIRING MEDICAL ASSISTANCE."

Call Security at Extension 8039, 8040 to inform security of off-site medical assistance arrival so that they can direct off-site medical personnel to the injured person. The Shift Supervisor shall also initiate the requirements of EPIP 1004.19 "Emergency Dosimetry/Security Badge Issuance"

4.1.2 The Shift Supervisor shall direct personnel with minor injuries, not requiring more medical attention than site first aid, to the decon facility for decontamination and treatment of the injury, per step 4.3.

___ 4.2 Site medical personnel shall render assistance on-site, in the controlled area, if the victim is considered to have contamination on either skin or clothing.

___ 4.3 The Shift Supervisor shall, with concurrence of the site medical personnel, when available, have the victim transported outside of the controlled area if the injury and contamination levels will allow movement for further treatment and surveys.

___ 4.4 If the injury allows, Radiological Controls personnel shall assess the degree of radiation exposure and/or radioactive contamination prior to removal from site.

: NOTE: All injuries occurring in a radiologically controlled :
: area shall be considered contaminated until monitored :
: and cleared. :

- ___ 4.5 The Shift Supervisor, with concurrence of the site medical staff, shall order the injured person(s) off-site for more extensive medical treatment.

: NOTE: By agreement with the Milton S. Hershey Medical Center, :
: Hershey, PA, all contaminated injured personnel shall be :
: sent to HMC for decontamination and treatment. :

- ___ 4.6 The Shift Supervisor shall perform the following steps in the event an injured person(s) is to be transported to HMC.

- ___ 4.7.1 The Shift Supervisor shall assume the duties of the Emergency Director.

- ___ 4.7.2 The Emergency Director shall implement the requirements of Emergency Plan Implementing Procedure 1004.1 "Unusual Event", and request ambulance service from the Dauphin County Emergency Operations Center, as needed, for offsite assistance.

- ___ 4.7.3 The Emergency Director shall call, or have the Shift Foreman call, Charge Nurse, Emergency Room, HMC at 9-534-8333, and using the following message, alert HMC of the arrival of the injured victim:

THIS IS (NAME/TITLE) AT THREE MILE ISLAND ACTING AS (FOR)
THE EMERGENCY DIRECTOR. TMI IS PREPARING TO TRANSFER A
POTENTIALLY CONTAMINATED VICTIM WITH INJURIES TO HERSHEY

MEDICAL CENTER. THE RADIATION EMERGENCY AREA SHOULD BE PREPARED TO RECEIVE THIS VICTIM. PLEASE ACKNOWLEDGE AND VERIFY THIS MESSAGE BY CALLING 948-8069 (8070/8071) AND ASK FOR THE EMERGENCY DIRECTOR.

4.7.4 The Emergency Director, or his designee, shall then:

- *briefly describe the injury(s)
- *give the name of the victim(s)
- *report levels of contamination, if known
- *request special equipment required
- *estimate time of arrival at HMC
- *describe method of transportation
- *estimate expected dose rate hazard to HMC Staff Personnel based on dose rate taken 12 inches above the victim
- *record the name and title of the person receiving the notification call, and the time notified

4.7.5 Person(s) decontaminated shall require whole body counting in accordance with RCP 1612.

4.8 The Emergency Director shall require transportation of person(s) with acute radiation exposures in excess of 25 REM whole body to HMC. In this case, the victim(s) can be transported in a conventional manner and will not require activation of the Emergency Plan.

- 4.9 The Emergency Director and or RAC may request assistance in evaluation of extreme radiation overexposure (i.e. 25 REM or more) from various Health Physics Specialists, Porter Consultants, Radiation Management Corporation, etc.
- 4.10 The Emergency Director and Radiological Assessment Coordinator shall restrict personnel who have received internal contamination of greater than 50 Percent of the Derived Investigation level, as stated in HPP 1628.1, from further work in Airborne Radioactivity Areas, until evaluation is made. Complete and direct the personnel for whole body counting, in accordance with HPP 1612, for evaluation of Body Burdens.

5.0 FINAL CONDITION

- 5.1 The person(s) has been decontaminated, treated for injury and released for work by the Site Medical Staff.
- 5.2 The person(s) has been entered into the bioassay program for whole body counting per HPP 1612.
- 5.3 The victim(s) has been transported to HMC and is receiving treatment.
- 5.4 The Radiation Emergency Area and ambulance(s) used for transportation of the victim(s) has been surveyed and cleared or decontaminated and cleared.
- 5.5 the Unusual Event has been closed out by the Emergency Director.

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1004.18
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12/15/80

THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.18
SEARCH AND RESCUE

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Unit 1 Staff Recommends Approval

Approval

N/A
Cognizant Dept. Head

Date

Unit 1 PORC Recommends Approval

M. A. Nelson
Chairman of PORC

Date

12/15/80

Manager TMI I Approval

R. J. Toole

12/15

Date

12-15-80

QA Modifications/Operations Mgr

Date

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FOR USE IN UNIT 1 ONLY

1004.18
Revision 0

THREE MILE ISLAND NUCLEAR STATION UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.18 SEARCH AND RESCUE

1.0 PURPOSE

To provide guidelines to the Operations Support Center Coordinator and Search and Rescue team leaders in emergency Search and Rescue operations. The Search and Rescue Team Leader is responsible for implementing this procedure, when directed by the Operations Support Center Coordinator.

2.0 ATTACHMENTS

- 2.1 Attachment I - Location of 100 person Emergency Medical Kits
- 2.2 Attachment II - Search and Rescue Team Emergency Actions

3.0 EMERGENCY ACTION LEVELS

- 3.1 This procedure shall be implemented:
 - a. When an individual(s) has not exited an area, as directed by Security Procedure 1005.12 (Personnel Accountability), and cannot be contacted.
 - b. Individual(s) is unable to exit an area without assistance.
 - c. Upon direction of the Emergency Director/OSC Coordinator.
 - d. Upon the OSC Coordinator assembling Search and Rescue Team(s) and appointing a team leader.

: NOTE: Search and Rescue team(s) should consist of at least :
: three (3) volunteers. The team(s) should consist of :
: personnel from Operations Maintenance and/or Health :
: Physics. (All Search and Rescue team members shall have :
: had first aid training.) :
: -----

INITIALS

4.0 EMERGENCY ACTIONS

- ___ 4.1 Designate a team member as Communicator.
- ___ 4.2 Direct a team member to be responsible for obtaining first aid equipment from one of the locations in Attachment I.

1.0
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- ___ 4.3 Direct a team member to obtain any safety equipment that may be required, including portable radio(s).
- ___ 4.4 Ensure that all equipment to be used by the team is functional and perform a radio check(s).
- ___ 4.5 If radiological hazards exist, implement In-Plant Radiological Controls During Emergencies procedure (1004.9).
- ___ 4.6 Complete Attachment II of this procedure.
- ___ 4.7 When the individual(s) is found, relay the following information to the Ops Support Center Coordinator.
 - a. location
 - b. extent of injuries, if applicable
 - c. contamination levels, if applicable
- ___ 4.8 If persons are injured and contaminated implement EPIP 1004.16.
- ___ 4.9 If offsite medical assistance has been requested, standby to provide assistance. Refer to EPIP 1004.16.
- ___ 4.10 After Search and Rescue is complete, debrief the Search and Rescue Teams in accordance with In-Plant Radiological Controls During Emergencies (1004.9) using Attachment I of 1004.9 for debriefing requirements.
- ___ 4.11 After debriefing, collect all logs and records pertaining to the Search and Rescue Operation and have them forwarded to the Ops Support Center Coordinator.

5.0 FINAL CONDITIONS

- ___ 5.1 Missing individual(s) located, removed from any hazardous area, and with First Aid being administered.
- ___ 5.2 Medical and ambulance assistance summoned as necessary and 1004.16 implemented.

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ATTACHMENT I

Location of 100 Person Emergency Medical Kits

1. Building 48
2. Trailer 28A (Training)
3. Unit 1 Warehouse North
4. Unit 1 Warehouse South
5. Health Physics Lab
6. Control Room - Instrument Shop Hallway
7. River Water Pump House, Unit 1 Entrance

ATTACHMENT II

SEARCH AND RESCUE TEAM EMERGENCY ACTIONS

The Search and Rescue team leader is responsible for the actions in this attachment.

INITIALS

- ___ 1. Proceed to designated area with Radiation Survey Meter turned on and using Radiological Controls precautions.
- ___ 2. Ensure that communications, at predetermined intervals, are maintained with the Operations Support Center.
- ___ 3. Ensure that the Operations Support Center Coordinator is kept informed of team's location, observations and survey results.
- ___ 4. If radiological hazards exist, ensure that:
 - (a) The HP team member is continuously monitoring radiation levels and that any changes are reported to the Operations Support Center Coordinator.
 - (b) Team members are checking their dosimeters regularly.
 - (c) Dose limits as specified in 10CFR20 are not exceeded.
 - (d) That stay times as established by the Health Physics Coordinator are not exceeded.
 - (e) If applicable, ensure that the Emergency Director has authorized exceeding whole body or thyroid/for emergency life saving or equipment saving activities.

ATTACHMENT II

SEARCH AND RESCUE TEAM EMERGENCY ACTIONS

5. When the individual(s) is located, check the person for:
- (a) Injuries or illness (vital signs)
 - ___ (b) If injured, administer first aid. (Inform Emergency Director and use EPIP 1004.16.)
 - ___ (c) Contamination
- ___ 6. Report the following findings to the Operations Support Center Coord. (via radio or plant paging system)
- (a) location
 - (b) extent of injuries
 - (c) contamination levels
 - (d) first aid administered
- ___ 7. Request assistance from the Operations Support Center Coordinator, for transport of any injured or contaminated individuals.
- ___ 8. Aid the offsite medical personnel as requested.
- ___ 9. Upon completion of Search and Rescue operations, report to the Operations Support Center for debriefing.

ATTACHMENT III

SEARCH AND RESCUE TEAM CHECKLIST

(COMPLETE AS TIME PERMITS)

DATE: _____ TIME: _____

EMERGENCY DIRECTOR: _____

OPERATIONS SUPPORT _____

CENTER COORDINATOR: _____

1. Team member's name, organization and badge number:

a. _____, _____, _____ (Team Leader)

b. _____, _____, _____

c. _____, _____, _____

d. _____, _____, _____

2. Identity of missing person(s): a. _____

b. _____

c. _____

3. Last known location: _____

4. Job or function of missing person(s): _____

5. Search team special instructions: _____

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ATTACHMENT III

SEARCH AND RESCUE TEAM CHECKLIST

6. Team equipment:

_____ PC's	_____ First Aid Equipment
_____ Dosimetry	_____ Communications, if applicable
_____ Scott-Paks	_____ (Specify)
_____ Lighting	_____ (Specify)

7. Offsite emergency aid notified/requested:

Organization/ Personnel	Person Notified	Time Notified	Time On Site
a. _____	_____	_____	_____
b. _____	_____	_____	_____
c. _____	_____	_____	_____
d. _____	_____	_____	_____

8. Time Security informed of emergency offsite response: _____

9. Time Search begins: _____

ATTACHMENT III

SEARCH AND RESCUE TEAM CHECKLIST

10. Communications

Checks:

TIME	BY	TIME	BY	TIME	BY

11. Missing individual found:

- a. Time: _____
- b. Medical condition: _____
- c. Remarks on removal from areas: _____

- d. Location individual discovered _____

ATTACHMENT III

SEARCH AND RESCUE TEAM CHECKLIST

12. Hershey Medical Center notified:

a. Time: _____

b. Who contacted: _____

c. By: _____

d. Description of injuries/contamination: _____

13. Team debriefing (special comments): _____

14. Team secured:

a. Time: _____

b. By: _____

THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.19
EMERGENCY DOSIMETRY/SECURITY BADGE ISSUANCE

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Unit 1 Staff Recommends Approval

Approval N/A
Cognizant Dept. Head

Date

Unit 1 PORC Recommends Approval

et al
Chairman of PORC

Date 12/30/80

Manager TMI I Approval

R-J TOME

Date 12/30/80

QA Modifications/Operations Mgr

N/A

Date

THREE MILE ISLAND NUCLEAR STATION
UNIT NO. I EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.19
EMERGENCY DOSIMETRY/SECURITY BADGE ISSUANCE1.0 PURPOSE

To establish the method of issuance of Thermoluminescent Dosimeters (TLD) and ER Security Badge (Escort Required) to emergency personnel requiring access to TMI.

For Fire/Ambulance/Police emergencies, the on duty Site Protection Sergeant (SPO) shall be responsible for implementing the actions outlined in section 4.1 and 4.2.

For all other emergencies, the Group Leader, Security Support/Personnel Monitoring Coordinator will be responsible for implementing the actions outlined in section 4.3.

2.0 ATTACHMENTS

2.1 Attachment I -- Emergency TLD/ER Security Badge Issuance Data Sheet, Processing Center/Search Gate No. 2.

2.2 Attachment II --Emergency TLD/ER Security Badge Issuance Data Sheet, Crawford Station (AEOF).

3.0 EMERGENCY ACTION LEVELS

3.1 Upon requesting Fire/Ambulance/Police for a TMI Emergency requiring processing via North/South Gate.

3.2 Upon requesting additional support personnel for an Alert, Site or General Emergency requiring processing via the Alternate Emergency Operations Facility (AEOF), Crawford Station, Middletown.

3.3 As directed by the Emergency Director.

4.0 EMERGENCY ACTIONS

4.1 Fire/Ambulance/Police

4.1.1 After notification by the Emergency Director, or his designee, that Fire/Ambulance/Police have been dispatched to the site, the Site Protection Sergeant shall notify North/South gate Site Protection Officer to allow emergency vehicles immediate access onto Island.

4.1.2 When emergency crew(s) arrive on site, if emergency does not require access to the protected area, no badges (ER or TLD) are required. If emergency personnel must enter the Protected Area, the SPO at the Processing Center (PC) or Search Gate No.2 shall proceed as follows:

- a. Open grey emergency TLD box and remove several ER/TLD badge combinations, and Emergency Crew Roster.
- b. Verify identification of emergency crew and issue badges to emergency crew as they pass through PC or Search 2.
- c. If emergency crew must enter through an alternate gate, the SP sergeant shall meet the emergency crew at the gate to issue ER/TLD badges.

4.1.3 Upon completion of the emergency, retrieve the TLD/ER badges from the emergency crew at either PC, Search 2 or entry point, obtain all remaining information from crew members, and notify Dosimetry personnel at extension 8473 (or by plant page) for TLD processing.

4.2 All fire vehicles shall stage in areas at direction of SP Sergeant until required.

4.3 For emergency personnel not requiring immediate entry to TMI,
i.e.: Support personnel from other sites and agencies processing
into TMI from the AEOF, Crawford Station.

4.3.1 Activate the Security badge issuance area of the AEOF.

4.3.2 Issue emergency security badges in accordance with SP
1005.10.

4.3.3 Activate the dosimetry issuance area of the AEOF.

4.3.4 Issue emergency dosimetry in accordance with RCP 4200.

5.0 FINAL CONDITIONS

5.1 Fire/Ambulance/Police personnel have entered TMI, performed the
required emergency actions and exited site, leaving TLD/ER badge
with SPO at entry gate.

5.2 Support personnel from other sites and agencies are properly
processed into TMI via the AEOF, Crawford Station.

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EMERGENCY DOSIMETRY/SECURITY BADGE ISSUANCE

ATTACHMENT I

EMERGENCY TLD/ER SECURITY BADGE ISSUANCE DATA SHEET,

PROCESSING CENTER/SEARCH GATE No. 2

Security ER	TLD		Social Security
Badge Number	Number	Name	Number

EMERGENCY DOSIMETRY/SECURITY BADGE ISSUANCE
ATTACHMENT II

EMERGENCY TLD/SECURITY BADGE ISSUANCE DATA SHEET, CRAWFORD STATION (AEOF)

1. NAME _____, _____, _____
Last First Middle Initial

2. Social Security Number _____ - _____ - _____

3. Home Address _____, _____, _____

4. Sex: _____ 5. Birthdate _____, _____, _____
Male Female Month Day Year

6. Employer/Firm/Organization: _____

7. Craft/Profession (Circle One)

- | | |
|-----------------|-------------------|
| 1. Maintenance | 4. Supervisory |
| 2. Operations | 5. Engineering |
| 3. Chemistry/HP | 6. Administration |

8. Is NRC Form 4 (or equivalent) Complete for TMI Dosimetry: _____, _____
yes no

9. Estimate of Current quarter whole body exposure
TMI _____
Other _____
Total _____

10. The following requirements apply to personnel issued an Emergency TLD.
- A. The quarterly exposure limit is 1000 mRem including the current quarter exposure from item 7 alone, unless NRC Form 4 is complete.
 - B. The Emergency TLD must be returned to dosimetry personnel upon leaving the site.
 - C. If Form 4 (or equivalent) is on file quarterly exposure limit = _____ mRem

The above information is true and complete to the best of my knowledge. I have read or been instructed in and understand item 10. I know of no reason why I should not be issued a radiation monitoring device. I have been instructed on possible health risks and received a copy of Reg. Guide 8.13.

