NINE MILE POINT NUCLEAR STATION

EMERGENCY PLAN IMPLEMENTING PROCEDURES

PROCEDURE NO. EPP-13

ON-SITE EMERGENCY RESPONSE FACILITIES OPERATIONS

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FOR INFORMATION ONLY

Summary of Pages

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THIS IS A GENERAL REWRITE

NIAGARA MOHAWK POWER CORPORATION

THIS PROCEDURE NOT TO BE USED AFTER July 1989
SUBJECT TO PERIODIC REVIEW.

EPP-13

ON-SITE EMERGENCY RESPONSE FACILITIES OPERATIONS

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EPP-13

ON-SITE EMERGENCY RESPONSE FACILITIES OPERATIONS

1.0 PURPOSE

1.1 The purpose of this procedure is to describe the activation and control functions of the on-site emergency response facilities. These facilities include the Control Rooms, Technical Support Center and Operations Support Center. This procedure also outlines the personnel staffing of these facilities.

1.2 This procedure does not address the Joint News Center (JNC), Alternate Joint News Center (AJNC), Emergency Operations Facility (EOF) and the Alternate EOF (AEOF). These facilities are discussed in the NMPC Corporate Emergency Response/Recovery Plan and Implementing Procedures (CPP's).

2.0 REFERENCES

2.1 NUREG-0654/FEMA-REP-1, Rev. 1 - Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants.

2.2 EAP-1, Activation and Direction of Emergency Plan

2.3 EAP-3, Emergency Personnel Action Procedure

2.4 EPP-5, Station Evacuation

2.5 EPP-8, On-Site and Off-Site Dose Assessment Procedure

2.6 EPP-20, Emergency Notifications

2.7 EPMP-3, Review and Revisions of Site Emergency Plan and Procedures

2.8 NMPC Corporate Emergency Response/Recovery Plan and Implementing Procedures (CPP's).

2.9 Stone and Webster Calculation 12177-PR(c)-23-C

3.0 EMERGENCY RESPONSE FACILITIES

3.1 Control Rooms

3.1.1 Unit I Location - The Control Room is located on Floor Elevation 277' of the Unit I Turbine Building.

3.1.2 Unit II Location - The Control Room is located on Floor Elevation 306' of the Unit II Control Building.

3.1.3 Function - During the initial stage of any emergency condition, the Control Room(s) is/are the primary location for the assessment and coordination of corrective and protective actions. It is equipped with annunciators and controls for major plant systems, as well as emergency communication systems. This area is also designed to protect personnel from radiation hazards and natural phenomena.

3.1.4 Staffing

a. Emergency Staffing Level I (EPP-13, Figure 1) consists of the minimum complement of personnel required to be present on-site during normal operations and would provide initial assessment of and response to an emergency condition. Staffing Level I personnel of a Control Room during emergency conditions include the following:

1. Station Shift Supervisor
2. Assistant Station Shift Supervisor
3. Chief Shift Operator
4. Nuclear Operator E
5. Nuclear Auxiliary Operator C
6. Auxiliary Operator B
7. Operator(s)-In-Training (if any)
8. Radiation Protection Technician
9. Chemistry Technician

b. The Site Emergency Director may determine additional staffing needs consistent with the emergency's severity.

c. Upon activation of the Technical Support Center or activation of Emergency Staffing Level II (EPP-13, Figure 2) or Level III (EPP-13, Figure 3), the following emergency control room advisory personnel will also report to the affected Control Room:

1. Station Superintendent
2. Unit Superintendent Operations-Nuclear
3. Unit Reactor Analyst Supervisor
4. Unit Instrumentation and Control Supervisor
5. Unit Supervisor or Chief Technician, Radiation Protection
6. NOTE: Unit Supervisor or Chief Technician, Chemistry, reports to chemistry lab.

d. The emergency advisory personnel listed above will initially report to the affected Control Room to be briefed by the SSS on plant status and corrective actions in progress. Their duties will be coordinated by the affected Unit Station Superintendent and will include interfacing with TSC personnel as required by the Site Emergency Director.

3.1.5 Habitability

If conditions in the Control Rooms are such that evacuation of the Control Room(s) is necessary, a decision will be made by the Site Emergency Director whether to transfer functions associated with the Control Room to the TSC, EOF, AEOF or other area. Should an evacuation of Control Room(s) personnel be required, it shall be done in accordance with EPP-19 "Site Evacuation Procedure".

3.2 Technical Support Center (TSC)

3.2.1 Location - The NMPNS site TSC, located in the Unit I Administration Building F1. El. 248' near both Control Rooms, serves both Units I and II. The TSC allows access to records and drawings which describe the as-built conditions and layout of plant structures, systems and components.

3.2.2 Function - The TSC provides the necessary area outside the Control Room(s) to accomplish the technical support necessary for the command and control of the emergency situation. These functions include furnishing in-depth diagnostic and corrective engineering assistance to Control Room emergency personnel.

3.2.3 Staffing

a. The TSC is activated during an Alert, Site Area Emergency or General Emergency, or when directed by the Site Emergency Director. In addition, during normal hours the TSC shall be staffed for any situation requiring a Station Evacuation. (See EPP-13, Figures 2, 3 and 4.)

b. The normal positions or expertises to staff the TSC for an Alert, Site Area Emergency or General Emergency when fully activated will include:

	Position Title or Expertise	Typical Staffing Designees*
1.	Site Emergency Director	Gen. Superintendent Nucl. Gen.
2.	Technical Data Coordinator & Staff	Technical Supt. & Staff
3.	Instrumentation & Control Coord.	Supt. I&C
4.	Reactor Analyst Coord.	Site Rx Analyst, Supv.
5.	Communication Coordinator & Staff	QA Operations Supv. & Staff
6.	Maintenance Coordinator	Maintenance Supt.
7.	Radiological Assessment Manager	Rad. Protection Mgr
8.	Radiological Assessment Staff	Chem. & Rad. Mgt. Staff
9.	Environmental Survey/Sample Team Coord.	Env. Prot. Coord.

* See EAP-3, Enclosures for Alternates

3.2.3 (Cont'd)

Position Title or Expertise	Typical Staffing Designee**
10. Station Survey/Sample Team Coord.	Chem. & Radio Chem. Supv.
11. TSC/EOF Liaison	Tech. Dept. Staff Member
*12. Security Coordinator	Security Representative
*13. Operations Engineering	A TSC/NELD Staff Member
*14. Mechanical Engineering	A TSC/NELD Staff Member
*15. Electrical Engineering	A TSC/NELD Staff Member
*16. TSC/NELD Coordinator	A TSC/NELD Staff Member
*17. Structural Engineering	A TSC/NELD Staff Member
*18. Radiological Engineering	A TSC/NELD Staff Member
19. Meteorological Advisor	Assistant Environmental Protection Coordinator
20. NRC Representatives (5)	

* - NMPC NELD Support Staff

** - See EAP-3, Enclosures for Alternates, except for positions #12-18.

3.2.4 Habitability

If radiological conditions in the TSC exceed 100 mR/hr $\beta + \gamma$ or 10xMPC (9E-8 µCi/cc I-131) airborne concentration, or if the TSC becomes uninhabitable for other reasons, a decision will be made by the Site Emergency Director whether to transfer functions associated with the TSC to the Control Room(s), EOF or AEOF. Should an evacuation of TSC personnel be required, it shall be conducted in accordance with EPP-19, Site Evacuation Procedure.

NOTES: (1) Due to the air shaft in the TSC Protective Equipment Room, infrequent access to this room is required to ensure habitability of the TSC.

(2) To ensure TSC habitability for 30 days following a LOCA, an air sample will need to be taken for I-131 concentration following TSC emergency ventilation system initiation. Compare I-131 results with EPP-13, Figure-12, "Determination of TSC Habitability following A DBA"

3.2.5 The protective equipment room is located across from the TSC conference room. Emergency supplies (respirators, protective clothing, etc.) are stored here. The room is not to be habitated continuously throughout a radiological emergency. Access to the room should be made only after a radiological survey is performed. The following sign is posted on the door "During Radiological Emergencies, Have a Radiological Survey Performed Prior to Entry."

3.3 TSC Emergency Ventilation System Activation

3.3.1 Turn key operated mode select switch from "Normal" to "Accident".

3.3.2 Confirm "Compressor Running" is operating by RED light being on. Log start time and date on Operation Log (EPP-13, Fig. 13).