Signature Date

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12/15/80

THREE MILE ISLAND NUCLEAR STATION UNIT NO. 1 EMERGENCY PLANNING IMPLEMENTING PROCEDURE 1004.20 PERSONNEL/VEHICLE MONITORING AND DECONTAMINATION

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Unit 1 Staff Recommends Approval

Approval N/A
Cognizant Dept. Head

Date

Unit 1 PORC Recommends Approval

Alfred Nelson
Chairman of PORC

Date 12/15/80

Manager TMI I Approval

R. Toole

12/15

Date 12-15-80

QA Modifications/Operations Mgr

_____ Date _____

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THREE MILE ISLAND NUCLEAR STATION
UNIT 1 EMERGENCY PLANNING PROCEDURE 1004.20
PERSONNEL/VEHICLE MONITORING AND DECONTAMINATION

1.0 PURPOSE

The purpose of this procedure is to provide guidance for the monitoring and decontamination of personnel and vehicles that have exited contaminated or possibly contaminated areas.

The Radiation Protection Coordinator is responsible for the implementation of this procedure.

2.0 ATTACHMENTS

- 2.1 Attachment I - Monitoring Team Leader Checklist
- 2.2 Attachment II - Personnel Contamination Report
- 2.3 Attachment III - Vehicle Contamination Report
- 2.4 Attachment IV - Checklist for Decontamination Team Leader

3.0 EMERGENCY ACTION LEVELS

3.1 This procedure will be implemented by direction of the Radiological Assessment Coordinator to the Radiation Protection Coordinator when:

3.1.1 An evacuation has been ordered and personnel or vehicle are, or suspected to be contaminated.

3.1.2 As directed by the Emergency Director.

4.0 EMERGENCY ACTION

4.1 Determine from the Radiological Assessment Coordinator, the location to be used for personnel/vehicle monitoring and decontamination. (Middletown/500 Kv Substation.)

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- ___ 4.2 Assign one team leader for the monitoring team and one team leader for the decontamination team.
- ___ 4.3 Instruct the team leaders that they are responsible for completing the actions listed in their respective attachments.
 - 4.3.1 Monitoring Team Leader - Attachment IV.
 - 4.3.2 Decontamination Team Leader - Attachment II
- ___ 4.4 Direct the team leaders to implement their respective attachments.
- ___ 4.5 Assign a sufficient number of qualified personnel to each team to perform the designated task.
- ___ 4.6 When informed by the team leader that the monitoring team is ready for operation:
 - 4.6.1 Assign a team member to maintain communications and record keeping per procedure 1004.5.
 - 4.6.2 Instruct the team leader that personnel monitoring will be in accordance with Unit 1 Radiological Controls Procedure 1612.
 - 4.6.3 Ensure that a Communication Equipment check is performed.
- ___ 4.7 When informed by the team leader that the decontamination team is ready for operation:
 - 4.7.1 Brief the two teams on their interaction while performing their various duties.
- ___ 4.8 Ensure transportation is available for the teams.
- ___ 4.9 Dispatch the teams to the designated monitoring/decontamination location.
- ___ 4.10 Verify that a decontamination water supply truck has been dispatched.

5.0 FINAL CONDITION

- ___ 5.1 Teams are on station providing personnel/vehicle monitoring and decontamination.
- ___ 5.2 Decontaminated individuals are standing by at Crawford Station, dismissed or back at their work locations.
- ___ 5.3 The Radiation Protection Coordinator has been notified of all individuals who could not be decontaminated.
- ___ 5.4 Decontaminated vehicles are returned to service.

ATTACHMENT I
MONITORING TEAM LEADER CHECKLIST

The personnel monitoring team leader is responsible for carrying out the action items in this attachment.

- _____ 1. Procure an Emergency Monitoring Kit from the Processing Center.
- _____ 2. Inventory the contents of the Emergency Monitoring Kit. Refer to the Emergency Equipment Readiness Checklist AP 1053.
- _____ 3. Perform an operational check of the communications equipment.
- _____ 4. Assemble with the personnel monitoring team members for a briefing with the Radiation Protection Coordinator.
- _____ 5. Proceed with the monitoring team to the designated site and report by radio to the Radiation Protection Coordinator.
- _____ 6. Assign personnel as personnel monitors and vehicle monitors.
- _____ 7. Direct the Communicator/Record Keeper to complete Attachment II for each person monitored.
- _____ 8. Ensure that all persons with contamination greater than 1000 disintegrations per minute (100 cpm above background on RM-14 with DT 304 probe or equivalent) report to the decontamination team leader with Attachment II filled out.
- _____ 9. Ensure that the contamination levels are documented for each individual and vehicle, both before and after decontamination.

ATTACHMENT I

MONITORING TEAM LEADER CHECKLIST

- _____ 10. Direct that vehicles found to have contamination levels greater than 1000 dpm be taken to the decontamination team leader for decontamination and complete Attachment III.
- _____ 11. Direct the team member to have each contaminated individual/vehicle take Attachments II and III to decon area and give to decon team.
- _____ 12. If after successive attempts to decontaminate an individual, levels cannot be reduced below 1000 dpm, direct the communicator to contact the Radiation Protection Coordinator and request further instructions.
- _____ 13. If after successive attempts to decontaminate a vehicle, levels cannot be reduced below 1000 dpm (100 cpm above background on RM-14 with DT 304 probe or equivalent) detain the vehicle for additional evaluation and possible additional decontamination.
- _____ 14. Direct all decontaminated individuals and vehicles to report to Crawford Station.
- _____ 15. Periodically perform background surveys to ensure that background has not increased significantly.

Monitoring Team Leader

Date Time

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ATTACHMENT II

PERSONNEL CONTAMINATION REPORT

Name _____ SSN _____ Company/Dept. _____

Date _____ Time _____

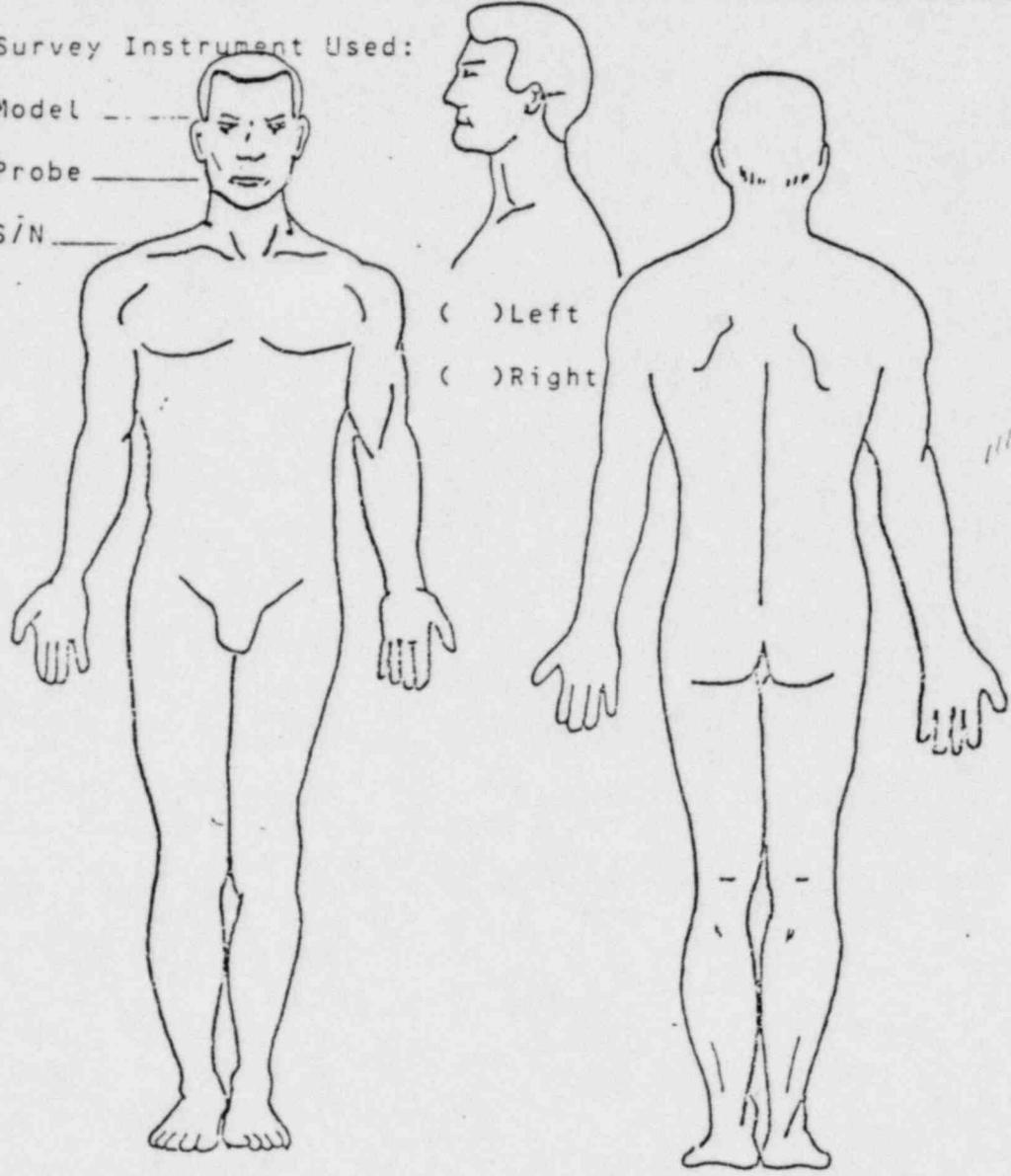
Address (If Not Met-Ed) _____

Survey Instrument Used:

Model _____

Probe _____

S/N _____



() Left
() Right

Contaminated Body Area (Indicate On Drawing)	Initial Activity (dpm)	After One Decon (dpm)	After Two Decon (dpm)	After Three Decon (dpm)

POOR ORIGINAL

NOTE: Pay close attention to the face, throat, hands, and feet for potential Contamination.

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ATTACHMENT III VEHICLE CONTAMINATION REPORT

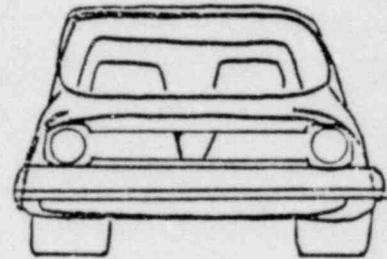
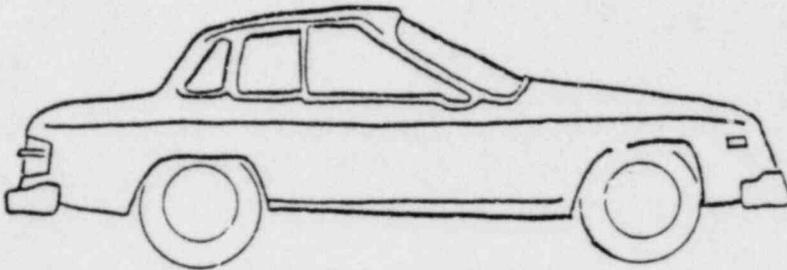
MAKE _____

MODEL _____

LICENSE # _____

COLOR _____

OWNER _____



CONTAMINATED VEHICLE AREA	INITIAL ACTIVITY dpm	AFTER ONE DECON ETC.

NOTE: Pay close attention to grille, tires and roof for potential contamination.

7.0
POOR ORIGINAL
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ATTACHMENT IV

"DECONTAMINATION TEAM LEADER CHECKLIST"

The decontamination leader is responsible for carrying out the action items in this attachment.

- _____ 1. Procure sufficient decontamination aids.
 - a) Masslinn cloths
 - b) Detergent
 - c) Decon kit for personnel
- _____ 2. Assemble with the decontamination team members for a briefing with the Radiation Protection Coordinator.
- _____ 3. Proceed with the decontamination team to the designated decontamination site.
- _____ 4. Upon arrival at the site designate the area to be used for decontamination activities.
- _____ 5. With assistance from the decontamination water supply truck personnel direct the setup of the vehicle decontamination facility.
- _____ 6. Assign team members for personnel/vehicle decontamination.
- _____ 7. Direct the team members in their decontamination duties and ensure they receive Attachment II and III.

ATTACHMENT IV

"DECONTAMINATION TEAM LEADER CHECKLIST"

- _____ 8. Ensure that, after each decontamination attempt, each person/vehicle is surveyed and the results recorded and filed upon completion.
- _____ 9. Direct the Communicator/Record Keeper to retain Attachment II for each individual decontaminated.

_____ _____ _____
Decontamination Team Leader Date Time

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THREE MILE ISLAND NUCLEAR STATION UNIT EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.21 EMERGENCY REPAIR/OPERATIONS

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20.0			45.0			70.0		
21.0			46.0			71.0		
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23.0			48.0			73.0		
24.0			49.0			74.0		
25.0			50.0			75.0		

Unit 1 Staff Recommends Approval

Approval N/A Date
Cognizant Dept. Head

Unit 2 Staff Recommends Approval

Approval Date
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

Chas Nelson Date 12/15/80
Chairman of PORC

Unit 2 PORC Recommends Approval

 Date
Chairman of PORC

Unit 1 Superintendent Approval

R. Toole ^{p. 215} Date 12-15-80

Unit 2 Superintendent Approval

 Date

Manager Generation Quality Assurance Approval Date

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1004.21
Revision 0

THREE MILE ISLAND NUCLEAR STATION

UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.21

EMERGENCY REPAIR/OPERATIONS

1.0 PURPOSE

To provide guidance for the formation and direction of repair parties. The Emergency Repair/Operations Team Leader is responsible for implementing this procedure when directed by the Emergency Maintenance Coordinator.

2.0 ATTACHMENTS

No attachments.

3.0 EMERGENCY ACTION LEVELS

3.1 This procedure shall be implemented when it becomes necessary to:

- a. Manipulate or repair equipment in order to substantially reduce in-plant radiation levels or radiation exposure to the general public.
- b. To perform equipment repairs and operate plant equipment to stabilize plant conditions.
- c. To perform other repair actions deemed necessary and authorized by the Emergency Director.
- d. Have the Emergency Maintenance Coordinator assemble an Emergency Repair/Operations Team(s) and appoint a team leader.

NOTE: Repair teams should consist of at least two (2) volunteers with the necessary qualifications to perform the assigned operation (Operations, maintenance, etc.).

Initials

4.0 EMERGENCY ACTIONS

- ___ 4.1 When necessary, request radiological controls support (team monitor) from the Operations Support Center Coordinator.
- ___ 4.2 Designate a Communicator; maintain communications and record keeping per procedure 1004.5.
- ___ 4.3 When necessary, direct team member to obtain any safety equipment that may be required, including portable radio(s).
- ___ 4.4 Ensure that all equipment to be used by the team is functional. Perform a radio check on the designated frequency.
- ___ 4.5 If radiological hazards exist, ensure that the team is briefed in accordance with Attachment I of "In-Plant Radiological Controls During Emergencies" (1004.9) by the Health Physics Coordinator or his designee.
- ___ 4.6 If radiological hazards exist, ensure that each team is equipped with the appropriate monitoring equipment per Attachment II of "In-Plant Radiological Controls During Emergencies" (1004.9).
- ___ 4.7 Ensure that communications, at predetermined intervals, are maintained with the Emergency Maintenance Coordinator via M and I system, plant page or radio.

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Initials

- ____ 4.8 Proceed to the designated area with Radiation Survey meter turned on, using Radiological Control precaution.
- ____ 4.9 When appropriate, and when the repair team's operations are completed, conduct a debriefing in accordance with "In-Plant Radiological Controls During Emergencies" (1004.9), Attachment I.

5.0 FINAL CONDITIONS

- ____ 5.1 The emergency repairs have been completed and all normal maintenance, operations and radiological procedures are in effect.