3.3.3 Emergency ventilation system is now activated. To deactivate, turn key operated mode select switch (KS-2) from "Accident" to "Normal". Push "Start" button to reset "Compressor Running". Log stop time and date on Operation Log (EPP-13, Fig. 13) then record run time as indicated on log.

3.4 Operations Support Center (OSC)

3.4.1 Location - The Operations Support Center (OSC) is located in the Unit I Administrative Building and includes the Fl. El. 277' Lunchroom; Fl. El. 261' Lunchroom; Maintenance and Electrical Shops, Locker Rooms and Radiation Protection Office. The OSC is near emergency equipment storage cabinets, First Aid Room and a Decontamination Facility.

3.4.2 Function - The OSC is the area from which personnel and equipment necessary for the support of emergency operations can be dispatched (i.e., survey teams, damage control teams, fire/rescue/medical brigade).

3.4.3 Staffing

a. The OSC is activated during an Alert, Site Area Emergency or General Emergency, or when directed by the Site Emergency Director. In addition, during normal hours the OSC shall also be staffed for any situation requiring a Station Evacuation (see EPP-13, Figures 2, 3, 4).

b. The OSC coordinating positions shall be staffed by available first line supervisors or Chief Mechanics/Technicians by means of assignment or via designation by the Site Emergency Director.

The OSC organization shall include:

Position Title or Expertise	Typical Staffing Designees*
1. OSC Coordinator	Site Mech. or Electrical Maint. Supt. Nuclear
2. OSC Communicator	Unit Asst. Supervisor Mech. or Electrical Nuclear Maintenance
3. Personnel Accountability Coordinator	Unit Supervisor Electrical/Maint. Nuclear
4. Chemistry and Radiation Protection Team Coordinator	Unit Supervisors for Rad. Protection or Chemistry

*See EAP-3, Enclosures for Alternates.

3.4.3 (Cont'd)

Position Title or Expertise	Typical Staffing Designee**
5. Damage Control Team Coordinator	Unit Supervisor Electrical or Maint. Nuclear
6. NMP Fire Dept. Coordinator	Supervisor Fire Department
7. OSC I&C Coordinator	Designated Assistant Unit Supervisor I&C or I&C Staff Member
8. Storeroom Coordinator	A Nuclear Generation Storeroom Department Supervisor (NMPNS)

*See EAP-3, Enclosures for Alternates.

3.4.4 Habitability

If radiological conditions in the OSC exceed 100 mR/hr $\beta + \gamma$, or 10 x MPC (9E-8 µCi/cc I-131) airborne concentration or if these areas become uninhabitable for other reasons, the functions associated with the OSC may be transferred at the direction of the Site Emergency Director to the Control Room, TSC or EOF. Should evacuation of the OSC or other areas be required, it shall be conducted in accordance with EPP-19 "Site Evacuation Procedure".

4.0 ACTIVATION OF ON-SITE EMERGENCY RESPONSE FACILITIES

NOTE: This section is not applicable to the Control Room as no special actions are required to activate the Control Room as an emergency facility.

4.1 Activation of Technical Support Center

4.1.1 The first TSC staff member to arrive shall unlock the TSC door using a GM5 or GM key obtainable from the Control Rooms, activate the emergency ventilation system and enter date/time when started on log sheet (EPP-13, Fig. 13), enter his name on the assignment board (EPP-13, Figure 6j) and Accountability Log (EPP-13, Figure 5) and verify that equipment tables and chairs are arranged as indicated in EPP-13, Figure 7.

4.1.2 As other TSC staff members arrive they should enter their names on the Accountability Log and take up assignments and perform the following tasks:

Technical Data Coordinator and staff - activate process computer terminals and Control Room camera, and prepare to activate TSC status boards (EPP-13, Figures 6a through 6j). Instruct staff that all postings should contain the time the data was recorded, not the time of the posting of the data.

4.1.2 (Cont'd)

Radiological Assessment Manager and staff - Make a general announcement prohibiting smoking, eating and drinking until habitability surveys have been completed. Perform TSC habitability surveys (i.e., turn on and check VAMP and CAM), make recommendations on TSC habitability and need for TSC emergency ventilation system to continue operation. Activate radio system and Meteorological/Dose Assessment computer. Ensure step off pad and monitors are set up at entrance to TSC technical library.

Communications Coordinator and staff - Ensure hotlines, telecopiers and other communications equipment are ready for service.

4.2 Activation of Operations Support Center

4.2.1 As members of the Operations Support Center staff arrive, they will take up assignments according to their qualifications and perform their assigned tasks.

4.2.2 See EPP-3, Figure 10 for activation tasks.

5.0 CONDUCT OF OPERATIONS AT ON-SITE EMERGENCY RESPONSE FACILITIES

5.1 Control Room Staff

5.1.1 Supervisory personnel assigned to the Control Room(s) shall act as emergency advisors initially reporting to the Station Shift Supervisor. They will be briefed on plant status and corrective actions in progress. They will report through the Station Superintendent and act as technical advisors concerning actual or potential problems within their particular area of expertise/responsibility. They will analyze current and projected plant status and, through close communications and coordination with the TSC and Site Emergency Director, provide technical support and recommendations to emergency personnel. These personnel may provide backup to counterparts in the TSC to assure 24 hour per day coverage.

5.1.2 The Station Superintendent shall provide liaison between Control Room(s) operating staff, emergency advisory staff and the Site Emergency Director. He shall also provide technical and administrative direction in accident assessment and damage control operations.

5.1.3 Operations personnel on duty or reporting to the Control Room(s) shall, under the direction of the Chief Shift Operator or SSS, act to ensure the safe and proper operation of the plant including acts to mitigate off-normal conditions. They shall perform other activities as directed to assess plant conditions and correct problems.

5.1.4 The Station Shift Supervisor shall initially act as Site Emergency Director until relieved. As SSS he shall be responsible for direct supervision of operations personnel performing normal, off-normal or emergency actions in accordance with appropriate operating, special operating, or emergency operating procedures developed in response to the situation at hand.

5.2 Technical Support Center Staff

5.2.1 TSC General Rules of Conduct

General rules of conduct have been established for the Technical Support Center are provided in EPP-13, Figure 9. All personnel in the TSC shall adhere to these rules.

5.2.2 TSC Staff Emergency Responsibilities

a. A list of emergency responsibilities has been established in EAP-3 for each emergency position in the TSC with the exception of the Site Emergency Director which is provided by EAP-1.

b. The list of emergency responsibilities contained in EAP-3 are outlined below:

EAP-3 Reference	Position
Enclosure 2	Station Superintendent
" 3	Technical Data Coordinator
" 4	Instrument & Control Coordinator
" 5	Reactor Analyst Coordinator
" 6	Communications Coordinator
" 7	Maintenance Coordinator
" 8	Radiological Assessment Manager
" 9	Environmental Survey/Sample Team Coordinator
" 10	Station Survey/Sample Team Coordinator
" 11	Meteorological Advisor
" 12	Security Coordinator
" 13	TSC/EOF Liaison
" 14	TSC/NELD Coordinator

5.3 Operations Support Center Staff

5.3.1 OSC General Rules of Conduct

General rules of conduct have been established for the Operations Support Center and are provided in EPP-13, Figure 10. All OSC coordinating positions shall adhere to these rules and ensure they are observed by other personnel in the OSC.

5.3.2 OSC Staff Emergency Responsibilities

A list of emergency responsibilities are contained in EAP-3 and are outlined below:

EAP-3 Reference	Coordinating Position
Enclosure 15	OSC Coordinator
" 16	OSC Communicator
" 17	Personnel Accountability Coord.
" 18	Chemistry & Radiation Protection Team Coordinator
" 19	Damage Control Team Coordinator
" 20	NMP Fire Department Coordinator
" 21	OSC I&C Coordinator
" 22	Storeroom Coordinator

6.0 STATUS BOARDS

6.1 All status boards should be updated as new information becomes available or approximately every half hour.

6.2 The following status boards have columns for "trend" where some parameters having specific units (e.g.: °F, psig, K#/hr, etc.) may be tracked: EPP-13, Figures 6a.1, 6b.1, 6d.1, 6e, 6g, and 6h.

6.3 By placing a symbol (↑, ↓, →) in the space provided, the trend is shown by comparing the current reading with the last. The "↑" symbol means increasing, "↓" symbol means decreasing, "→" symbol means no change.