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12/15/80

THREE MILE ISLAND NUCLEAR STATION UNIT 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE TORNADO/HIGH WINDS

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15.0			40.0			65.0		
16.0			41.0			66.0		
17.0			42.0			67.0		
18.0			43.0			68.0		
19.0			44.0			69.0		
20.0			45.0			70.0		
21.0			46.0			71.0		
22.0			47.0			72.0		
23.0			48.0			73.0		
24.0			49.0			74.0		
25.0			50.0			75.0		

Unit 1 Staff Recommends Approval

RESPONSIBLE OFFICE _____

DATE _____

Unit 1 PORC Recommends Approval

CHAIRMAN OF PORC *all of Nelson*

DATE *1/15/80*

v. 12/15

APPROVAL

Ry Toole
MGR UNIT I

DATE *12-15-80*

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THREE MILE ISLAND NUCLEAR
UNIT I EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.22
TORNADO/HIGH WINDS

1.0 PURPOSE

To provide guidelines for initiating protective actions when warnings of high wind indicate the possibility of damage to the plant or when any tornado strikes the facility. The Emergency Director is responsible for implementing this procedure.

2.0 ATTACHMENTS

2.1 Attachment I - Diagram of plant structures designed to withstand tornado loading.

3.0 EMERGENCY ACTION LEVELS

3.1 An Unusual Event has been declared due to actual or projected hurricane force winds (\geq 75 mph sustained).

3.2 An Alert has been declared due to a tornado striking the facility.

3.3 When the Emergency Director deems necessary.

4.0 EMERGENCY ACTIONS

Initial

___ 4.1 In the event of actual or projected hurricane force winds, proceed as follows:

Initial

4.1.1 Announce over the plant page the following: ATTENTION ALL PERSONNEL, ATTENTION ALL PERSONNEL, SUSTAINED WINDS OF GREATER THAN 75 MILES PER HOUR HAVE BEEN PROJECTED FOR THE TMI VICINITY. ALL PERSONNEL PROCEED TO ONE OF THE FOLLOWING LOCATIONS:

UNIT I CONTROL BUILDING

UNIT I FUEL HANDLING BUILDING

UNIT I AUXILIARY BUILDING

UNIT I HEAT EXCHANGER VAULT

UNIT I DIESEL GENERATOR BUILDING

UNIT I INTAKE SCREEN HOUSE AND PUMP HOUSE

UNIT I REACTOR BUILDING

UNIT II CONTROL AND SERVICE BUILDING

UNIT II CONTROL BUILDING

UNIT II AUXILIARY and FUEL HANDLING BUILDING

UNIT II DIESEL GENERATOR BUILDING

UNIT II RIVER WATER PUMP HOUSE

UNIT II AIR INTAKE TUNNEL

ALL PERSONNEL ARE TO REMAIN IN THESE AREAS, AWAY FROM EXTERIOR DOORS, UNTIL FURTHER NOTICE. (REPEAT MESSAGE)

Initial

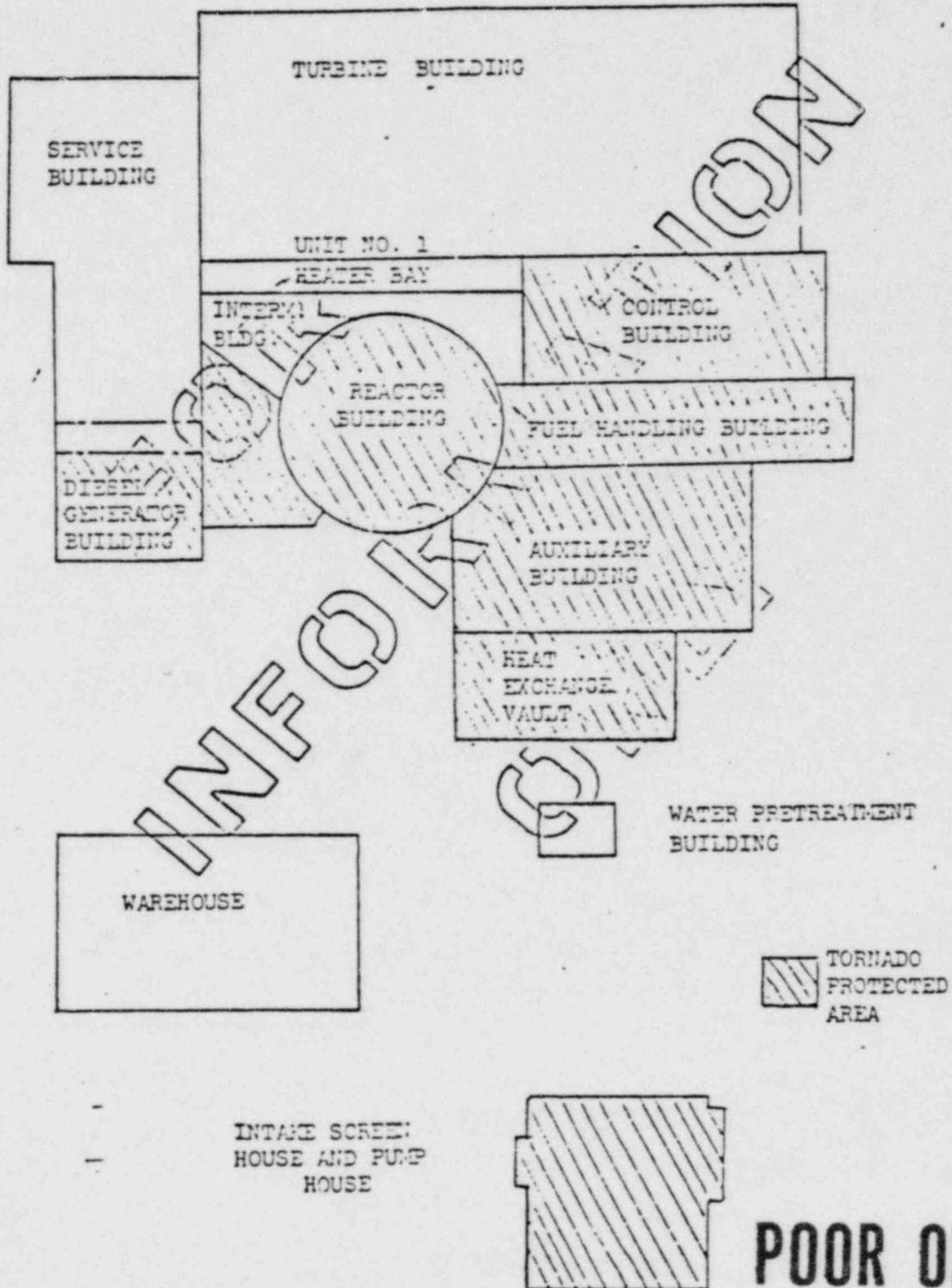
- ___ 4.1.2 Ensure that all exterior doors (including non-protected buildings, time and personnel safety permitting) are shut.
- ___ 4.1.3 Considering the severity of the weather and its impact on plant safety, determine whether the reactor should remain at power or be shut-down.
- ___ 4.2 If a tornado strikes the site, ensure Operations Coordinator dispatches Emergency Repair/Operations teams to determine the extent of the damage and effect repairs as necessary.
- ___ 4.3 When the extent of the damage is known, assess the impact of this damage on plant safety and, if the reactor was not shutdown, determine if the reactor should remain at power or be shutdown.

5.0 FINAL CONDITIONS

- ___ 5.1 Tornado/High Winds have passed, the warning has been cancelled and/or Emergency Repair Teams are effecting repairs as necessary.

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ATTACHMENT I



POOR ORIGINAL

UNIT I

Structures Designed to Withstand Tornado Loadings (Shaded Areas).

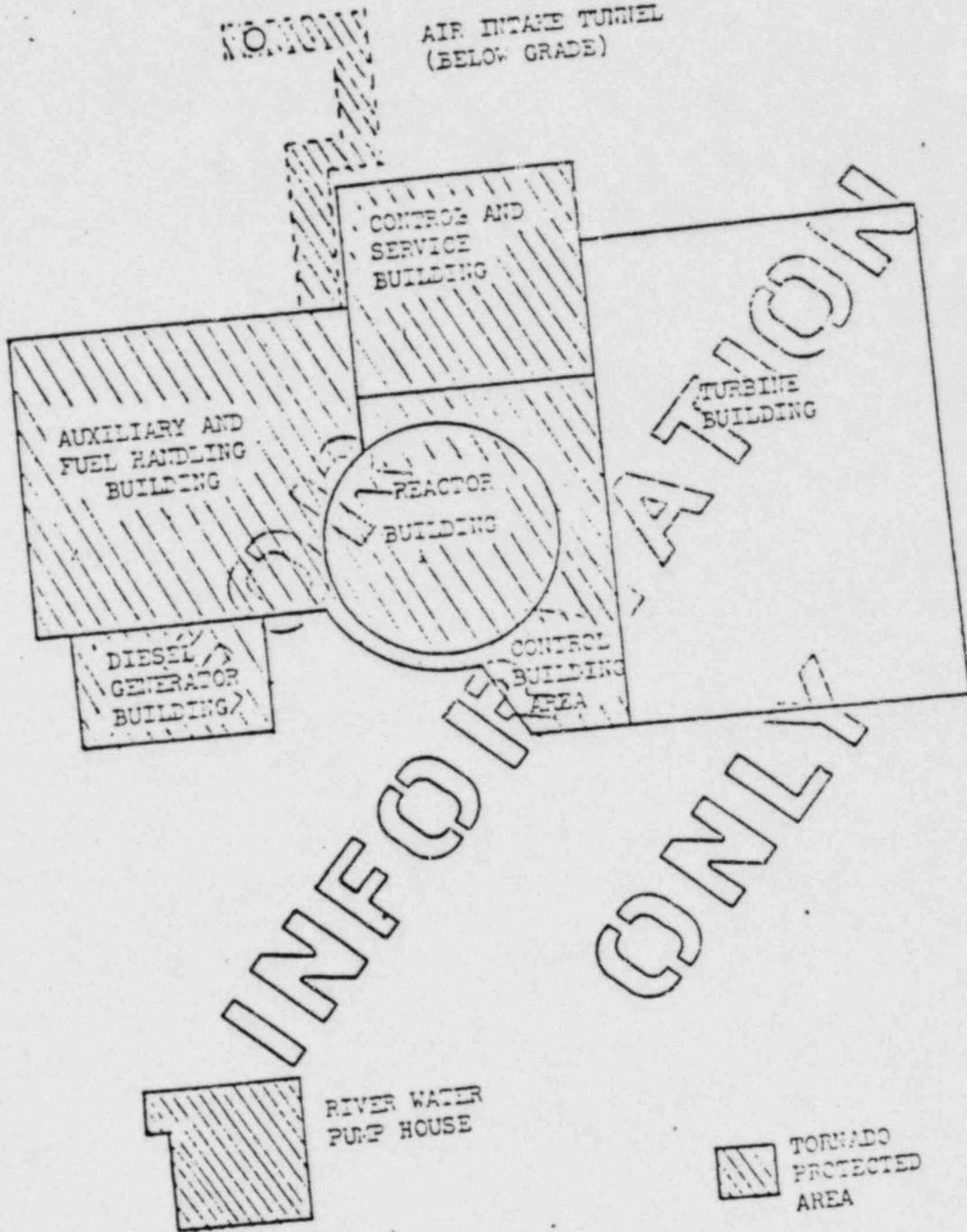
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Procedure 1004.22
Revision 0

Emergency Plan
Implementing procedure

ATTACHMENT I



UNIT II

Structures Designed to Withstand Tornado Loadings

5.0

POOR ORIGINAL

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1004.24
Revision 0
12/15/80

THREE MILE ISLAND NUCLEAR STATION UNIT 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.24 RECOVERY OPERATIONS

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*Office of the
Resident Reg.*

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Unit 1 Staff Recommends Approval

Approval N/A Date —
Cognizant Dept. Head

Unit 2 Staff Recommends Approval

Approval _____ Date _____
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

Edward Nelson Date 12/15/80
Chairman of PORC

Unit 2 PORC Recommends Approval

_____ Date _____
Chairman of PORC

Unit 1 Superintendent Approval *R. Toole*

R. Toole Date 12-15-80

Unit 2 Superintendent Approval

_____ Date _____

Manager Generation Quality Assurance Approval _____ Date _____

THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.24
RECOVERY OPERATIONS

1.0 PURPOSE

This procedure provides general guidance to assist the implementation of a recovery effort.

The Emergency Director and the Emergency Support Director are responsible for implementing this procedure.

2.0 ATTACHMENTS

2.1 Attachment I - Long Term Recovery Organization

3.0 EMERGENCY ACTIONS LEVELS

3.1 In the judgment of the Emergency Director, with concurrence from the Emergency Support Director, the emergency situation is under control as evidenced by:

- a) Radiation levels in all in-plant areas are stable or decreasing.
- b) Releases of radioactive materials to the environment are under control or have ceased.
- c) Any fire, flooding or similar conditions are controlled or have ceased.
- d) Containment pressure is at normal levels
- e) Reactor plant is stable and in a long term safe shutdown condition.

4.0 EMERGENCY ACTIONS

Initials

- ___ 4.1 If the recovery phase criteria have been met, but long term recovery operations are not necessary, close out the emergency by making the notifications in Attachment I, Section III of 1004.1, 1004.2, 1004.3, or 1004.4 and terminate this procedure.
- ___ 4.2 Notify all members of the long term recovery organization that the recovery operations are about to commence.
- ___ 4.3 Assemble and brief all members of the recovery organization prior to their assuming duties.
- ___ 4.4 Establish an organizational structure as shown in Attachment I.
- ___ 4.5 Inform all emergency stations activated during the emergency that recovery operations are in effect.
- ___ 4.6 Announce or have announced the following message over the public address system (merged):
"ATTENTION ALL PERSONNEL; ATTENTION ALL PERSONNEL: THE (UNUSUAL EVENT/ALERT/SITE EMERGENCY/GENERAL EMERGENCY) HAS BEEN TERMINATED AND THE EMERGENCY IS IN A RECOVERY MODE.
- ___ 4.7 Ensure that the notifications Attachment I, Section III of 1004.1, 1004.2, 1004.3 and 1004.4 have been made.
- ___ 4.8 During the recovery effort, ensure that the exposure limits of 10 CFR 20 are not exceeded.
- ___ 4.9 As necessary, develop specific recovery plans to restore the plant to a safe operating mode.

Initials

4.10 At a pre-designated time, transfer the responsibility for the overall recovery operation to the office of the President GPU-Nuclear. This includes overseeing the operations of the various functional groups, ensuring that all activities, proposed courses of action, and contingency plans receive proper analysis and coordination and selecting senior personnel to fill the key positions in the long-term recovery organization. The office of the President GPU-Nuclear shall implement the recovery operations by ensuring that the following personnel/groups are informed of their respective responsibilities:

4.10.1 The Public/Government Affairs Group - responsible for coordinating the exchange of information with public and governmental agencies, including legal counsel.

4.10.2 The Vice President Administration - responsible for providing the necessary administrative/logistics requirements such as communications, manpower, transportation, commissary arrangements, accommodations, clerical support, and temporary office space and equipment. He sets priorities; develops plans and schedules; coordinates and monitors the status of tasks; and reports the work progress of all the technical groups. In addition, he provides administration support liaison with the Nuclear Regulatory Commission.

Initials

- ____ 4.10.3 The Vice President Technical Functions - responsible for providing engineering support, technical planning and analysis, procedure support, control room technical support, data reduction and management, and support relating to licensing requirements. He is responsible for providing the engineering, design, materials and construction necessary to complete required modifications to plant systems, equipment and structures.
- ____ 4.10.4 The Vice President Unit Operations - responsible for performing all plant operations and maintenance activities, limiting and controlling personnel exposures, in-plant health physics management, terminating or minimizing offsite releases, stabilizing plant conditions, and restoring the plant's ability to function normally and respond to any further emergencies. He is responsible for safely and effectively managing the quantities of radioactive gases, liquids, and solids that might exist during the initial phases of recovery. Subsequently, he is responsible for the development and implementation of short and long-term plans to manage and process contaminated solids, liquids and gases; quantifying the degree of contamination of buildings and systems; and the establishment of processing priorities based on plant needs.

Initials

- ____ 4.10.5 The Vice President Nuclear Assurance - responsible for implementing the Quality Assurance Plan for all re-covery activities important to safety. He is respon- sible for implementing all necessary general employee, technical and recovery management training programs. He provides ongoing development of the Site Emergency Plan and Implementing Document and ensures that Emer- gency Preparedness is maintained for potentially hazardous recovery activities. He assists the Genera- ting Station by providing chemistry and metallurgical analytical services and recommending chemistry re- quirements and specifications for recovery and plant lay-up activities. He monitors, evaluates and assures that all recovery activities having the potential for compromising nuclear safety are adequately addressed.
- ____ 4.10.6 The Vice President Radiological and Environmental Controls - responsible for establishing policy, co- ordination and review of radiation and environmental controls at the nuclear generating station. He is responsible for providing inplant radiological con- trols management and monitoring and for quantifying the degree of contamination of buildings and personnel.

Initials

_____ 4.10.7 The Vice President of Maintenance and Construction -
responsible for direction of activities associated with
major maintenance tasks and accomplishment of the field work
for major modifications. He also provides corporate
oversight for all plant maintenance activities, which is
directed toward commonality of practices and procedures in
these areas.

5.0 FINAL CONDITIONS

5.1 The plant is in a long-term recovery mode.

ATTACHMENT I

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FOR USE IN UNIT 1 ONLY

Office of
President

Executive,
Vice-President

Vice-
President
Admin.

Vice-
President
Comm.

Vice-
President
Rad. & Env.
Controls

Vice-
President
Maint. &
Construction

Vice-
President
Technical
Functions

Vice-
President
TMI - 1

Vice-
President
Nuclear
Assurance

POOR ORIGINAL

GPU-NUCLEAR STATION LONG-TERM RECOVERY ORGANIZATION

1004.24
Revision 0

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1004.27
Revision 0

THREE MILE ISLAND NUCLEAR STATION UNIT 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.27 ACTIVATION OF THE NEAR-SITE EMERGENCY OPERATION FACILITY

1.0 PURPOSE

The purpose of this procedure is to provide guidelines for the Emergency Support Director to activate the Near-Site Emergency Operations Facility (Observation Center).

The Emergency Support Director is responsible for implementing this procedure.

2.0 ATTACHMENTS

- 2.1 Attachment I, Emergency Support Director's Checklist.
- 2.2 Attachment II, Emergency Support Communicator's Checklist.
- 2.3 Attachment III, Group Leader - Chemistry Support Checklist.
- 2.4 Attachment IV, Technical Support Representative Checklist.
- 2.5 Attachment V, Assistant Environmental Assessment Coordinator's Checklist.
- 2.6 Attachment VI, Near-Site Emergency Operations Facility Floor Plan.

3.0 EMERGENCY ACTION LEVELS

- 3.1 This procedure is to be initiated upon declaration of any of the following:
 - 3.1.1 Alert (1004.2)
 - 3.1.2 Site Emergency (1004.3)
 - 3.1.3 General Emergency (1004.4)
 - 3.1.4 At any other time when the Emergency Director feels plant conditions warrant it.

4.0 EMERGENCY ACTIONS

INITIALS

- 4.1 Coordinate the activation of the Near-Site Emergency Operations Facility as follows:

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_____ 4.1.1 Assistant Emergency Support Director:

Report to the Observation Center and assist the Emergency Support Director in performing the Emergency Support Director's Checklist (Attachment I), which is located in the Near-Site Emergency Operations Facility (EOF) Emergency Kit. He will also assist in implementing this procedure.

_____ 4.1.2 Emergency Support Communicator:

Report to the Observation Center and complete the Emergency Support Communicator's Checklist (Attachment II), which is located in the Emergency Operations Facility Emergency Kit.

_____ 4.1.3 Group Leader - Chemistry Support:

Report to the Observation Center and complete the Group Leader - Chemistry Support Checklist (Attachment III), which is located in the Emergency Operations Facility Emergency Kit.

_____ 4.1.4 Technical Support Representative:

Report to the Observation Center and complete the Technical Support Representative's Checklist (Attachment IV).

_____ 4.1.5 Assistant - Environmental Assessment Coordinator:

Report to the Observation Center and complete the Assistant Environmental Assessment Coordinator Checklist (Attachment V).

5.0 FINAL CONDITIONS

INITIALS

_____ 5.1 The Near-Site Emergency Operations Facility is operational with the desired positions manned and functional. Communications are established among the necessary organizations and agencies.

ATTACHMENT I

EMERGENCY SUPPORT DIRECTOR CHECKLIST

INITIALS

NOTE: The Assistant Emergency Support Director or the Emergency Support Communicator should assist in completing this Checklist.

- ___ 1. Assign personnel to assume the following positions, as necessary, and direct those personnel to report to the area indicated and complete the required checklists (located in kits at those areas):
 - ___ a) Emergency Support Communicator - Observation Center
 - ___ b) Group Leader, Chemistry Support - Observation Center
 - ___ c) Technical Support Representative - Observation Center
 - ___ d) Assistant Environmental Assessment Coordinator Observation Center.

- ___ 2. Start the Emergency Support Directors Log (Attachment III of 1004.5) in accordance with the Communications and Recordkeeping procedure by performing the following:
 - ___ a) Log the date, time and shift in the upper left-hand corner.
 - ___ b) Complete the title of the log and the name of the person assuming the responsibility of the Emergency Support Director.
 - ___ c) Log the names of the personnel assigned to the positions listed in the upper righthand corner.
 - ___ d) Make an entry by logging the time, and describing the emergency, plant status, and any major evolutions in progress.
 - ___ e) Ensure the Emergency Support Communicator assigns someone to act as a logkeeper to maintain this log.

ATTACHMENT I

EMERGENCY SUPPORT DIRECTOR CHECKLIST

INITIALS

- ___ 3. Assign a person to maintain the Near-Site Emergency Operations Facility Status Boards.

- ___ 4. When the Emergency Support Communicator returns the completed checklists from the assigned Offsite Emergency Support Organization positions, inform the Emergency Director that the Offsite Emergency Organization is operational.

NAME _____ TIME _____ DATE _____
Emergency Support Director

ATTACHMENT II

EMERGENCY SUPPORT COMMUNICATOR CHECKLIST

INITIALS

- ___ 1. Ensure the required phones are obtained from the Observation Center storeroom and plugged into the receptacles at the appropriate areas for the locations listed below: (See Near-Site Emergency Operation Facility Plan - Attachment VI)
- ___ a) Radiological Line
 - ___ b) Operational Line
 - ___ c) Emergency Director's Line
 - ___ d) Conventional Telephones
 - ___ e) Health Physics Network (NRC)
 - ___ f) Environmental Assessment Line
 - ___ g) Parsippany/TMI Line
- ___ 2. Turn on the systems communications radio.
- ___ 3. Assign personnel for the following positions, as necessary:

NOTE: Instruct the phonetalkers to record all emergency related calls on the Telephone Communications Logsheet (Attachment II of the Communications and Recordkeeping Procedure, 1004.5).

- ___ a) Logkeeper (to maintain the Emergency Support Director's Log)
- ___ b) Radiotalker (to monitor radio communications and log any important requests/recommendations, etc)
- ___ c) Status Board Keeper
- ___ d) Phonetalkers to answer the Conventional Telephones on the Phonetalkers table.

ATTACHMENT II

EMERGENCY SUPPORT COMMUNICATOR CHECKLIST

INITIALS

___ e) Phonetalkers, as necessary, to man the following lines of communications (If the cognizant Group Leader/person doesn't have personnel available to man the phones).

___ (1) Radiological Line

___ (2) Operational Line

___ (3) Parsippany/TMI Line

___ (4) Emergency Director Line

___ (5) Environmental Assessment Line

___ 4. Ensure all phonetalkers have a supply of Telephone Communications Logsheets (Attachment II of the Communications and Recordkeeping procedure, 1004.5) stored in Emergency Kits.

___ 5. Collect Checklists from the following personnel and report to the Emergency Support Director.

___ a) Group Leader - Chemistry Support

___ b) Technical Support Representative

___ c) Assistant Environmental Assessment Coordinator

___ 6. Develop a watchbill for persons under your direct control.

___ 7. Notify the Emergency Support Director that the duties of the Emergency Support Communicator have been assumed and return this form, along with the checklists collected in Step 5 above, to him.

NAME _____ TIME _____ DATE _____
Emergency Support Communicator

ATTACHMENT III

GROUP LEADER-CHEMISTRY SUPPORT CHECKLIST

INITIALS

- ___ 1. Start the Group Leaders Chemistry Support Checklist in accordance with Communications and Recordkeeping procedure 1004.5.
- ___ 2. Set up the Chemistry Status Board.
- ___ 3. Communicate with the Chemistry Coordinator to determine the manpower and chemistry equipment needed to support the emergency.
- ___ 4. Contact other facilities and request additional assistance as needed as per 1004.6.
- ___ 5. Notify the Emergency Support Director that the duties of the Group Leader Chemistry Support have been assumed. (Forward this completed form to the Emergency Support Communicator).

NAME _____ TIME _____ DATE _____
(Group Leader-Chemistry Support)

ATTACHMENT IV

TECHNICAL SUPPORT REPRESENTATIVE CHECKLIST

INITIALS

- ___ 1. Start the Technical Support Representative log in accordance with Communications and Recordkeeping procedure, 1004.5.
- ___ 2. Assign a phonetalker to communicate on the Parsippany/TMI Line with the onsite Communicator in the TSC (Technical Support Center) and the Parsippany Technical Support Center. Instruct the phonetalker to log all pertinent information on the telephone Communications Logsheets (Attachment II of Communications and Recordkeeping procedure, 1004.5).
- ___ 3. Activate the CRT and commence performing accident assessment functions by monitoring present plant parameters and conducting trend analysis of key parameters.
- ___ 4. Obtain prints, technical manuals, reference materials, etc., from Emergency Kit and set-up as required in the area of the Technical Support Representative.
- ___ 5. Develop a watchbill for your organization.
- ___ 6. Notify the Emergency Support Director, that the duties of the Technical Support Representative have been assumed. (Forward this completed form to the Emergency Support Communicator).

NAME _____ TIME _____ DATE _____
 Technical Support Representative

ATTACHMENT V

ASSISTANT ENVIRONMENTAL ASSESMENT COORDINATORS

CHECKLIST

INITIALS

- 1. Start the Assistant Environmental Assessment Coordinator's Checklist in accordance with the Communications and Recordkeeping procedure 1004.5.
- 2. Assume the position of phonetalker to maintain communication on the Environmental Assessment Line with the Environmental Assessment Communicator at the Environmental Assessment Command Center.
- 3. Ensure that the Environmental Assessment Communicator provides the Near-Site Emergency Operations Facility with the proper radio communications.
- 4. Notify the Emergency Support Director and the Environmental Assessment Command Center that the duties of the Assistant Environmental Coordinator have been assumed. (Forward this completed form to the Emergency Support Communicator).

NAME _____ DATE _____ TIME _____
 Assistant Environmental Assessment Coordinator

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1004.28
Revision 0
12/15/80

THREE MILE ISLAND NUCLEAR STATION UNIT NO. 1 EMERGENCY IMPLEMENTING PROCEDURE 1004.28 ACTIVATION OF THE TECHNICAL SUPPORT CENTER

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*Official of TMI.
Reactor Reg.*

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Unit 1 Staff Recommends Approval

Approval _____ Date _____
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

W. A. Nelson
Chairman of PORC Date 12/15/80

Manager TMI I Approval

P. J. Toole ^{W12/15} Date 12-15-80

QA Modifications/Operations Mgr

_____ Date _____

FOR USE IN UNIT 1 ONLY

THREE MILE ISLAND NUCLEAR STATION
UNIT I EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.28
ACTIVATION OF THE TECHNICAL SUPPORT CENTER

1.0 PURPOSE

The purpose of this Procedure is to provide guidelines for the Technical Support Center Coordinator to activate the Technical Support Center (TSC) (322' Elevation-Remote Shutdown-Panel Room).

The Technical Support Center Coordinator is responsible for implementing this procedure.

2.0 ATTACHMENTS

2.1 Attachment I, Technical Support Center Floor Plan

3.0 EMERGENCY ACTION LEVELS

3.1 This procedure is to be initiated upon declaration of any of the following:

3.1.1 Alert as determined by the Alert Procedure, 1004.2.

3.1.2 Site Emergency as determined by the Site Emergency procedure 1004.3.

3.1.3 General Emergency as determined by the General Emergency procedure, 1004.4.

3.1.4 As directed by the Emergency Director.

4.0 EMERGENCY ACTIONS

Initial

4.1 If an accountability has been ordered, collect or have collected all security badges of personnel at the TSC and send them to the Operations Support Center (OSC).

Initial

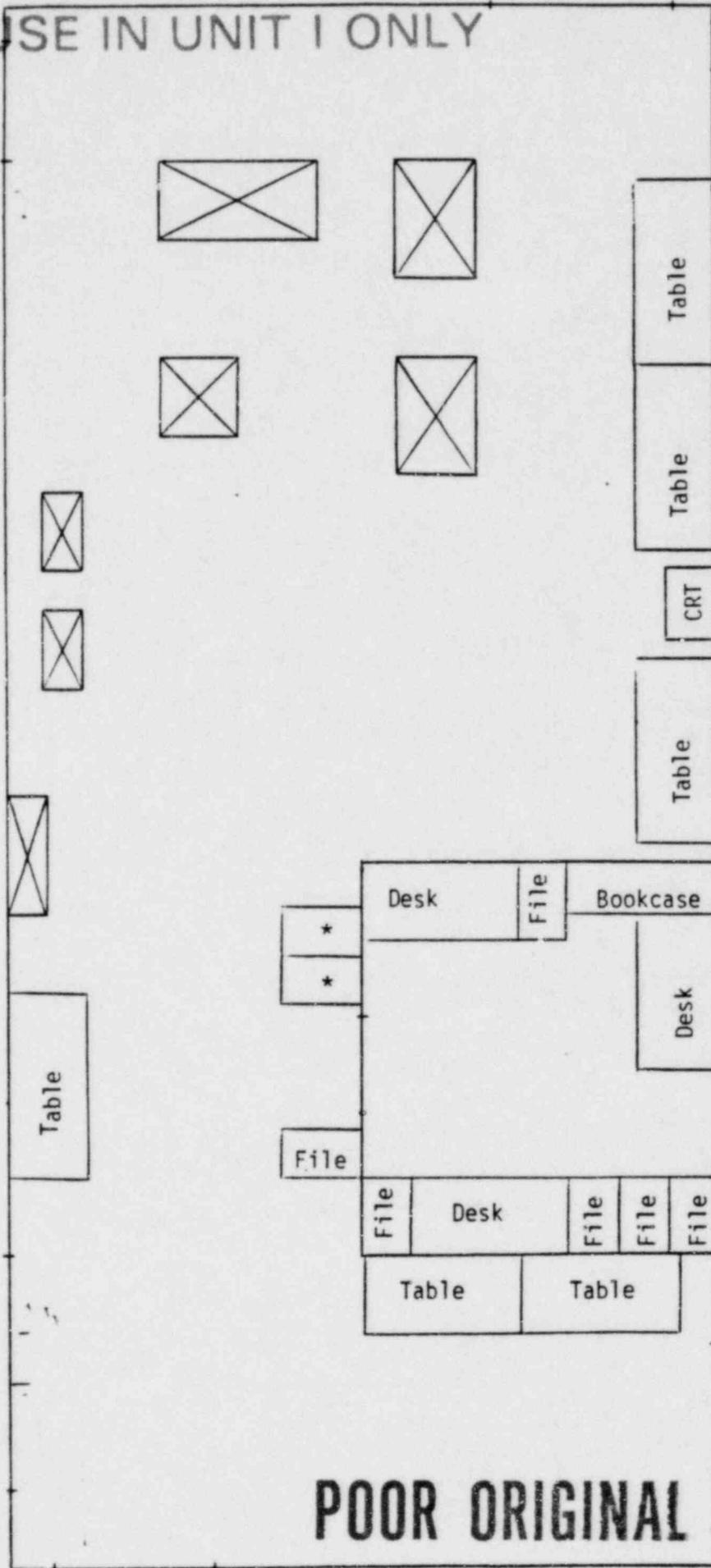
- ___ 4.2 At the TSC, set up the tables and chairs.
- ___ 4.3 Arrange the prints, technical manuals and other information sources to make them available when needed. (Keys to the file cabinets will be maintained in the Control Room/Shift Supervisor's Office).
- ___ 4.4 Hook-up the telephone used for the Operational Line , and the Parsippany/TMI Line and obtain information pertaining to the emergency and plant status from the phonetalker in the Emergency Control Center and the Parsippany Technical Functions Center for the Technical Support Center Status Board.
- ___ 4.5 Assign a phonetalker to man the Operational Line and to log emergency-related communications sent and received, on the Telephone Communication Log Sheet (Attachment II of the Communications and Recordkeeping procedure, 1004.5). Copies of these log sheets are available at the TSC or from the Emergency Control Center (Emergency Kits).
- ___ 4.6 Inform the Emergency Director, via the Communicator, that the TSC is operational and state manpower status.
- ___ 4.7 Activate the Cathode Ray Tube (CRT) and commence performing accident assessment functions by monitoring present plant parameters and conducting trend analysis of Key Parameters.
- ___ 4.8 In the event that the Technical Support Center becomes uninhabitable, move the Technical Support Center to the I and C Shop.