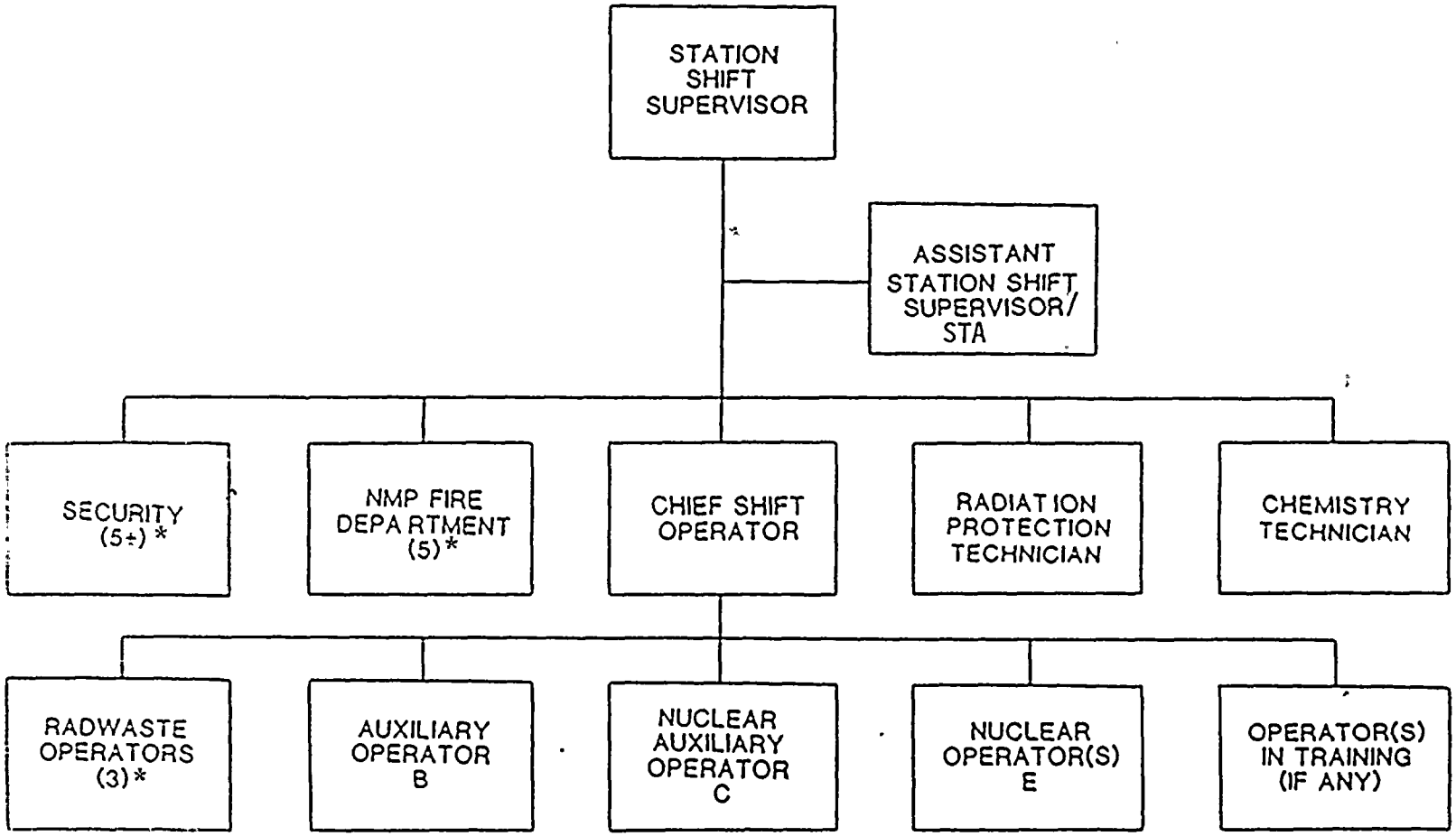
6.4 If equipment status changes, note this on the appropriate status board by striking through the previous status and entering the new status. (e.g. ~~/ X / open~~ / X / closed).

6.5 Post the time which data was recorded for the appropriate status board and not when the data was posted. Some data parameters have different times than other data parameters on the same status board. Note the appropriate times next to data parameter when appropriate.