5.0 FINAL CONDITIONS

Initial

- ___ 5.1 The Technical Support Center is operational with work areas set up for the Technical Support Staff.
- ___ 5.2 The Operational Line is established to the Emergency Control Center, the Near-Site Emergency Operations Facility and the Operations Support Center.
- ___ 5.3 The Parsippany/TMI Line is established between the Technical Functions Center.Support Center and the Parsippany Technical Functions Center.

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Technical Support Center Floor Plan
ATTACHMENT I

- Permanently installed equipment
- Fireproof file



*

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1004.29
Revision 0
12/15/80

THREE MILE ISLAND NUCLEAR STATION UNIT I EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.29 ACTIVATION OF THE OPERATIONS SUPPORT CENTER

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*Spid y. New,
Director Prog.*

Table of Effective Pages

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Unit 1 Staff Recommends Approval

Approval _____ Date _____
Cognizant Dept. Head

Unit 2 Staff Recommends Approval

Approval _____ Date _____
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

M. Nelson
Chairman of PORC Date 12/15/80

Unit 2 PORC Recommends Approval

_____ Date _____
Chairman of PORC

Unit 1 Superintendent Approval

R. J. Tade
Date 12-15-80

Unit 2 Superintendent Approval

_____ Date _____

Manager Generation Quality Assurance Approval _____ Date _____

THREE MILE ISLAND NUCLEAR STATION
UNIT I EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.29
ACTIVATION OF THE OPERATIONS SUPPORT CENTER

1.0 PURPOSE

The purpose of this procedure is to provide guidelines for the Operations Support Center Coordinator to activate the Operations Support Center.

The Operations Support Center Coordinator is responsible for implementing this procedure.

2.0 ATTACHMENTS

2.1 Attachment I, Operations Support Center Floor Plan.

3.0 EMERGENCY ACTION LEVELS

3.1 This procedure is to be initiated upon declaration of any of the following:

3.1.1 Alert as determined by the Alert Procedure, 1004.2.

3.1.2 Site Emergency as determined by the Site Emergency procedure 1004.3.

3.1.3 General Emergency as determined by the General Emergency procedure, 1004.4.

3.1.4 As directed by the Emergency Director.

4.0 EMERGENCY ACTIONS

Initials

____ 4.1 The Operations Support Center Coordinator will ensure completion of the following:

____ 4.1.1 Activate the Operational Line and obtain information, pertaining to the emergency and plant status, from the phonetalker in the Emergency Control Center.

Initials

_____ 4.1.2 Assign a phonetalker to man the Operational Line and to Log all calls sent and received, on the Telephone Communications Logsheet (Attachment III of the Communications and Recordkeeping procedure, 1004.5).

_____ 4.1.3 Initiate and maintain log in accordance with Communications and Recordkeeping, procedure 1004.5.

_____ 4.1.4 Establish muster points for personnel reporting to the Operations Support Center.

_____ 4.1.5 As directed by the Radiological Assessments Coordinator/Operations Coordinator implement the following procedures:

_____ a. Onsite Monitoring 1004.10

_____ b. Offsite Monitoring 1004.11

_____ c. Search and Rescue 1004.18

_____ d. In Plant Radiological 1004.9

Controls During Emergencies

_____ e. Any other procedure as directed by the Radiological Assessment Coordinator/Operations Coordinator.

_____ 4.1.6 If directed to dispatch monitoring teams, ensure vehicles are available at the processing center.

_____ 4.1.7 If accountability is being conducted, collect all security badges and turn them over to the Site Security Officer who will be dispatched to pick them up.

NOTE: All Personnel must retain their keycards.

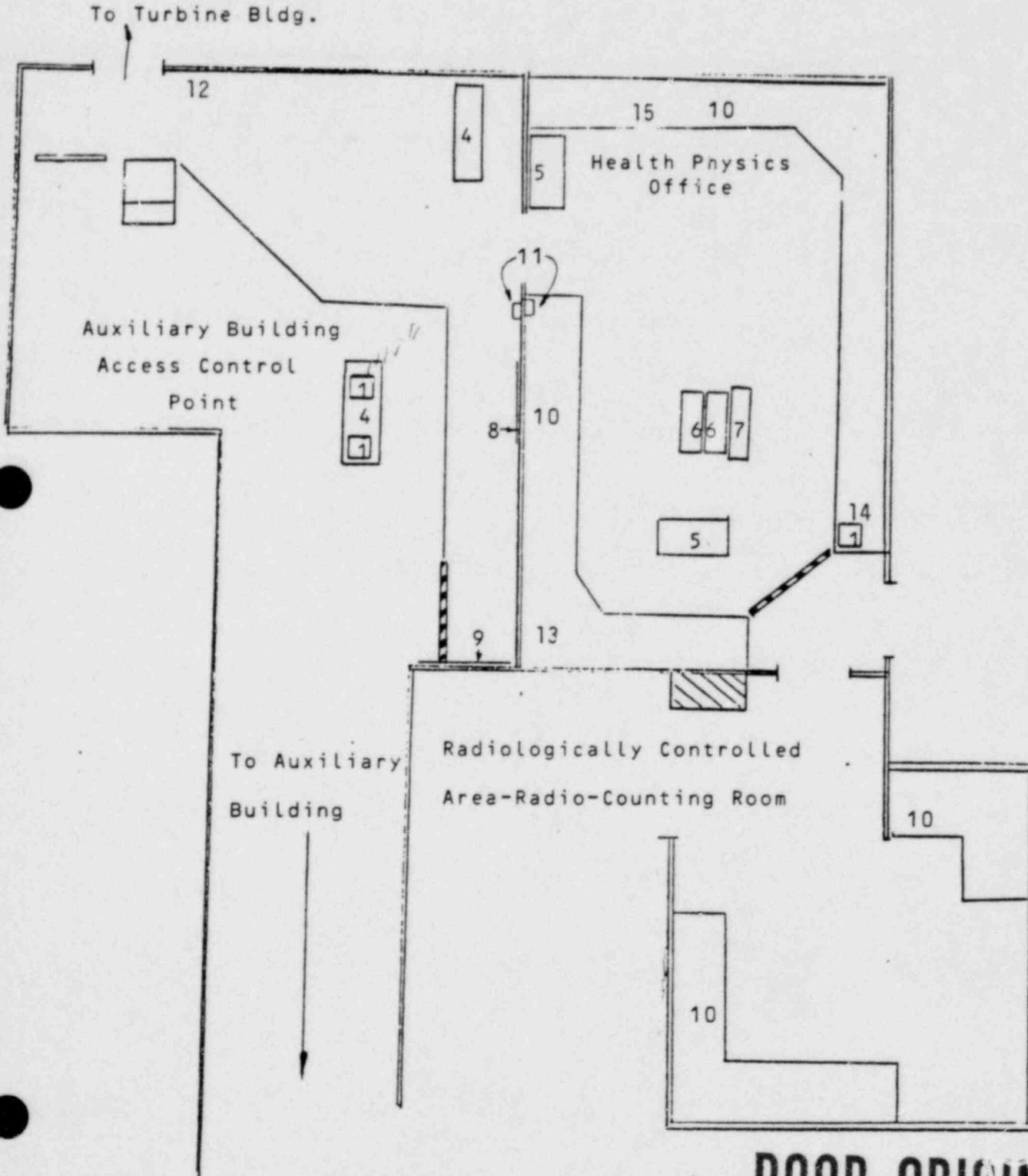
_____ 4.1.8 Inform the Emergency Director, via the communicator, that the Operations Support Center is Operational.

5.0 FINAL CONDITIONS

Initials

- ____ 5.1 The Operations Support Center will be operational with muster areas established for duty section personnel and communications established on the Operational Line.
- ____ 5.2 Duty section personnel are available for assignment as necessary.

ATTACHMENT I
FOR USE IN UNIT I ONLY
OPERATIONS SUPPORT CENTER LAYOUT-HP OFFICE



4.0

POOR ORIGINAL

FOR USE IN UNIT I ONLY

ATTACHMENT I

OPERATIONS SUPPORT CENTER LAYOUT-HP OFFICE

Key to OSC Equipment

1. RM-14 with DT-304 Probe
4. Table
5. Desk
6. File Cabinets
7. Storage Cabinet for Instrumentation
8. Status Boards
9. REMP Map
10. Cabinets
11. Plant Page Phone
12. First Aid Cabinet
13. Emergency Locker (Flow diagrams, prints, etc.)
14. High Rad area Key Locker
15. Xerox Copier

Equipment in Radio-Counting Room

Ludlum-2000 beta-gamma Counter-Scaler

Wide-Beta

Ortec beta-gamma Counter-Scaler

Tri-Card Liquid Scintillation

Nuclear Measurements Corp. beta-gamma, alpha Counter-Scalers

Stabilized Assay Meters

FOR USE IN UNIT 1 ONLY

1004.30
Revision 0
12/15/80

THREE MILE ISLAND NUCLEAR STATION
UNIT 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.30
ACTIVATION OF THE ENVIRONMENTAL ASSESSMENT COMMAND CENTER

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Reactor Reg.*

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Unit 1 Staff Recommends Approval

Approval N/A Date _____
Cognizant Dept. Head

Unit 2 Staff Recommends Approval

Approval _____ Date _____
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

W. A. Nelson Date 12/15/80
Chairman of PORC

Unit 2 PORC Recommends Approval

_____ Date _____
Chairman of PORC

Unit 1 Superintendent Approval

R. J. Toole Date 12-15-80

Unit 2 Superintendent Approval

_____ Date _____

Manager Generation Quality Assurance Approval _____ Date _____

FOR USE IN UNIT I ONLY

1004.30
Revision 0

THREE MILE ISLAND NUCLEAR STATION UNIT I EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.30 ACTIVATION OF THE ENVIRONMENTAL ASSESSMENT COMMAND CENTER

1.0 PURPOSE

The purpose of this procedure is to provide guidelines for the Environmental Assessment Coordinator to activate the Environmental Assessment Command Center (Harrisburg Airport). The Environmental Assessment Coordinator is responsible for implementing this procedure.

2.0 ATTACHMENTS

- 2.1 Attachment I - Environmental Assessment Shift Coordinator Checklist
- 2.2 Attachment II - Environmental Assessment Communicator Checklist
- 2.3 Attachment III - Group Leader Offsite Dose Calculations Checklist
- 2.4 Attachment IV - Group Leader - Meteorology Checklist

3.0 EMERGENCY ACTION LEVELS

- 3.1 This procedure is to be initiated upon declaration of any of the following:
 - 3.1.1 Site Emergency (Procedure 1004.3)
 - 3.1.2 General Emergency (Procedure 1004.4)
 - 3.1.3 At any other time when the Emergency Director feels plant conditions warrant it.

4.0 EMERGENCY ACTIONS

INITIALS

- 4.1 The Environmental Assessment Shift Coordinator shall activate the Environmental Assessment Command Center by directing that the appropriate personnel assume those positions and perform the actions listed for those positions as follows:

INITIALS

- ____ 4.1.1 Environmental Impact Shift Coordinator:
Report to Environmental Assessment Command Center and perform the Environmental Assessment Shift Coordinator's Checklist (Attachment I), which is located in the Environmental Assessment Command Center Emergency Kit.
- ____ 4.1.2 Environmental Assessment Communicator:
Report to the Environmental Assessment Command Center and complete the Environmental Assessment Communicator's Checklist (Attachment II, which is located in the Environmental Assessment Command Center Emergency Kit.
- ____ 4.1.3 Group Leader-Offsite Dose Calculations:
Report to the Environmental Assessment Command Center and complete the Group Leader-Offsite Dose Calculation Checklist (Attachment III); which is located in the Environmental Assessment Command Center Emergency Kit.
- ____ 4.1.4 Group Leader-Meteorology
Report to the Environmental Assessment Command Center and complete the Group Leader - Meteorology Checklist (Attachment IV), which is located in the Environmental Assessment Command Center Emergency Kit.
- ____ 4.1.5 Assistant Environmental Assessment Coordinator:
Report to Near-Site Emergency Operations Facility per Procedure 1004.27.

5.0 FINAL CONDITIONS

INITIALS

____ 5.1 The Environmental Assessment Command Center will be operational with the desired positions manned and functional. Communications will be established among the necessary organizations and agencies.

ACTIVATION OF THE ENVIRONMENTAL ASSESSMENT COMMAND CENTER

ATTACHMENT I

ENVIRONMENTAL ASSESSMENT SHIFT COORDINATOR CHECKLIST

INITIALS NOTE: The Environmental Assessment Coordinator should assist in completing this checklist.

- ___ 1. Assign personnel to assume the following positions, as necessary, and direct those personnel to report to the area indicated and complete the required checklists (located in the kits in those areas).
 - ___ a) Environmental Assessment Communicator- EACC
 - ___ b) Group Leader-Offsite Dose Calculations- EACC
 - ___ c) Group Leader-Meteorology- EACC
 - ___ d) Assistant Environmental Assessment Coordinator Near-Site
Emergency Operations Facility (EOF)
- ___ 2. Assign a person to maintain the Environmental Assessment Command Center Status Board(s).
- ___ 3. When the Environmental Assessment Communicator returns the completed checklist indicating a state of Communication readiness, inform the Environmental Assessment Coordinator that the Environmental Assessment Command Center is ready for operation.

ACTIVATION OF THE ENVIRONMENTAL ASSESSMENT COMMAND CENTER

ATTACHMENT I

ENVIRONMENTAL ASSESSMENT SHIFT COORDINATOR CHECKLIST

INITIALS

- ___ 4. Contact the Assistant Environmental Assessment Coordinator at the Near-Site Emergency Operations facility and advise him of Environmental Assessment Command Center readiness.
- ___ 5. Upon instruction from the Environmental Assessment Coordinator, notify the Radiological Assessment Coordinator via Environmental Assessment Line of the proposed time of assumption of responsibility of offsite radiological, meteorological, and environmental monitoring.
- ___ 6. Receive confirmation from the RAC that the Emergency Director has approved transfer of monitors team control.
- ___ 7. Upon direction of the Environmental Assessment Coordinator, instruct the Environmental Assessment Communicator to provide the following message to field survey teams:

"Attention field monitoring personnel. Upon authority of _____ the Environmental Assessment Command
(Name/Title)

Center is activated. At _____ all
(State Time of Actuation)

field monitoring communications will be directed to the Environmental Assessment Command Center. This will include all offsite radiological, meteorological, and environmental monitoring teams. All on-site Rad monitoring teams will continue to report data to the RAC in the Control Room. All

ACTIVATION OF THE ENVIRONMENTAL ASSESSMENT COMMAND CENTER

ATTACHMENT I

ENVIRONMENTAL ASSESSMENT SHIFT COORDINATOR CHECKLIST

teams respond confirming message." (Repeat message slowly and request team acknowledgement of message.

INITIALS

8. Log _____ the Environmental Assessment Command Center
(Date/Time)
is activated and field monitoring message sent.

: NOTE: Effective at this time, the Radiological Assessment :
: Coordinator will have responsibilities for on-site RAD :
: monitoring and inplant Radiological Controls only, :
: unless otherwise notified by the Emergency Director. :

9. Dispatch Supplemental Radiological/Environmental monitoring teams and mobile lab as instructed by the Environmental Assessment Coordinator. (Ref. EPIP 1004.12).

NAME _____ TIME _____ DATE _____
(Environmental Impact Shift Coordinator)

ACTIVATION OF THE ENVIRONMENTAL ASSESSMENT COMMAND CENTER

ATTACHMENT II

ENVIRONMENTAL ASSESSMENT COMMUNICATOR CHECKLIST

INITIALS

- ___ 1. Ensure that the Environmental Assessment dedicated phone line is operational to the following locations:
 - a) Control Room (Dose assessment area)
 - b) Near-site Emergency Operations Facility
- ___ 2. Turn on the base station radio.
- ___ 3. Assign personnel to the following positions as necessary:

: NOTE: Instruct the phone talkers to record all emergency :
: related calls on the Telephone Communications Logsheet :
: (Attachment III of the Communications and Recordkeeping :
: procedure, 1004.5). :

- ___ a) Phone talkers to answer the conventional telephones.
- ___ b) Phone talkers to man the Environmental Assessment line.
- ___ 4. Ensure all phone talkers have an adequate supply of communications log sheets.
- ___ 5. Collect checklists from the following personnel:
 - ___ a) Assistant Environmental Assessment Coordinator (via Telecon, telecopier, or runner from Near-site Emergency Operations Facility).
 - ___ b) Group Leader-Offsite Dose Calculations (Environmental Assessment Command Center)

ACTIVATION OF THE ENVIRONMENTAL ASSESSMENT COMMAND CENTER

ATTACHMENT II

ENVIRONMENTAL ASSESSMENT COMMUNICATOR CHECKLIST

INITIALS

- ___ c) Group Leader-Meteorology (Environmental Assessment Command Center)
- ___ 6. Notify the Environmental Assessment Shift Coordinator that the duties of the Environmental Assessment Communicator have been assumed and return this form, along with the checklists collected in Step 5 above, to him.

NAME _____ TIME _____ DATE _____

(Environmental Assessment Communicator)

ACTIVATION OF THE ENVIRONMENTAL ASSESSMENT COMMAND CENTER

ATTACHMENT IV

GROUP LEADER-METEOROLOGY

INITIALS

- ___ 1. Ensure proper operation of necessary equipment associated with the Meteorological Tower.

- ___ 2. Establish communications/data link with National Weather Service.

- ___ 3. Verify proper operation of computer (CRT).

- ___ 4. Ensure operation of phone link to Meteorological Tower Computer.

- ___ 5. Return completed checklist to Environmental Assessment Communicator.

NAME _____ DATE _____ TIME _____

(Group Leader-Meteorology)

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1004.31
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12/15/80

THREE MILE ISLAND NUCLEAR STATION UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.31 AIRBORNE RADIOACTIVITY SAMPLING AND ANALYSIS

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Unit 1 Staff Recommends Approval

Approval N/A
Cognizant Dept. Head

Date

Unit 1 PORC Recommends Approval

Edward A. Nelson
Chairman of PORC

Date 12/15/80

Manager TMI I Approval

R. J. Toole

p. 12/15

Date 12-15-80

QA Modifications/Operations Mgr

Date

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THREE MILE ISLAND NUCLEAR STATION UNIT NO. 1 EMERGENCY IMPLEMENTING PROCEDURE 1004.31 AIRBORNE RADIOACTIVITY SAMPLING AND ANALYSIS

1.0 PURPOSE

The purpose of this procedure is to define the method for air sampling and analysis for Airborne Radioactivity both on-site and off-site during an emergency.

The Radiological Assessment Coordinator is responsible for implementing this procedure.

2.0 ATTACHMENTS

2.1 Attachment I, Airborne Radioactivity Sampling and I-131 Analysis Data Sheet.

3.0 EMERGENCY ACTION LEVELS

3.1 This procedure shall be implemented at any time during any class of declared emergency, when a potential or actual release of radioactivity to the environment exists; or

3.2 As directed by the Emergency Director, Radiological Assessment Coordinator or their designee.

4.0 EMERGENCY ACTIONS

INITIALS

4.1 Emergency Equipment Required to be available for use:

_____ 4.1.1 SAM-II/RD19 Detector Probe

_____ 4.1.2 Radeco H-809 Air Sampler

_____ 4.1.3 Stopwatch

4.2 SAMPLE COLLECTION FOR OFFSITE AREAS

_____ 4.2.1 For particulate and radioiodine sampling, insert an iodine cartridge (charcoal or silver zeolite) and particulate filter in the Air Sampler unit holder with

the dull (furry) side of the particulate filter facing forward. The particulate filter must be upstream of the cartridge.

- 4.2.2 With the filters in place, set the flow selector switch on the air sampler unit to variable and adjust the flow to two (2) CFM. Run the sampler unit for approximately five (5) minutes or long enough to obtain ten (10) cubic feet ($\pm 1 \text{ Ft}^3$). Record the sample time and volume on the data sheet.

 ! NOTE: A minimum of five (5) cubic feet is required to obtain !
 ! ar MDA of $5 \text{ E-}09 \text{ } \mu\text{Ci/cc}$. The larger the sample, the !
 ! /lower the MDA will be. !

- 4.2.3 While the air sampler unit is running, perform the following steps.
- a. Check settings on the SAM-II unit to comply with the following table. Adjust settings as necessary:

SAM-II Operational Settings

	<u>Channel 1</u>	<u>Channel 2</u>
1. Threshold	3.44	3.44
2. Window	0.40	0.40
3. + off	+	off
4. in out	in	out

- b. Adjust HV to 7.50
- c. Set the Scaler display switch to "ON", Count Mode to "2", "XI", "timed".

! NOTE: This will set the SAM-II for a 2 minute count. For high !
! radioiodine sample count rates as indicated on the count !
! rate meter (digital display), lower counting times may !
! be used. !

- d. Connect the detector to the front panel of the SAM-II.
- e. Turn the unit on the stabilizer on, and allow unit to stabilize for approximately five (5) minutes.

4.3 SAMPLE ANALYSIS

- 4.3.1 Prior to counting sample, count a background with the SAM-II in set-up mode as defined in setp 4.2.3.

! NOTE: If the SAM-II unit is stable, the background count !
! should be less than 50 counts per minute. !

- 4.3.2 After removing the sample cartridge and particulate filter from the air sampler unit, separate the filter disc from the radioiodine cartridge and place it in a filter envelope for later counting and analysis. Label the envelope with the necessary information, i.e., date, time, volume, location, and person taking sample. Count and analyze in accordance with RCP 1605.

- 4.3.3 Place the iodine cartridge in the SAM-II shield chamber, and count the sample for two (2) minutes. (Or less if the high count rate is indicated for the sample.)

- 4.3.4 Record the serial number of the SAM-II, efficiency (as indicated on the SAM-II), background count rate, and count time on the sample data sheet.

- 4.3.5 After counting sample, record the iodine sample counts and counting time on the data sheet.

4.3.6 Calculate the radioiodine activity by use of the data sheet formulation. If the count rate of the sample is low, (less than 2 X background) calculate the Minimum Detectable Count Rate (MDCR). If the MDCR is greater than the sample count rate, use the MDCR for activity calculations and report the measured activity as less than this activity.

: NOTE: Analysis of all samples may be performed by use of the :
: TMI Unit 1 GeLi/MCA system in accordance with SPC :
: 1958.3, the TMI-Unit 2 GeLi/MCA unit, or the Mobile :
: GeLi/MCA unit operated by the Environmental Assessment :
: Section. :

4.3.7 For dose calculations due to off-site radioactive releases, refer to EPIP 1004.7.

: NOTE: If during sample analysis, the sample activity exceeds :
: the ability of the instrument being used, i.e., high :
: deadtime, one or all of the following alternatives may :
: be used: :
: a. Reduce the sample volume :
: b. Utilize different counting geometries :
: c. Utilize counting instrumentation with lower :
: efficiency/sensitivity :

4.3.8 Place all samples in separate plastic bags and label the samples with sample date, time, location and calculated activity and return all samples taken to the OCS and surrender to the Rad Con Coordinator.

- 4.4 On-site air sampling for Radioactive Gas shall be performed in accordance with RCP 1607 with care to problems expressed in 4.3.7.
- 4.5 On-site air sampling for Radioactive Iodine shall be performed in accordance with RCP 1606 with care to problems expressed in 4.3.7.

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4.6 On-site air sampling for Radioactive Particulates shall be performed in accordance with RCP 1605 with care to problems expressed in 4.3.7.

4.7 All air samples shall be handled in accordance with RCP 1616.4.

5.0 FINAL CONDITIONS

5.1 All samples taken after release has been terminated.

5.2 All monitoring teams ordered to return to base.

5.3 All samples surrendered to radiological controls/chemistry for analysis.

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AIRBORNE RADIOACTIVITY SAMPLING AND IODINE - 131 ANALYSIS DATA SHEET

ATTACHMENT I

Sample Collection	Iodine Sample Counting
1) Sample Collection Run Time _____ min.	1) Serial of SAM-II _____
2) Sample Flow _____ CFM,	2) Efficiency _____
3) Volume _____ min x _____ CFM (1) (2)	3) Background counts _____
x 2.834 x 10 ⁴ cc/ft ³ = _____ cc	4) Background count time _____ min
4) Location: _____	5) Background count rate- _____ : _____ min = _____ cpm (3) (4)
5) Date: _____	6) Sample Counts _____
6) Time: _____	7) Sample Count Time _____ min.
7) Sampler Type: _____ Serial : _____	8) Sample Count Rate _____ _____ : _____ min = _____ cpm (6) (7)
8) Collected by: _____	9) Sample Net Count Rate (Rnet) $\frac{\text{Sample}(8) - \text{Bkgd}(5)}{\text{Sample}(8)} = \text{_____ cpm}$
	10) Date and Time of Counting: _____
	11) Counted by: _____

$$\text{Iodine Activity} = \frac{\text{Rnet}}{(\text{Vol}) (\text{Eff}) (2.2.2 \text{ E6})} = \text{_____ } \mu\text{Ci/cc}$$

$$= \frac{\text{CPM}}{(\text{cc}) (\text{ }) (2.2.2 \text{ E6})} = \text{_____ } \mu\text{Ci/cc}$$

$$\text{MDCR} = 3.6 \times \text{BKGD Count Rate at 90 \% Confidence Level}$$

$$= 3.6 \times \text{CPM} = \text{_____ CPM}$$

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Revision 0
12/15/80

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THREE MILE ISLAND NUCLEAR STATION
UNIT 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.32
ACTIVATION OF THE ALTERNATE NEARSITE EMERGENCY
OPERATIONS FACILITY (EOF) (CRAWFORD STA.)
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Unit 1 Staff Recommends Approval

Approval _____ Date _____
Cognizant Dept. Head

Unit 2 Staff Recommends Approval

Approval _____ Date _____
Cognizant Dept. Head

Unit 1 PORC Recommends Approval

Edward Nelson Date *12/15/80*
Chairman of PORC

Unit 2 PORC Recommends Approval

_____ Date _____
Chairman of PORC

Unit 1 Superintendent Approval

R. Toole Date *12-15-80*

Unit 2 Superintendent Approval

_____ Date _____

Manager Generation Quality Assurance Approval _____ Date _____

THREE MILE ISLAND NUCLEAR STATION
UNIT I EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.32
ACTIVATION OF THE ALTERNATE NEAR-SITE EMERGENCY
OPERATIONS FACILITY (CRAWFORD STATION)

1.0 PURPOSE

The purpose of this procedure is to provide guidelines for the Group Leader-Administrative Support to activate the Alternate Near-Site Emergency Operations Facility. The Group Leader-Administrative Support is responsible for implementing this procedure.

2.0 ATTACHMENTS

- 2.1 Attachment I- Group Leader-Maintenance Support Checklist
- 2.2 Attachment II- Group leader-Administrative Support Checklist
- 2.3 Attachment III- Group Leader-Security Support Checklist
- 2.4 Attachment IV- Group Leader-Radiological Controls Support Checklist.
- 2.5 Attachment V- Floor Plan of Alternate Near-Site Emergency Operations Facility.

3.0 EMERGENCY ACTION LEVELS

- 3.1 This procedure to be initiated upon declaration of any of the following:
 - 3.1.1 Alert (1004.2) (Optional - see 1004.2)
 - 3.1.2 Site Emergency (1004.3)
 - 3.1.3 General Emergency
 - 3.1.4 At any other time when the Emergency Director feels plant conditions warrant it.

4.0 EMERGENCY ACTIONS

initials

- ___ 4.1 Coordinate the activation of the Alternate Near-Site Emergency Operations Facility as follows:
 - ___ 4.1.1 Group Leader - Maintenance Support Report to the Crawford Station and complete the Group Leader - Maintenance Support Checklist (Attachment I) contained in the TMI Emergency Support Kit, which is located in the Crawford Station Office.
 - ___ 4.1.2 Group Leader - Administrative Support Report to the Crawford Station and complete the Group Leader - Administrative Support Checklist (Attachment II) contained in the Emergency Support Kit, which is located in the Crawford Station Office.
 - ___ 4.1.3 Group Leader - Security Support Report to the Crawford Station and complete the Group Leader - Security Support Checklist (Attachment III) contained in the TMI Emergency Support Kit, which is located in the Crawford Station Office.
 - ___ 4.1.4 Group Leader - Radiological Controls Report to the Crawford Station and complete the Group Leader - Radiological Controls Checklist (Attachment IV) contained in the TMI Emergency Support Kit, which is located in the Crawford Station Office.

Initials

- ___ 4.2 The Group Leader - Administrative Support will assign a phonetalker to man the Operational Line and to log all calls sent and received, on the Telephone Communication Logsheet (Attachment II of the Communications and Recordkeeping Procedure 1004.5).
- ___ 4.3 When all Group Leaders have reported that their functional areas are activated, the Group Leader-Administrative Support shall inform the Emergency Support Director on the Operational Line or by other circuit that the alternate Near-Site Emergency Operations Facility (Crawford Station) is operational.
- ___ 4.4 The Group Leader - Administrative Support shall direct the Group Leader Security to contact the Middletown and State Police forces, and advise that assistance in traffic direction will be needed resulting from the influx of traffic from evacuation of the site (where applicable).

: <u>NOTE:</u>	Middletown Police Department - - -	:
: :	9-944-4311	: :
: :	Pennsylvania State Police	: :
: :	9-234-4051	: :

5.0 FINAL CONDITIONS

- ___ 5.1 The alternate Near-Site Emergency Operations Facility (Crawford Station) is operational with the desired positions manned and functional. Communications are established among the necessary organizations and agencies.

ACTIVATION OF THE ALTERNATE NEAR-SITE EMERGENCY

OPERATIONS FACILITY (CRAWFORD STATION)

ATTACHMENT I

GROUP LEADER - MAINTENANCE SUPPORT CHECKLIST

INITIALS

- ___ 1. Establish a working place to coordinate the allocation of personnel and equipment (both GPU-Nuclear and from other sources as necessary), as requested by the Emergency Support Communicator (See Attachment V).
- ___ 2. Remove phone from Emergency Kit and plug in jack to activate. (See Attachment V for location)
- ___ 3. Start the Group Leader Maintenance Support Log. (Procedure 1004.5, Attachment III)
- ___ 4. Develop a watchbill to support inplant emergency maintenance activities and off-site maintenance management.
- ___ 5. Notify the Group Leader - Administrative Support that the duties of the Group Leader - Maintenance Support have been assumed.

NAME _____ TIME _____ DATE _____

(Group Leader - Maintenance Support)

ACTIVATION OF THE ALTERNATE NEAR-SITE EMERGENCY

OPERATIONS FACILITY (CRAWFORD STATION)

ATTACHMENT II

GROUP LEADER - ADMINISTRATIVE SUPPORT CHECKLIST

INITIALS

1. Establish a working place to begin processing personnel for entry onto the site. This is to be done in conjunction with Security personnel and a Radiological Controls Representative for security clearance and dosimetry respectively. (See Attachment V).
2. Remove phone from emergency kit and plug into jack (See Attachment V for location)
3. Begin Group Leader - Administrative Support Log in accordance with Procedure 1004.5, Attachment II.
4. Instruct the personnel assigned to processing to ensure permission is received from the Emergency Support Director, via the Emergency Support Communicator, prior to allowing personnel access to the site.
5. Establish a training area to provide the necessary information for the badging process.
6. Determine where the following services can be performed, or obtained, as necessary
 - a. Word Processing
 - b. Typing
 - c. Reproduction

ACTIVATION OF THE ALTERNATE NEAR-SITE EMERGENCY

OPERATIONS FACILITY (CRAWFORD STATION)

ATTACHMENT II

GROUP LEADER - ADMINISTRATIVE SUPPORT CHECKLIST

INITIALS

- ___ d. Transportation (vans, buses, automobiles, shuttle service, etc.)
- ___ e. Trailer set-ups
- ___ f. Janatorial service
- ___ g. Telephones
- ___ h. Meals
- ___ i. First Aid
- ___ j. Lodging
- ___ k. Sanitation facilities
- ___ l. Data Processing.
- ___ 7. Establish a watchbill for your organization.
- ___ 8. Collect completed checklists from other Group Leaders.