6.6 All times entries shall be recorded on a twenty-four (24) hour clock (e.g. 1700 hrs).

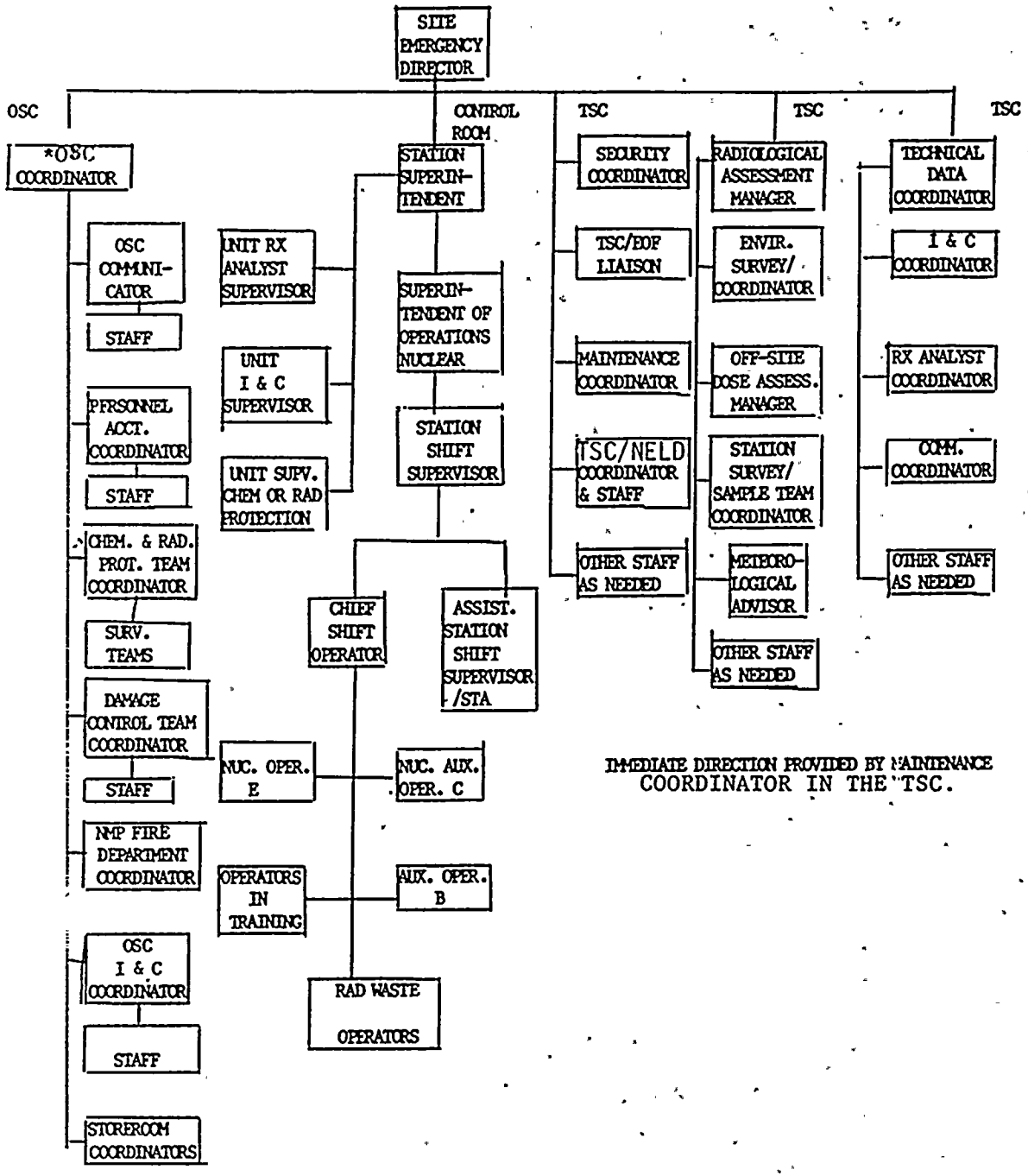
Figure 1

Emergency Response Organization - Staffing



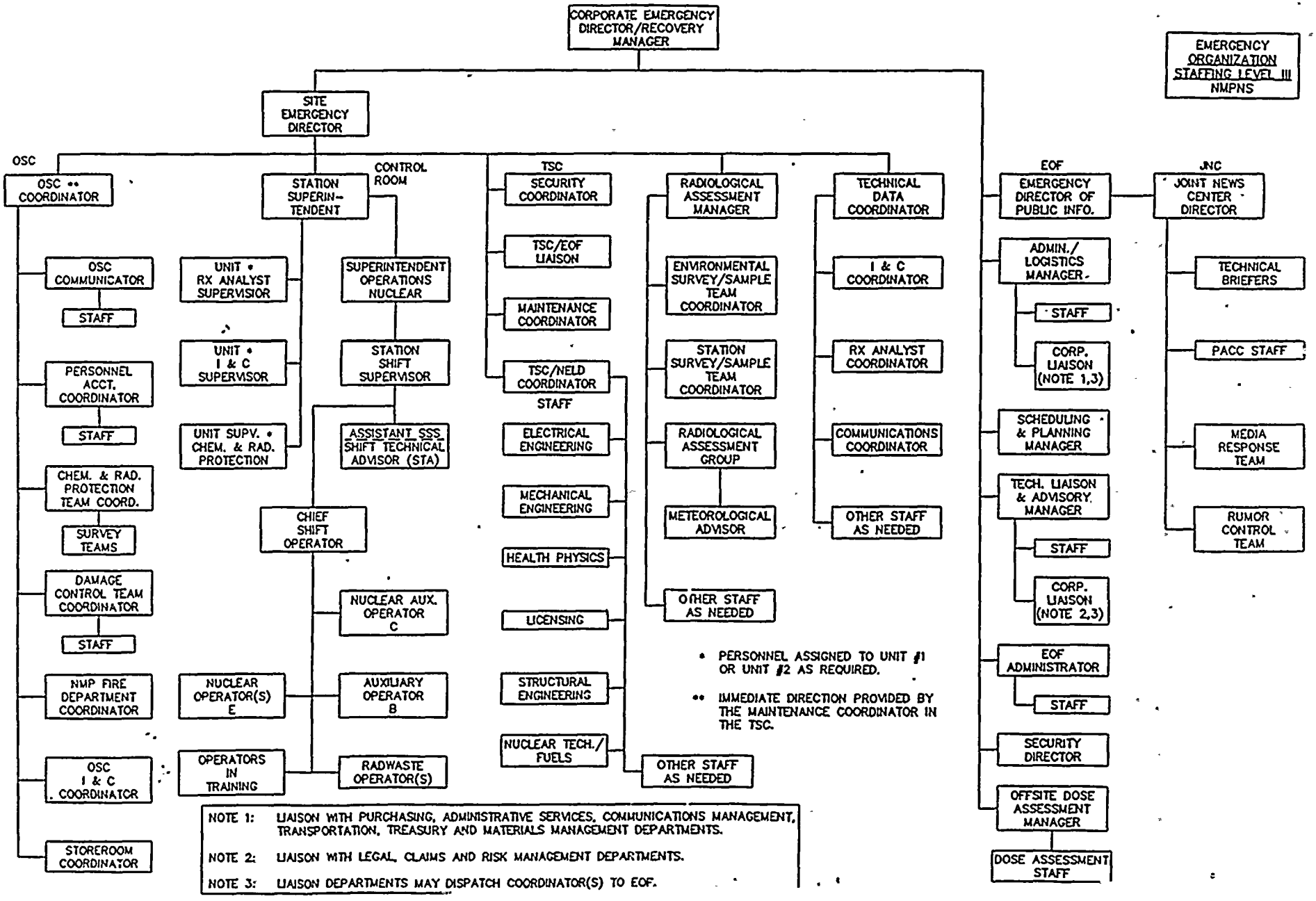
* = Minimum Staffing

EMERGENCY RESPONSE ORGANIZATION - STAFFING LEVEL II



EPP- Figure 3

STAFFING LEVEL III EMERGENCY RESPONSE ORGANIZATION
(Augmentation by Site and Corporate Personnel)



EPP-13, FIGURE 4

NMP EMERGENCY RESPONSE ORGANIZATION STAFFING AND ASSIGNED DUTIES

CONTROL ROOM

STAFFING	RESPONSIBILITIES
SSS on Duty Asst. SSS/STA CSO Operators on Shift & in Training	Maintain constant communications with the TSC and at the direction of the Site Emergency Director perform actions necessary to reduce the severity of the emergency
Station Superintendent	Provide liaison between Control Room operating staff, emergency advisory staff and Site Emergency Director; provide technical and administrative direction in accident assessment and damage control operations
Superintendent Operations-Nuclear	Perform emergency functions and maintenance; provide technical advise
Rx Analyst, Unit Supervisor I&C, Unit Supervisor Unit Supervisor, or Chief Technician, Chem or Rad Prot.	Assist Operations staff in accident assessment and damage control operations

TECHNICAL SUPPORT CENTER

POSITION/EXPERTISE	TYPICAL STAFFING DESIGNEE*	RESPONSIBILITIES
Site Emergency Director	General Supt. Nuclear	Direct emergency operations
Technical Data Coord.	Technical Supt. Nuclear	Assist Director in data collection
I&C Coord.	Supt. I&C	Advise Director on I&C problems
Rx Analyst Coord.	Site Supvr. Rx Analyst	Advise Director on core protection problems
Communications Coord.	Q.A. Program Manager - Nuclear	Maintain TSC communications
Maintenance Coord.	Site Maintenance Supt.- Nuclear	Direct emerg. repair activities

*See EAP-3, Enclosures for Alternates.

EPP-13, FIGURE 4 (cont.)

NMP EMERGENCY RESPONSE ORGANIZATION STAFFING AND ASSIGNED DUTIES

TECHNICAL SUPPORT CENTER (cont.)

POSITION/EXPERTISE	TYPICAL STAFFING**	RESPONSIBILITIES
Radiological Assessment Manager	Radiation Prot. Mgr	Overall radiological assessment
Environmental Survey/ Sample Team Coord.	Environmental Prot. Coord.	Direct environmental sampling teams
Station Survey/ Sample Team Coord.	Supvr. Chem. & Radiochemistry	Direct inplant sampling teams
Meteorological Advisor	Assistant Environmental Protection Coordinator	Advise on Meteorology
TSC/EOF Liaison	SSS of unaffected unit	Liaison with PACC Dept. and EOF
Security Coordinator	Supervisor Nuclear Security	Liaison to Site Emer. Dir. on security matters
*Mechanical Eng.	A TSC/NELD Staff Member	NELD advisors to the Site Emer. Director
*Electrical Eng.	A TSC/NELD Staff Member	"
*TSC/NELD Coordinator	A TSC/NELD Staff Member	"
*Operations Eng.	A TSC/NELD Staff Member	"
*Structural Eng.	A TSC/NELD Staff Member	"
*Radiological Eng.	A TSC/NELD Staff Member	"

*NMPC NELD Staff personnel will respond to an Alert, Site Area Emergency or General Emergency or when requested by the Site Emergency Director.

**See EAP-3, Enclosures for Alternates.

EPP-13; FIGURE 4 (cont.)

NMP EMERGENCY RESPONSE ORGANIZATION STAFFING AND ASSIGNED DUTIES

OPERATIONS SUPPORT CENTER

Position	Typical Staffing Designee*	Responsibilities
OSC Coordinator	Site Mech. or Elect. Maint. Supt. - Nuclear	Direct OSC operations
OSC Communicator	Unit Asst. Supervisor Mech. or Elect. - Nuclear	Maintain OSC communication
Personnel Accountability Coord.	Unit Supvr. Mech. or Elect. Maint. - Nuclear	Account for Station personnel
Chem. & Rad. Prot. Team Coordinator	Unit Supvr. for Rad. Protection or Chemistry	Surveys, sampling
Damage Control Team Coordinator	Unit Supervisor Mech. or Elect. Maint. - Nuclear	Repair and damage control
NMP Fire Dept. Coordinator	Supervisor Fire Protection	Fire/Rescue/Medical Brigade
OSC I&C Coordinator	Designated Assistant Unit Supervisor I&C	Repair and damage Control
Storeroom Coordinator	A Nuclear Generation Storeroom Department Supervisor	Issuance of equipment and supplies

NOTE: The Site Emergency Director will assign duties in the absence of the person usually occupying the position (using approved personnel lists in EPMP-3).

*See EAP-3, Enclosures for Alternates.