NAME _____ TIME _____ DATE _____

(Group Leader - Administrative Support)

ACTIVATION OF THE ALTERNATE NEAR-SITE EMERGENCY

OPERATIONS FACILITY (CRAWFORD STATION)

ATTACHMENT III

GROUP LEADER - SECURITY SUPPORT CHECKLIST INITIALS

INITIALS

- ___ 1. Establish a working place to coordinate Security activities (See Attachment V).
- ___ 2. Remove phone from Emergency Kit and plug into jack and activate (See Attachment V for location).
- ___ 3. Establish communications with the Security Coordinator on-site.
- ___ 4. Start the Group Leader - Security Support Log in accordance with Procedure 1004.5 Attachment VI.
- ___ 5. Assign Security personnel as follows:
 - ___ a. Establish Radio Communications with the Process Center.
 - ___ b. Direct a guard to assist the Group Leader Administrative Support in issuing badges for access to the site.
 - ___ c. Direct a guard to man the guard desk at the Near-Site Emergency Operations Facility (EOF) (Observation Center) - East door, to restrict access to the EOF to personnel authorized by the Emergency Support Director, or his designee.
 - ___ d. Assign guards to the North and South gates to restrict ingress or egress of personnel and vehicles, with the exception of emergency vehicles, and personnel and vehicles authorized access to the island by the Emergency Director or the

ACTIVATION OF THE ALTERNATE NEAR-SITE EMERGENCY

OPERATIONS FACILITY (CRAWFORD STATION)

ATTACHMENT III

GROUP LEADER - SECURITY SUPPORT CHECKLIST

INITIALS

Emergency Access Coordinator, or their designated alternates.

___ e. Assign guards to either the Processing Center, or other locations as necessary, to restrict access to the Protected Area to those personnel authorized by the Emergency Director, Emergency Support Director, or their designated alternates.

___ 6. Establish a watchbill for your organization.

___ NOTE: The number of guards assigned to the Processing Center should be kept to a minimum to limit the dose received by the Security personnel, and to leave the area open for emergency operations.

___ 7. Inform the Group Leader - Administrative Support that the duties of the Group Leader - Security Support have been assumed.

___ 8. Assign an individual to the Group Leader - Administrative Support to issue dosimetry to personnel being processed for TMI access.

___ 9. Coordinate vehicle and personnel decontamination per procedure 1004.20 and 1004.16.

NAME _____ TIME _____ DATE _____

(Group Leader - Security Support)

ACTIVATION OF THE ALTERNATE NEAR-SITE EMERGENCY

OPERATIONS FACILITY (CRAWFORD STATION)

ATTACHMENT IV

GROUP LEADER - RADIOLOGICAL CONTROLS SUPPORT CHECKLIST

INITIALS

- ___ 1. Assign a phonetalker to maintain communication on the Radiological Line with the Radiological Assessment Coordinator and the State Bureau of Radiation Protection. Instruct the phonetalker to log all calls, except those of an inconsequential nature on the Telephone Communications Logsheets (Attachment II of the Communications and Recordkeeping procedure, 1004.5).
- ___ 2. Obtain phones from Emergency Kit and plug in to activate (See Attachment V).
- ___ 3. Start the Group Leader - Radiological Controls Support (GL-HP) Log in accordance with procedure 1004.5, Attachment VII.
- ___ 4. Assure manning of the following positions by Duty Section Personnel
 - ___ a. Radiological Controls Manpower Support Coordinator: Who is responsible for coordinating manpower resources to staff both onsite and offsite Radiological Controls requirements on a rotating shift basis.

ACTIVATION OF THE ALTERNATE NEAR-SITE EMERGENCY

OPERATIONS FACILITY (CRAWFORD STATION)

ATTACHMENT IV

GROUP LEADER - RADIOLOGICAL CONTROLS SUPPORT CHECKLIST

INITIALS

- _____ b. Personnel Monitoring Coordinator:
 Who is responsible for establishing and maintaining a whole body counting facility, and TLD issuance and maintenance, to include offsite personnel reporting to support TMI.
- _____ 5. Determine from the Radiological Assessment Coordinator the need for additional Radiological Controls facilities to support onsite activities, and make necessary contacts to obtain the same (as per 1004.6).
- _____ 6. Develop a watchbill for your organization.
- _____ 7. Notify the Group Leader - Administrative Support that the duties of the Group Leader - Radiological Controls have been assumed.
- _____ 8. Assign an individual to the Group Leader - Administrative Support to issue dosimetry to personnel being processed for TMI access.
- _____ 9. Coordinate vehicle and personnel decontamination per procedure 1004.20 and 1004.16.

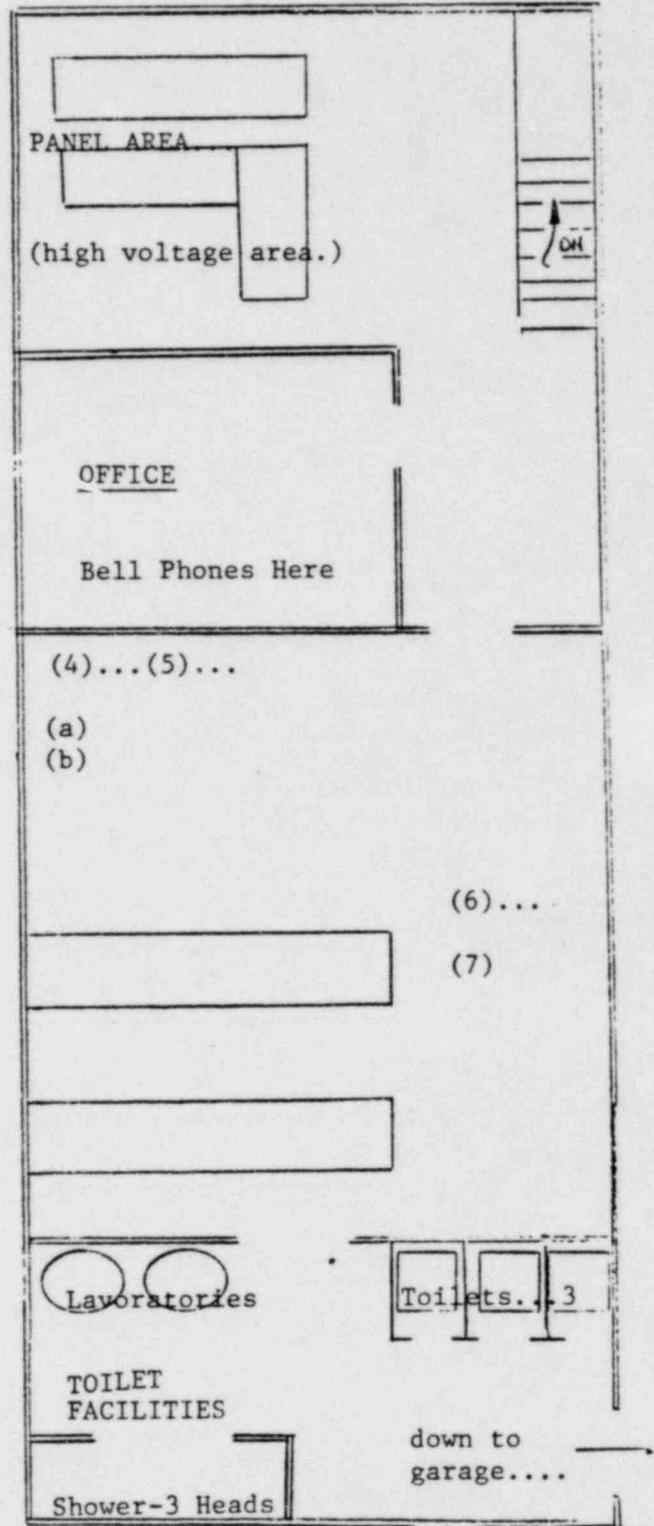
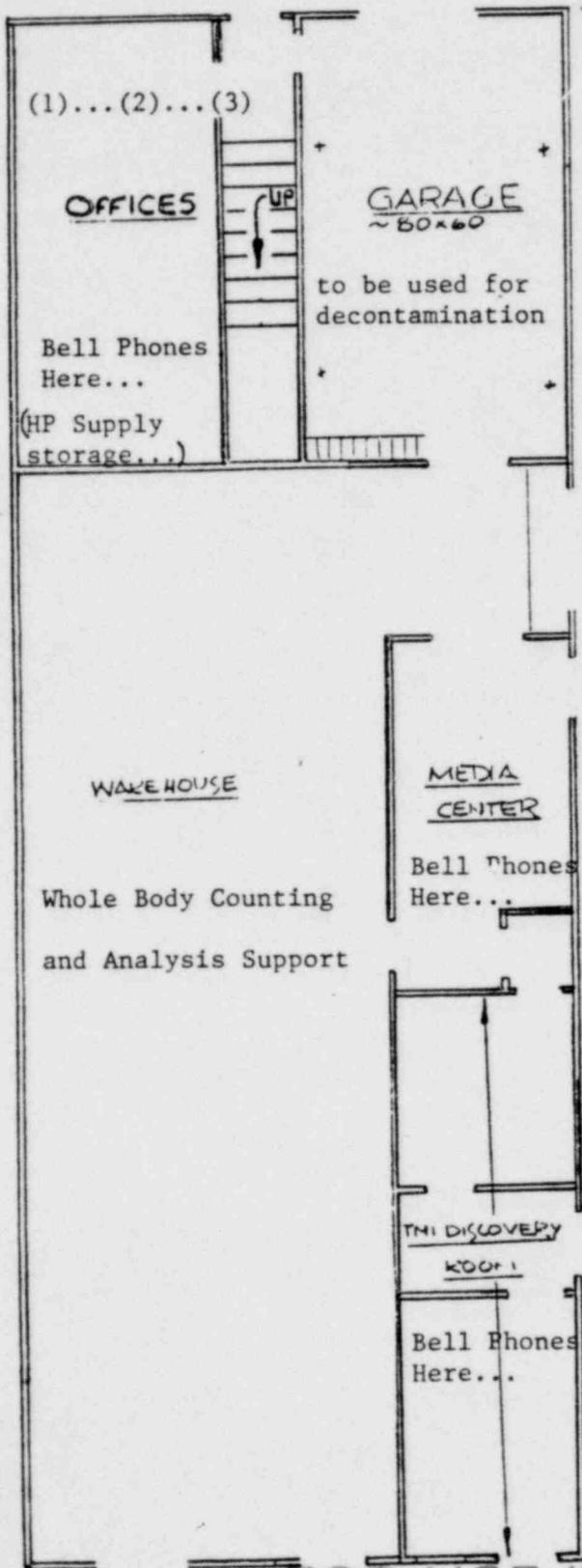
NAME _____ TIME _____ DATE _____

(Group Leader - Radiological Controls Support)

FOR USE IN UNIT I ONLY

Emergency Plan
Implementing Procedure

ATTACHMENT V FLOOR PLAN OF ALTERNATE NEAR-SITE EMERGENCY OPERATIONS FACILITY



GROUND LEVEL - NTS

FOR USE IN UNIT I ONLY

POOR ORIGINAL

ACTIVATION OF THE ALTERNATE NEAR-SITE EMERGENCY
OPERATIONS FACILITY (CRAWFORD STATION)

ATTACHMENT V

FLOOR PLAN OF ALTERNATE NEAR-SITE EMERGENCY OPERATIONS FACILITY
POSITION ASSIGNMENTS-CRAWFORD STATION-ALTERNATE NEAR-SITE
EMERGENCY OPERATIONS FACILITY

1. Group Leader - Administrative Support
2. Group Leader - Security Support
3. Personnel Monitoring Coordinator
4. Group Leader - Radiological Controls Support
5. Radiological Controls Manpower Support Coordinator
6. Group Leader - Maintenance Support
7. Maintenance Support Staff

TELEPHONE LOCATIONS-CRAWFORD STATION-ALTERNATE NEAR-SITE
EMERGENCY OPERATIONS FACILITY

- a. Operational Line
- b. Radiological Line

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1004.33
Revision 0
12/15/80

THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 EMERGENCY PLANNING IMPLEMENTING PROCEDURE 1004.33
HANDLING HIGH ACTIVITY REACTOR COOLANT
SAMPLES - BORON, CHLORIDE, AND GAMMA
SPECTRUM ANALYSIS - ACCIDENT CONDITIONS

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*Official of TMI:
Resistor Beg.*

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Unit 1 Staff Recommends Approval

Approval N/A
Cognizant Dept. Head

Date

Unit 1 PORC Recommends Approval

Alfred Avelon
Chairman of PORC

Date 12/15/80

Manager TMI I Approval

Rf Toole

12/15

Date 12-15-80

QA Modifications/Operations Mgr

Date

FOR USE IN UNIT I ONLY

HANDLING HIGH ACTIVITY REACTOR COOLANT
SAMPLES - BORON, CHLORIDE, AND GAMMA
SPECTRUM ANALYSIS - ACCIDENT CONDITIONS

1.0 PURPOSE

The purpose of this procedure is to provide guidance to technicians involved in the handling and preparation of post accident reactor coolant samples for boron analysis, chloride analysis and gamma isotopic analysis, as described in NUREG 0578. It is designed to provide prompt analytical results for the above mentioned parameters while minimizing technician exposures per the requirements of NUREG 0578. Specifically, these requirements include:

1. Boron analysis completed within 1 hour after obtaining sample.
2. Gamma isotopic analysis for evaluation of degree of core damage completed within 1 hour after obtaining sample.
3. Chloride analysis completed within 1 shift (assume 8 hours).
4. The above analysis completed without incurring a radiation exposure to any individual in excess of 3 Rem to the whole body or 18 3/4 Rem to the extremities.

All of the above requirements assume a highly radioactive initial sample with a source term as specified in Regulatory Guide 1.4. The Chemistry Supervisor is responsible for implementing this procedure.

2.0 ATTACHMENTS

- 2.1 Attachment I - Exhaust hood overview

3.0 EMERGENCY ACTION LEVELS

3.1 An emergency condition has been declared, and a gamma spectrum analysis, boron analysis and chloride analysis of a high activity reactor coolant sample, which was obtained per procedure 1004.15, has been requested.

4.0 EMERGENCY ACTIONS

4.1 Verify personnel are available to assist Radiological Control-Chemistry technicians by providing complete radiological coverage; (i.e., prescribe proper protective clothing, dosimetry requirements, Scott Air Pac or supplied breathing air requirements, perform initial and continual dose rate survey while chemistry technician works with sample, monitor chemistry technicians exposure throughout the procedure.)

: NOTE: The Chemistry Supervisor shall ensure that chemistry :
: personnel conform to the exposure Limits specified in :
: procedure 1004.9 (Radiological Controls During :
: Emergencies). :
:

4.2 Ensure that the shift supervisor has been notified that work on the sample is to commence and provides verification that the chemistry laboratory exhaust hood ventilation fans are running and will not be interrupted. (AH-E-20).

4.3 Ensure that the chemistry laboratory exhaust hoods are set up with the equipment as diagrammed and explained below:

4.4 Ensure that a standby chemistry technician is dressed and prepared to assist in the sample preparation and analysis.

4.5 Ensure that all personnel involved with handling and analyzing this sample are thoroughly familiar with this and other referenced procedures.

NOTE: Prior to handling sample, establish equipment in chemistry laboratory exhaust hoods per Attachment I. All dilution water must be added to the containers and the containers pre-labeled prior to handling sample.

4.6 THE CHEMISTRY TECHNICIAN SHALL:

Initials

- 4.6.1 Don lead gloves and utilizing long handled tongs, remove sample (F) from transport pig and place in pig (C) - Attachment I.
- 4.6.2 Gripping bottle (F) neck with short handled tongs, remove lid with other hand.
- 4.6.3 Quickly and carefully pipet 0.1 ml of sample, using Eppendorf pipet (J), from sample bottle (F) to the 1 liter poly bottle (E¹).
- 4.6.4 Discard tip from pipet (J) into lead receptacle (L).
- 4.6.5 Using pipet (K), transfer 1.0 ml from 1 liter poly bottle (E¹) to 1 liter poly bottle (E²) and 1 ml to vial (G¹). Cap vial (G¹) and Cap (E¹) and start stirrer (D²) place (E¹) in the back left hand corner of hood 1.
- 4.6.6 Discard tip from pipet (K) into lead receptacle (L), and place new tip on pipet (K).