FIGURE 5

ACCOUNTABILITY LOG

FACILITY LOCATION _____ DATE: ___/___/___
MM DD YY

Name	Dept/Company	Time-In	Time-Out	Destination	Emergency Role/ Position

P L A N T S T A T U S B O A R D / U N I T # 1

MAJOR PARAMETERS

RX PRESSURE	PSIG
RX TEMP	F
RX LEVEL	IN
RX SHUTDOWN	
APRM	%
POWER LEVEL	MWE
	MWT
DRYWELL TEMP	F
DRYWELL PRESS	PSIG
TORUS PRESS	PSIG

SAFEGUARDS STATUS

EMER CNDSRS	RV#11	
	RV#12	
LIQ POISON SYS:	PMP11	
	PMP12	
DW INERT & CAD SYS		
EMER VENT SYS		
STEAM FLOW		K#/HR
CORE FLOW		K#/HR
PRIMARY CONT (DRYWELL)		
SECONDARY CONT (RX BLDG)		

SAFETY INJECTION MODES

FEEDWATER FLOW		K#/HR
CRD FLOW:	PMP11	K#/HR
	PMP12	K#/HR
CORE SPRAY:	LOOP 111/112	
	HDR 11-12 FLOW	
HPCI STATUS		

MISC SYS/COMPONENTS STATUS

PRESSURE RELIEF VALVES (ERV)

108A 108B 108C 108D 108E 108F

SAFETY VALVES

MSIV'S

	111	112	121	122
TORUS WATER TEMP				F
TORUS WATER LVL				FT
COND STOR TNK LVL				FT

RX WTR CLEANUP SYS

	PMP11	PMP12	AUX.	I.V.
ADS				
CONTAINMENT SPRAY SYSTEM				
TORUS COOLING MODE				
CNTNMNT SPRAY MODE				
	PMP11			
	PMP12			
SHUTDOWN COOLING:	PMP11			
	PMP12			
	PMP13			

POWER AVAILABILITY SCHEMES

OFFSITE:	115KV (NORTH)
	115KV (SOUTH)
ONSITE:	DIESEL GEN. 102
	DIESEL GEN. 103
	BATTERY BOARD 11
	BATTERY BOARD 12

EPP-13, Figure 6a
COMPUTER DISPLAY FORMAT
PLANT STATUS BOARD/UNIT 1

NIAGARA MOHAWK — NINE MILE POINT NUCLEAR STATION — PLANT STATUS BOARD UNIT #1

DATE _____ (M/D/Y)

TIME _____ (24 HR.) (Process Computer Displayed Time)

MAJOR PARAMETERS

	TREND*
Rx Pressure _____ psig	
Rx Temp. _____ °F	
Rx Level _____ in	
Rx Shutdown (manual) ☐ Yes ☐ No _____ time	
APRM _____ %	
Rx Power Level _____ MwE	
_____ MwT	
Drywell Temp. _____ °F	
Drywell Pressure _____ psig	
Torus Pressure _____ psig	

SAFEGUARDS STATUS

Emer Condensors RV #11 ☐ Open ☐ Close

RV #12 ☐ Open ☐ Close

Liq. Poison Sys PMP 11 ☐ On ☐ Off

PMP 12 ☐ On ☐ Off

DW Inert & CAD Sys ☐ Oper ☐ Standby ☐ Inop

Emer. Vent Sys. ☐ Norm ☐ Offn

Steam Flow _____ K#/hr

Core Flow _____ K#/hr

Primary Cont. Integrity (Drywell) (manual) ☐ Yes ☐ No

_____ time

Secondary Cont Integrity (Rx Bldg.) (manual) ☐ Yes ☐ No

_____ time

SAFETY INJECTION MODES

Feedwater Flow _____ K#/hr

CRD Flow PMP 11 _____ K#/hr

PMP 12 _____ K#/hr

Core Spray Loop 111/112 ☐ Norm ☐ Offn

HDR 11-12 Flow ☐ Norm ☐ Offn

HPCI Status ☐ Yes ☐ No

MISC. SYS/COMPONENTS STATUS

Pressure Relief Valves (ERV)

108A	108B	108C	108D	108E	108F
☐ Norm ☐ Offn	☐ Norm ☐ Offn	☐ Norm ☐ Offn	☐ Norm ☐ Offn	☐ Norm ☐ Offn	☐ Norm ☐ Offn

Safety Valves ☐ Norm ☐ Offn

MSIV's

111	112	121	122
☐ Open ☐ Close	☐ Open ☐ Close	☐ Open ☐ Close	☐ Open ☐ Close

	TREND*
Torus Water Temp _____ °F	
Torus Water Lvl. _____ ft.	
Cond. Stor. Tnk. Lvl. _____ ft.	

Rx Wtr. Cleanup Sys.

PMP 11	PMP 12	AUX	I.V.
☐ Norm ☐ Offn	☐ Norm ☐ Offn	☐ Norm ☐ Offn	☐ Norm ☐ Offn

ADS (manual) ☐ Oper ☐ Standby ☐ Inop _____ time

Containment Spray System

Torus Cooling Mode ☐

Containment Spray Mode ☐ Oper ☐ Standby ☐ Inop

PMP 11 ☐ On ☐ Off

PMP 12 ☐ On ☐ Off

Shutdown Cooling: PMP 11 ☐ Oper ☐ Standby ☐ Inop

(manual) PMP 12 ☐ Oper ☐ Standby ☐ Inop

PMP 13 ☐ Oper ☐ Standby ☐ Inop

Drywell (manual) _____ time

Hydrogen concentration _____ %

Oxygen concentration _____ %

POWER AVAILABILITY SCHEMES

Offsite 115KV (North) _____ KV

115 KV (South) _____ KV

Onsite Diesel Gen 102 ☐ Yes ☐ No

Diesel Gen. 103 ☐ Yes ☐ No

Battery Board 11 ☐ Norm ☐ Offn

Battery Board 12 ☐ Norm ☐ Offn

*TREND SYMBOLS: ↑ = INCREASING, ↓ = DECREASING, → = NO CHANGE

MAJOR PARAMETERS

RX PRESSURE	10.25	PSIG
RX TEMP (MANUAL)		DEGF
RX LEVEL	*	IN
RX SHUTDOWN (MANUAL)	☐ YES	☐ NO
APRM	.60	%
POWER LEVEL (MANUAL)		MWE MWT
DRYWELL PRESSURE	.00	PSIG
DRYWELL TEMP	350.15	DEGF
SUPPRESSION POOL:		
AIR TEMP	77.25	DEGF
AIR PRESS	.04	PSIG
WATER TEMP	79.80	DEGF
WATER LEVEL	200.28	FT

SAFEGUARD STATUS

STANDBY LIQ. TNK LVL	5435.6	GAL
STANDBY LIQ. FLOW	10.15	GPM

SGTS: (MANUAL)
☐ OPER ☐ STNDBY ☐ INOP

CONTAINMENT INTEGRITY: (MANUAL)

PRIMARY	☐ YES	☐ NO
SECONDARY	☐ YES	☐ NO

MISC SYSTEM/COMPONENTS

SAFETY RELIEF VALVES ☐ OPEN ■ CLOSED

ADS ☐ OPEN ☐ CLOSED

RX WATER CLEANUP SYSTEM: (MANUAL)
☐ OPER ☐ STNDBY ☐ INOP

RESIDUAL HEAT REMOVAL SYSTEMS: (MANUAL)

MODE	(A,B,C) LOOP
☐ LOW PRESSURE COOLANT INJ.	▬
☐ CONTAINMENT SPRAY	▬
☐ SHUTDOWN COOLING	▬
☐ STEAM CONDENSING	▬
☐ SUPPRESSION POOL COOLING	▬
☐ SUPPRESSION POOL SPRAY	▬

DRYWELL:

HYDROGEN CONCENTRATION	.02 %
OXYGEN CONCENTRATION	.00 %

EPP-13
Figure 6.b.
Computer Display Format
PLANT STATUS BOARD/UNIT 2

FIGURE 6b.1

NOTIFICATION FACT SHEET - PART III

(PLANT PARAMETER FACT SHEET - Unit II)

NIAGARA MOHAWK | **NINE MILE POINT NUCLEAR STATION** | **PLANT STATUS BOARD UNIT #2**

DATE _____
M/D/Y

TIME	MAJOR PARAMETERS	TREND*
	Rx Pressure _____ psig	
	Rx Temp (manual) _____ °F	
	Rx Level _____ in	
	Rx Shutdown (manual) ☐ Yes ☐ No	
	APRM _____ %	
	Power Level (manual) _____ MwE	
	(manual) _____ MwT	
	Drywell Pressure _____ psig	
	Drywell Temp _____ °F	
	Suppression Pool Air Temp _____ °F	
	Air Pres. _____ psig	
	Water Temp _____ °F	
	Water Level _____ ft.	
	SAFEGUARDS STATUS	
	Standby Liq Tank Level _____ × 10³ gal.	
	Standby Liq Flow _____ gpm	
	SGTS (manual) ☐ Operating ☐ Standby ☐ Inoperative	
	Containment Integrity (manual)	
	Primary ☐ Yes ☐ No	
	Secondary ☐ Yes ☐ No	
	SAFETY INJECTION MODES	
	Feedwater Flow _____ K#/hr.	
	Control Rod Drive (manual)	
	Operating Standby Inoperative	
	High Pressure Core Spray _____ gpm	
	Low Pressure Core Spray _____ gpm	
	LPCI Loop A _____ gpm	
	Loop B _____ gpm	
	Loop C _____ gpm	
	Rx Core Isol Cooling _____ gpm	
	Service Water (manual)	
	Available ☐ Not Available	

TIME	MISC. SYSTEM/COMPONENTS	TREND*
	Safety Relief Valves ☐ Open ☐ Closed	
	ADS ☐ Open ☐ Closed	
	Rx Water Cleanup System (manual) ☐ Oper ☐ Standby ☐ Inop	
	Residual Heat Removal Systems (manual)	
	Mode / (A, B, C) Loop	
	☐ Low Pressure Coolant Inj _____	
	☐ Containment Spray _____	
	☐ Shutdown Cooling _____	
	☐ Steam Condensing _____	
	☐ Suppression Pool Cooling _____	
	☐ Suppression Pool Spray _____	
	Drywell Hydrogen Concentration _____ %	
	Oxygen Concentration _____ %	
	POWER AVAILABLE	
	Offsite: (manual)	
	115 KV Scriba A	
	☐ Available ☐ Not Available	
	115 KV Scriba B	
	☐ Available ☐ Not Available	
	Onsite:	
	Diesel Generator (manual)	
	Oper Standby-Run Standby S/D Inop	
	Div 1 ☐	
	Div 2 ☐	
	Div 3	
	4 KV Emergency Bus	
	Available Not Available	
	Div 1	
	Div 2	
	Div 3	
	Emergency Batteries	
	Available Not Available	
	Div 1	
	Div 2	
	Div 3	
	Normal Battery (manual)	
	☐ Available ☐ Not Available	

*TREND SYMBOLS: ↑ = INCREASING, ↓ = DECREASING → = NO CHANGE

EQUIPMENT STATUS BOARD

NIAGARA MOHAWK | NINE MILE POINT NUCLEAR STATION

EQUIPMENT STATUS BOARD

DATE

TIME	EQUIP. TITLE	CONDITION

: COMMAND : I=INSERT, D=DELETE, M=MODIFY)

[illegible] SCREEN NO. COMMAND
DEST SUCCESSFULLY EXECUTED.

P R O C E S S R A D M O N I T O R B O A R D / U N I T # 1

STACK EFFLUENT MONITORS

07	CPM	UCI/S
08	CPM	UCI/S
11		CPS
12		CPS

HI RNGE STACK EFF(MANUAL) MR/HR

RADEMS (MANUAL)

1 PARTICULATE	UCI/CC
2 IODINE	UCI/CC
3 NOBLE GAS	UCI/CC
STACK FLOW	KCFM

CONTAINMENT HIGH RANGE

ELE	263	R/HR
	301	R/HR

REACTOR BLDG VENT RAD. MONITORS

CH 11	MR/HR
12	MR/HR

MAIN STEAM LINES

111	MR/HR
121	MR/HR
112	MR/HR
122	MR/HR

EMERGENCY CONDENSOR MONITORS

111	MR/HR
121	MR/HR
112	MR/HR
122	MR/HR

OFFGAS MONITORS

CH 11	MR/HR
CH 12	MR/HR

RADWASTE DISCHARGE MONITORS

A	CPS
D	CPS

SERVICE WATER MONITOR

CPS

CONTINUOUS AIR MONITORS (MANUAL)

DRYWELL	UCI/CC
RX. BLDG. VENT	UCI/CC
TURBINE BLDG. VENT	UCI/CC
RADWASTE EL. 261'	UCI/CC
TECH. SUPP. CTR.	UCI/CC
EMER. OPER. FAC.	UCI/CC

DATE 05-09-86 TIME 134935

EPP-13, Figure 6d
COMPUTER DISPLAY FORMAT
PROCESS/RAD MONITOR BOARD/UNIT 1

"TRIPLICATE FORM AND STATUS BOARD FORMAT"

NIAGARA MOHAWK | NINE MILE POINT NUCLEAR STATION | PROCESS RAD MONITOR BOARD/UNIT #1

DATE _____ M/D/Y

TIME	MONITOR	READING	TREND*
	STACK EFFLUENT MONITORS		
	07 _____ cpm _____	µCi/sec	
	08 _____ cpm _____	µCi/sec	
	11 _____ cps _____	µCi/sec	
	12 _____ cps _____	µCi/sec	
	Hi Rnge Stack Ell (Manual) _____	mR/hr	
	RAGEMS (MANUAL)		
	1 Particulate _____ µCi/cc _____	µCi/sec	
	2 Iodine _____ µCi/cc _____	µCi/sec	
	3 Noble Gas _____ µCi/cc _____	µCi/sec	
	Stack Flow _____	KCFM	
	CONTAINMENT HIGH RANGE		
	Elev. 263' _____	R/hr	
	301' _____	R/hr	
	REACTOR BLDG. VENT RAD. MONITORS		
	CH 11 _____	mR/hr	
	12 _____	mR/hr	
	MAIN STEAM LINES		
	111 _____	mR/hr	
	121 _____	mR/hr	
	112 _____	mR/hr	
	122 _____	mR/hr	

TIME	MONITOR	READING	TREND*
	OFFGAS MONITORS		
	CH 11 _____	mR/hr	
	CH 12 _____	mR/hr	
	RADWASTE DISCHARGE MONITORS		
	A _____	cps	
	D _____	cps	
	SERVICE WATER MONITOR		
	_____	cps	
	EMERGENCY CONDENSOR MONITORS		
	111 _____	mR/hr	
	121 _____	mR/hr	
	112 _____	mR/hr	
	122 _____	mR/hr	
	CONTINUOUS AIR MONITORS (MANUAL)		
	Drywell _____	µCi/cc	
	RX Bldg. Vent _____	µCi/cc	
	Turbine Bldg Vent _____	µCi/cc	
	Radwaste El. 261' _____	µCi/cc	
	Tech. Supp. Ctr _____	µCi/cc	
	Emer Oper. Fac _____	µCi/cc	
	_____	µCi/cc	
	_____	µCi/cc	

*TREND SYMBOLS: ↑ = INCREASING, ↓ = DECREASING, → = NO CHANGE

TRIPLICATE FORM AND STATUS BOARD - PROCESS RAD MONITOR BOARD/UNIT 2

NIAGARA MOHAWK — NINE MILE POINT NUCLEAR STATION

PROCESS RAD MONITOR BOARD/UNIT #2

DATE _____ M/D/Y

TIME	MONITOR: #/NAME	READING	TREND*
	GEMS - TB/SGTS-STACK RE 170		
	Station (Manual)		
	1. Particulate	µCi/sec	
	2. Iodine	µCi/sec	
	3. Noble Gas	µCi/sec	
	Stack Flow	SCFM	
	GEMS - Rx/RW BLDG - VENT RE 180		
	Station (Manual)		
	1. Particulate	µCi/sec	
	2. Iodine	µCi/sec	
	3. Noble Gas	µCi/sec	
	Vent Flow	SCFM	
	SERVICE WATER MONITORS		
	82-SW146A	µCi/ml	
	91-SW146B	µCi/ml	
	RAD WASTE LIQUID EFFLUENT MONITOR		
	8-LWS206	µCi/ml	
	COOLING TOWER BLOWDOWN		
	70-CWS157	µCi/ml	
	RHR SERVICE WATER EFFLUENT		
	81-SWP23A	µCi/ml	
	90-SWP23B	µCi/ml	
	REACTOR BUILDING VENTILATION (SGTS OFF)		
	Above		
	77-HVR14A CH1	µCi/cc	
	CH2	µCi/cc	
	86-HVR14B	µCi/cc	
	Below		
	78-HVR32A CH1	µCi/cc	
	CH2	µCi/cc	
	87-HVR32B	µCi/cc	
	STANDBY GAS TREATMENT (POST TREATMENT)		
	68-GTS105	µCi/cc	
	OFF GAS MONITORS (BEFORE CHARCOAL)		
	63-OFG13A	µCi/cc	
	64-OFG13B	µCi/cc	