- ___ 4.6.7 Transfer 2 mls from sample bottle (F) to flask (H) using pipet (K). Place stopper in flask.
- ___ 4.6.8 Transfer 2 mls from sample bottle (F) to flask (H) using pipet (K). Place stopper in flask.
- ___ 4.6.9 Transfer 1 ml from SAMPLE BOTTLE (F) to beaker (I) using pipet (K). Discard tip from pipet (K) into lead receptacle (L).
- ___ 4.6.10 Using short handled tongs and still wearing lead gloves, replace cap on SAMPLE BOTTLE (F).
- ___ 4.6.11 Using long handled tongs, place SAMPLE BOTTLE (F) back into transfer pig and move to far side of the lab.
- ___ 4.6.12 Using short handled tongs, transfer flask (H) to pig (C).
- ___ 4.6.13 Using short handled tongs, transfer beaker (I) from hood 1 to hood 2 (place on magnetic stirrer (D³)).
- ___ 4.6.14 With new tip on pipet (K), transfer 1 ml from bottle (E²) to vial (G²) - Cap (G²). Cap (E²) and discard tip from pipet (K) into lead receptacle (L). Place cover (M) on receptacle (L). Place (E²) in back left hand corner of hood 1.
- ___ 4.6.15 Place vials (G¹) and (G²) into individual poly bags and tape bags shut. Survey (G¹) and (G²) with a dose rate instrument.

! NOTE: For guidance, samples reading > 1 mr/hr will be too !
 ! active for counting on the Geli detector/MCA !
 ! system. If both samples read > 1 mr/hr, further !
 ! dilution of the contents of bottle (E²) is required. !
 ! Note all subsequent dilutions of (E²) so that correct !
 ! volume calculations can be performed. !

- 4.6.16 Transport appropriate sample(s) to count room (those reading >1 mr/hr) and count on Geli detector/MCA system per SCP 1958.3.

NOTE 1: If background noble gas levels result in interference with Geli analysis (high deadtime on MCA) insure shield cover on Geli cave is closed and initiate compressed air purge of cave.

NOTE 2: If background levels do not allow the use of the TMI-I Geli/MCA system, analysis may be performed by transporting samples to TMI-2 or to the mobile lab of the Environmental Assessment Group.

NOTE: If counting vial (G^1), volume for use in the CRAM program is 1×10^{-4} ml. If counting vial (G^2), volume is 1×10^{-7} ml.

- 4.6.17 Perform boron analysis on the contents of the beaker (I) per SCP 1912 observing the following cautions and exceptions:

- a. pH adjustment may be necessary per step 4.2.3 of SCP 1912. (Prior to mannitol addition).
- b. Final calculational results may be multiplied by five (5) since only 1 ml of sample is being used as opposed to 5 mls per SCP 1912.
- c. Use of 1 KAP standard for NaOH standardization may be used vice 3 as specified in SCP 1912.
- d. No base, previous sample, or boron standard will be run.

- ____ 4.6.18 Following titration, pour the contents of beaker (I) down hood sink and flush sink for approximately 2 minutes with demin water.
- ____ 4.6.19 Perform chloride analysis on the contents of flask (H) per SCP 1908 observing the following cautions and exceptions:
- a. Spectrophotometer cell and flask (H) containing sample must be handled with lead gloves on.
 - b. Results must be multiplied by 12.5 since only 2 mls of sample are used vice 25 as specified in SCP 1908.
 - c. The dilute Hydrochloric acid used for pH adjustment in the boron analysis is removed from the sample hood prior to removing the stoppers from flask (H) and flask (S).

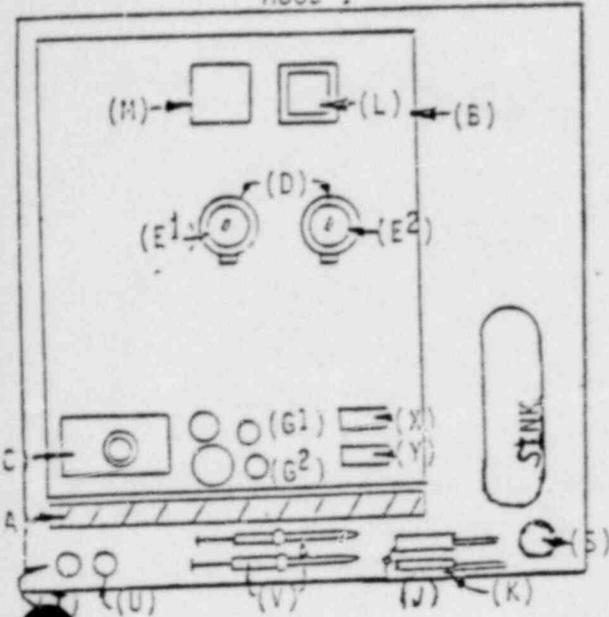
5.0 FINAL CONDITIONS

- 5.1 Emergency is in recovery stage and sample analysis requirements have been met.

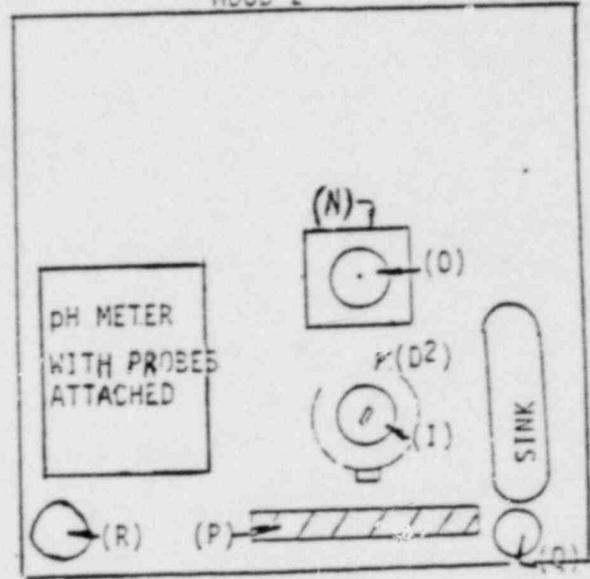
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ATTACHMENT I

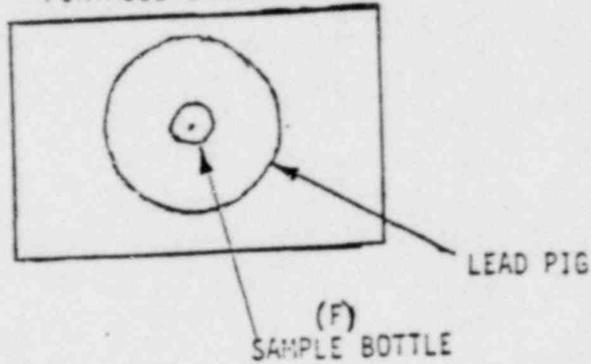
HOOD 1



HOOD 2



PORTABLE CART



CART WITH HANDLING TOOLS, PIPET TIPS, SPARE GLOVES.

ATTACHMENT I

HOOD 1

- (A) Lead glass shield 24" long, 12" high and 1 1/2" thick
- (B) Spill catch pan 24" X 20" X 1" deep
- (C) Lead pig for sample bottle (1" lead shielding)
- (D) Magnetic stirrer bases
- (E¹) 1 liter poly bottle containing 1000 ml demin water and stir bar.
- (E²) 1 liter poly bottle containing 1000 ml demin water and stir bar.
- (F) 125 sample bottle containing sample (on portable cart)
- (G¹) 10 ml counting vial containing 9 mls demin water
- (G²) 10 ml counting vial containing 9 mls demin water
- (H) 125 Erlenmeyer flask (clean) containing 23 mls demin water
- (I) 250 ml beaker containing 99 mls demin water and stir bar
- (J) 0.1 ml Eppendorf pipet with new tip
- (K) 1.0 ml Eppendorf pipet with new tip
- (L) Lead receptacle for used pipet tips
- (M) Cover for lead receptacle
- (S) 125 ml Erlenmeyer flask (clean) containing 25 mls demin water
- (T) and (U) Chloride reagents
- (V) Chloride reagent pipets
- (X) 10 cm DU cell for sample Cl⁻
- (Y) 10 cm DU cell for blank Cl⁻

ATTACHMENT I

HOOD 2

- (D³) Magnetic stirrer base
- (I) Beaker 1 from hood 1 after sample added
- (N) Ring stand for boron buret
- (O) Boron buret
- (P) Lead glass shield 12" x 12" x 1 1/2" thick
- (Q) Mannitol with scoop
- (R) Dilute HCl for pH adjustment

! NOTE: Short handled tongs shall be a minimum of 12" long !
! Long handled tongs shall be a minimum of 36" long. !

FOR USE IN UNIT 1 ONLY

1004.34
Revision 0
01/07/81

THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.34
ACTIVATION OF THE PARSIPPANY TECHNICAL SUPPORT CENTER

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*Office of Nuc.
Executive Reg.*

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Unit 1 Staff Recommends Approval

Approval

NA

Cognizant Dept. Head

Date

Unit 1 PORC Recommends Approval

Alfred Nelson

Chairman of PORC

Date

1/6/81

Manager MI I Approval

R. Toole

12.17/81

Date

1-7-81

QA Modifications/Operations Mgr

Date

FOR USE IN UNIT 1 ONLY

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1004.34
Revision 0

THREE MILE ISLAND NUCLEAR STATION UNIT NO. 1 EMERGENCY IMPLEMENTING PROCEDURE 1004.34 ACTIVATION OF THE PARSIPPANY TECHNICAL SUPPORT CENTER

1.0 PURPOSE

The purpose of this procedure is to provide guidelines for the Group Leader - Technical Support to activate and maintain the ParsIPPany Technical Support Center.

The Emergency Support Director is responsible for implementing this procedure.

2.0 ATTACHMENTS

- 2.1 Attachment I - Data Link Operating Instructions
- 2.2 Attachment II - Parsippany Technical Support Center Arrangement
(to be provided later)
- 2.3 Attachment III - Parsippany Technical Support Center Technical Document Inventory
- 2.4 Attachment IV - Retrieval Instructions for TMI Documents in the Document Distribution Control Center (to be provided later)

3.0 EMERGENCY ACTION LEVELS

3.1 This procedure to be initiated upon declaration of any of the following:

- 3.1.1 Alert (1004.2)
- 3.1.2 Site Emergency (1004.3)
- 3.1.3 General Emergency (1004.4)
- 3.1.4 At any other time when the Emergency Director feels plant conditions warrant it.

1.0
FOR USE IN UNIT 1 ONLY

4.0 EMERGENCY ACTIONS4.1 The Group Leader - Technical Support:

Shall be responsible for providing technical analysis, evaluation and recommendations to the Emergency Support Director and the On-Site Technical Support Coordinator with respect to plant conditions, reactor core status and subsequent plant operations as described in 4.5.1.4.5 of the Emergency Plan. He shall activate the desired portions of the Parsippany Technical Support Organization by directing that appropriate personnel assume the positions required for the emergency and perform the actions listed for their position.

4.1.1 Representative - Technical Support:

This individual would be assigned to the TMI Near Site Emergency Operations Facility responsible for supporting the activities of the Emergency Support Director and coordinating the Technical Support activities with the management at this location.

4.1.2 Technical Support - Section Manager

This individual would provide general technical support and management of additional technical resources as the resources required to support the emergency are identified.

4.1.3 Technical Support - Staff

This position would provide general staff support to the Group Leader - Technical Support including organization, planning and scheduling and administrative controls. This

position also accomplishes the Data Link Operator, Phone Talker and Status Board Keeper functions until other individuals are assigned those duties.

4.1.3.1 Data Link Operator

This individual would activate the data link to the onsite process computer and provide plant data to the Group Leader for evaluation.

4.1.3.2 Phone Talkers

These individuals would establish communications and maintain phone lines with:

- (1) The Near Site Emergency Operations Facility and the On-Site Technical Support Center via the Parsippany/TMI dedicated line.
- (2) Babcock and Wilcox (B and W), Lynchburg, Virginia via the Parsippany/B and W dedicated line.

While using both these lines, maintain the Telephone Communications Log Sheets (Attachment II of the Communications and Record-keeping Procedure 1004.5).

INITIALS

4.1.3.3 Status Board Keeper

This individual will maintain the Parsippany Technical Support Center Status Board with information from the Data Link Operator and

Phone Talker and will maintain the Group Leader Technical Support Log as directed by the Group Leader - Technical Support.

4.2 Upon activation of the Parsippany Technical Support Center, the following actions shall be taken:

_____ 4.2.1 The individuals listed in 4.1 above should be notified to report to the center.

_____ 4.2.2 Communications with the site shall be established and the Telephone Communications Log sheets shall be maintained. (1004.5)

_____ 4.2.3 Start the Group Leader - Technical Support Log using the master log from Procedure 1004.5.

_____ 4.2.4 Activate the data link per Attachment I and post current conditions on the status board.

INITIALS

_____ 4.2.5 Arrange the Support Center in accordance with Attachment II.

_____ 4.2.6 Inventory Technical Documents per Attachment III. 4.2.7 Establish a watch bill for the Parsippany Technical Support Center.

_____ 4.2.8 Complete Attachment IV of the Actuation of the Near-Site Emergency Operations Facility Procedure (1004.27), and notify the Emergency Support Director that the duties of the Group Leader - Technical Support have been assumed.

4.3 Maintenance of the Parsippany Technical Support Center

After evaluating what support the Emergency Support Director will need, the Group Leader - Technical Support should execute the following steps as appropriate:

_____ 4.3.1 Establish communications with B and W on the dedicated line.

_____ 4.3.2 Evaluate what additional personnel will be required to support the plant and have them report to the Parsippany Technical Support Center.

INITIALS

_____ 4.3.3 If necessary for data transmission, move the telecopier from outside Room 201 to the Parsippany Technical Support Center.

_____ 4.3.4 Establish frequency of status board update appropriate for emergency conditions.

_____ 4.3.5 As conditions warrant the number of personnel staffing the Parsippany Technical Support Center may be reduced by the Group Leader Technical Support.

5.0 FINAL CONDITIONS

5.1 The Parsippany Technical Support Center is activated and functioning.

_____ 5.2 Communications established with the Technical Support Center.

_____ 5.3 Communications established with the Near Site Emergency Operations Facility.

ATTACHMENT I

DATA LINK OPERATING INSTRUCTIONS

At the Tektronics Terminal in conference Room 212:

1. Turn power on.
2. Set baud rate to 4800.
3. Place T-bar selector switch to TMI position.
4. Have onsite TMI-1 Process Computer personnel activate the offsite data link.
5. When "Terminal Activated" message appears on the screen, execute "Control A".
6. Choose the appropriate function listed on the screen to obtain data required by the Group Leader Technical Support.

ATTACHMENT III
PARSIPPANY TECHNICAL SUPPORT CENTER

TECHNICAL DOCUMENT INVENTORY

(Items contained in Room 225)

1. TMI - Emergency Plan
2. Emergency Plan Implementing Procedures:
 - 1004.27 - "Activation of the Near-Site Emergency Operation Facility"
 - 1004.3 - "Site Emergency"
 - 1004.4 - "General Emergency"
 - 1004.5 - "Communication and Recordkeeping"
 - 1004.34 - "Activation of the Parsippany Technical Support Center"
3. Logs:
 - Group Leader - Technical Support Log
 - TMI Telephone Communications Log Sheets
 - B and W Telephone Communication Log Sheets
4. Emergency Duty Rosters:
 - TMI-I On-Site
 - TMI-I Offsite Emergency Support Organization
5. Technical Documents:
 - TMI-I Baseline Engineering
 - Index of Detailed Tech References (for items located in Design Document Control Center)

ATTACHMENT IV-2

TMI-I INDICES

(On table in DDCC)

Drawings

As Built

Interim

Equipment List

Valve List

BM Vendor Drawing List

Manufacturer's Vendor List

Manufacturer's Code List

Instrument List

Linda List

Operating Procedure 1107 - 5 Electrical Distribution Component List

Piping Specialty List

Master Procedure Index - Unit I

Master Procedure Index - Unit II

TMI - II

Vendor Drawings

B and R Drawings

Valves

Instrument

Equipment Specialty