TIME	MONITOR: #/NAME	READING	TREND*
	CONTAINMENT HIGH RANGE DRYWELL AREA EL 261		
	79-RMS1A	R/hr	
	88-RMS1B	R/hr	
	80-RMS1C	R/hr	
	89-RMS1D	R/hr	
	Above suppression pool:		
	27-RMS139	R/hr	
	MAIN STEAM RAD MON. (Manual)		
	MSS 46A	mR/hr	
	MSS 46B	mR/hr	
	MSS 46C	mR/hr	
	MSS 46D	mR/hr	
	CONTINUOUS AIR MONITORS		
	DRYWELL ATMOSPHERE		
	74-CMS10A CH1	µCi/cc	
	CH2	µCi/cc	
	83-CMS10B CH1	µCi/cc	
	CH2	µCi/cc	
	Rx BUILDING VENT/RECIRC. MODE (SGTS ON)		
	39-HVR229 CH1	µCi/cc	
	CH2	µCi/cc	
	AUX BAY VENT N.		
	34-HVR237 CH1	µCi/cc	
	CH2	µCi/cc	
	AUX BAY VENT S.		
	35-HVR238 CH1	µCi/cc	
	CH2	µCi/cc	
	TURBINE BUILDING VENT		
	65HVT206 CH1	µCi/cc	
	CH2	µCi/cc	
	RAD WASTE EQUIPMENT EXHAUST		
	16-HVW195 CH1	µCi/cc	
	CH2	µCi/cc	
	RAD WASTE TANK EXHAUST		
	17-HVW196 CH1	µCi/cc	
	CH2	µCi/cc	
	RAD WASTE BLDG VENTILATION		
	18-HVW197 CH1	µCi/cc	
	CH2	µCi/cc	

*TREND SYMBOLS: ↑ = INCREASING, ↓ = DECREASING, → = NO CHANGE

NIAGARA MOHAWK 313-013 N04-83 **SURVEY/SAMPLE STATUS BOARD** SYMBOL NO. 55-32-100

DATE ☐ INPLANT ☐ DOWNWIND

TIME	LOCATION	ERPA	TYPE	RESULTS

PROTECTIVE ACTION RECOMMENDATIONS

TIME	LOCATION	ERPA	TYPE	RESULTS

NIAGARA MOHAWK | NINE MILE POINT NUCLEAR STATION

AREA RADIATION MONITORS/UNIT #1

DATE_____ M / D / Y

TIME_____ (24 HR.) (Process Computer Displayed Time)

#	LOCATION	RESULTS (mR/hr.)	TREND*
1	TB 261' SE		
2	RB 318' New Fuel Storage Area		
3	TB 277' Control Room NW		
4	TB 300' Turbine-Gen. End		
5	TB 300' Turbine-Feed Pump End		
6	TB 261' Cond. Pump Valve Corr.		
7	TB 261' Feed Pump Area		
8	TB 261' Switchgear Area		
9	TB 257' Cond. Demin. Valve Area		
10	TB 261' Regen. Area		
11	TB 261' NW-MUD Area		
12	Old W.B. 225' Drum Fill. Op. Aisle		
13	Old W.B. 229' Pump Room		
14	W.B. 261' Radwaste Control Rm.		
15	Old W.B. 261' Stor. and Ship. Area		
16	RB 249' TIP Area		
17L	RB 340' Operator's Platform		
17H	RB 340' Operator's Platform		
18	RB 340' Em. Cond. Shld. Wall		
19	RB 198' NE-RB Eq. Drain Tank Area		
20	RB 298' W-RB Cl. Loop Cool Area		
21	RB 261' NE-Clean Up Pump Area		
22	RB 281' NE-Rx Fuel Pool Cool. Sys. Area		
23	RB 237' NW-Cont. Rod. Dr. Mod. Area		
24	TB 277' SE - I&C Results Shop		
25	TB 261' High Level Lab.		
26	RB 340' E-Sp. Fuel Pool Area		
27	TB 261' Lg. Eq. Decon. Room		
28	RB 318' NW-Cont. Sp. Heat Ex. Area		
29	RB 237' Rx N. Inst. Rm.		
30	WB 261' NW - Decon. Sink Area		
31	WB 247' NW - West Wall		
32	WB 229' NW - South Wall		
33	OGB 229' - West Wall		
34			
35			

*TREND SYMBOLS: ↑ = INCREASING, ↓ = DECREASING, → = NO CHANGE

NIAGARA MOHAWK | NINE MILE POINT NUCLEAR STATION

AREA RADIATION MONITORS/UNIT #2

DATE _____ (M/D/Y)

TIME _____ (24 HR.) (DRMS Computer Displayed Time)

#-ARM MON.	LOCATION	RESULTS (mR/hr.)	TREND*
28-RMS2A	RB 215' Recirc. Pump Inst. Pnl A		
26-RMS2B	RB 215' Recirc. Pump Inst. Pnl B		
29-RMS101	Aux. By N. 175' RHS Ht. Exch. Equip. Rm		
33-RMS102	RB 175' Equip. Drains Sumps & Pumps E		
32-RMS103	Aux. By S. 175' RHS Ht. Exch. Equip. Rm		
31-RMS104	RB 175' Equip. Drains Sumps & Pumps W		
25-RMS105	RB 240' TIP Drive Mech. Equip. Area		
22-RMS106	RB 261' Entrance Area		
19-RMS108	RB 289' SE CRD Maint. Area		
71-RMS130	CB 261' Remote Shtdn Pnl Area		
23-RMS143	RB 261' CRD Module Area N		
21-RMS144	RB 261' CRD Module Area S		
24-RMS145	RB 240' Sample Sink		
60-RMS191	TB 306' Low-Level Count Rm Vital Area Monitor		
59-RMS192	TB 306' Gas Eff. Monitor Area Vital Area Monitor		
69-RMS193	Main Stack 261' Gas Eff. Monitor Area Vital Area Monitor		
43-RMS111	RB 354' Fuel Handling Platform		
42-RMS112	RB 354' Fuel Handling Platform		

*TREND SYMBOLS: ↑ = INCREASING, ↓ = DECREASING, → = NO CHANGE

EMERGENCY EVENTS STATUS BOARD

NIAGARA MOHAWK | NINE MILE POINT NUCLEAR STATION | EMERGENCY EVENTS STATUS BOARD

DATE

TIME	EVENT

EMERGENCY FACILITIES STAFF

CONTROL ROOM STAFF - UNIT 1

- Station Supt. _____
  - Rx Analyst Supv. _____
  - I&C Supv. _____
  - Rad Prot. Supv. _____
  - Supt. Oper. Nuclear _____
- Sta. Shift Supv. _____
  - Asst. SSS/STA _____
  - Chief Shift Oper. _____

NRC _____

_____ _____

_____ _____

CONTROL ROOM STAFF - UNIT 2

- Station Supt. _____
  - Rx Analyst Supv. _____
  - I&C Supv. _____
  - Rad Prot. Supv. _____
  - Supt. Oper. Nuclear _____
- Sta. Shift Supv. _____
  - Asst. SSS/STA _____
  - Chief Shift Supv. _____

NRC _____

_____ _____

_____ _____

TECHNICAL SUPPORT CENTER STAFF

- Site Emergency Director _____
  - Maintenance Coord. _____
  - TSC/EOF Liaison _____
  - Security Coord. _____
  - TSC/NELD Coord. _____
  - Rad. Assmt. Mgr. _____
    - Env. Surv./Sample Team Coord.* _____
    - Sta. Surv./Sample Team Coord. _____
    - Met. Advisor* _____
  - Tech. Data Coord. _____
- Communication Coord. _____
  - I&C Coord. _____
  - Rx Analyst Coord. _____

NRC _____

_____ _____

_____ _____

* Reports to EOF when activated.

OPERATIONS SUPPORT CENTER STAFF

- OSC Coordinator _____
  - OSC Communicator _____
  - Personnel Acct. Coord. _____
  - Chem/Rad Prot. Team Coord. _____
  - Damage Control Team Coord. _____
  - NMP Fire Dept. _____
  - OSC I&C Coord. _____
  - Storeroom Coord. _____

_____ _____

_____ _____

EMERG. OPERATIONS FACILITY STAFF

- Corporate Emerg. Dir./Recovery Mgr. _____
  - Technical Liaison/Advisor Mgr. _____
  - Administrative/Logistics Mgr. _____
  - Scheduling/Planning Mgr. _____
  - Security Director _____
  - Emerg. Dir. of Public Info.** _____
  - Off-Site Dose Assmt. Mgr. _____
    - Env. Surv./Sample Team Coord.* _____
    - Met. Advisor* _____
  - EOF Administrator _____

NRC _____

FEMA _____

NY State _____

Oswego County _____

NYPA _____

_____ _____

_____ _____

* Reports to EOF when activated.

** Reports to Joint News Center when activated.

JOINT NEWS CENTER

Joint News Center Director _____

Emerg. Dir. of Public Info.** _____

** Reports to Joint News Center when activated.

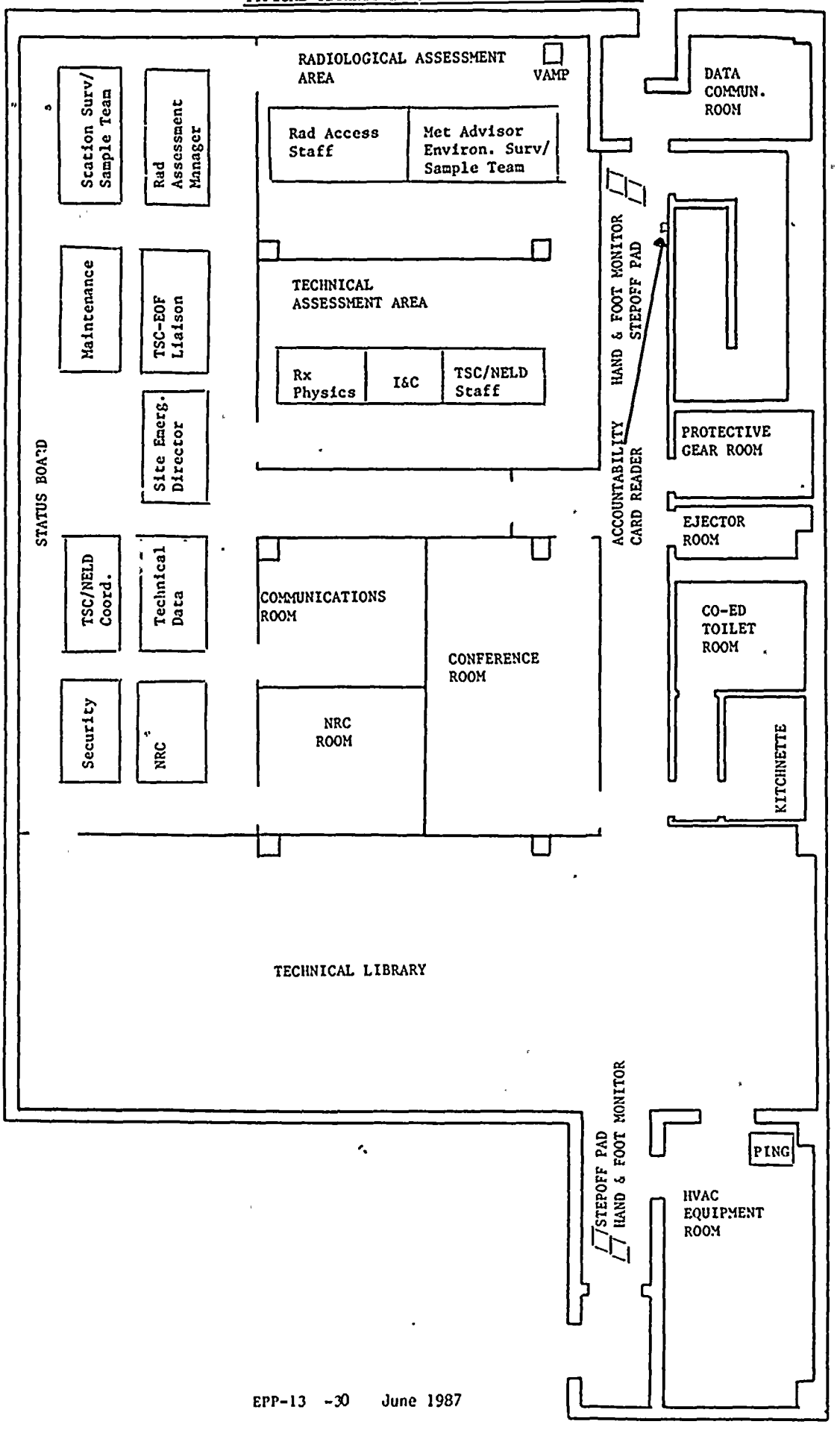
CORP. EMERG. OPERATIONS CENTER

Corporate EOC/NELD Coordinator _____

EPP-13, Figure 6j
EMERGENCY FACILITIES STAFF

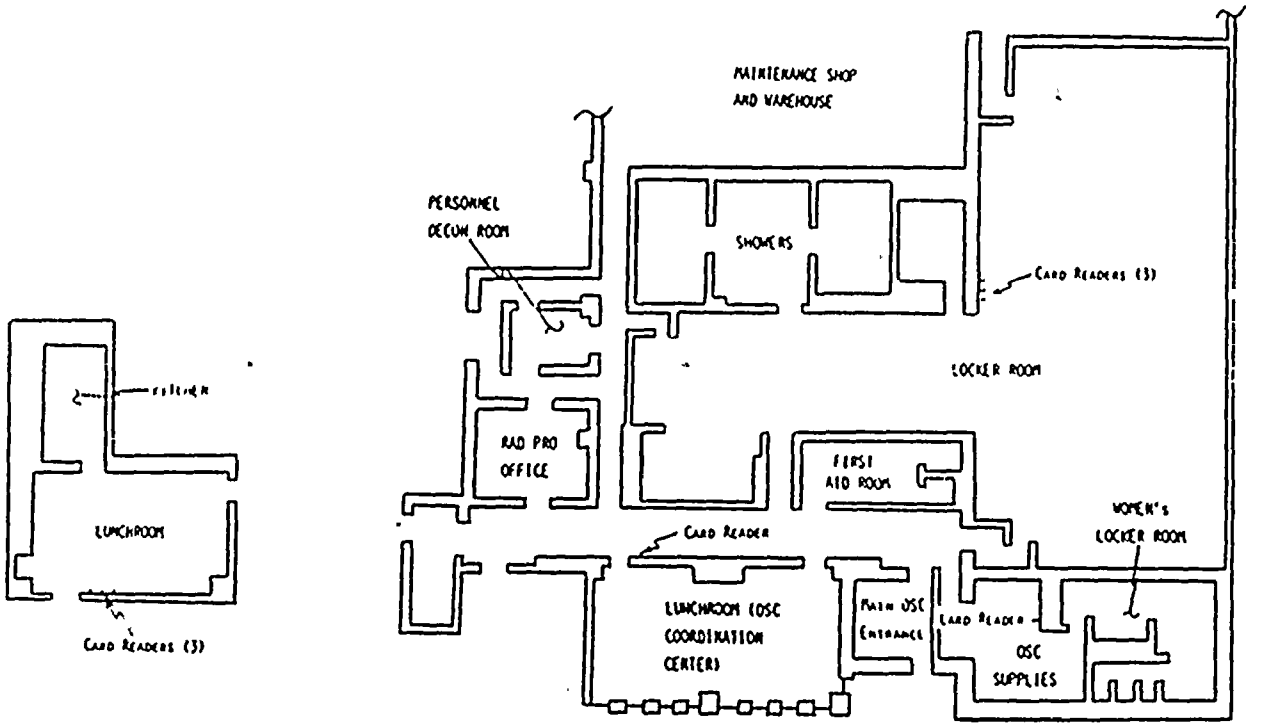
FIGURE 7

TYPICAL TECHNICAL SUPPORT CENTER ARRANGEMENT



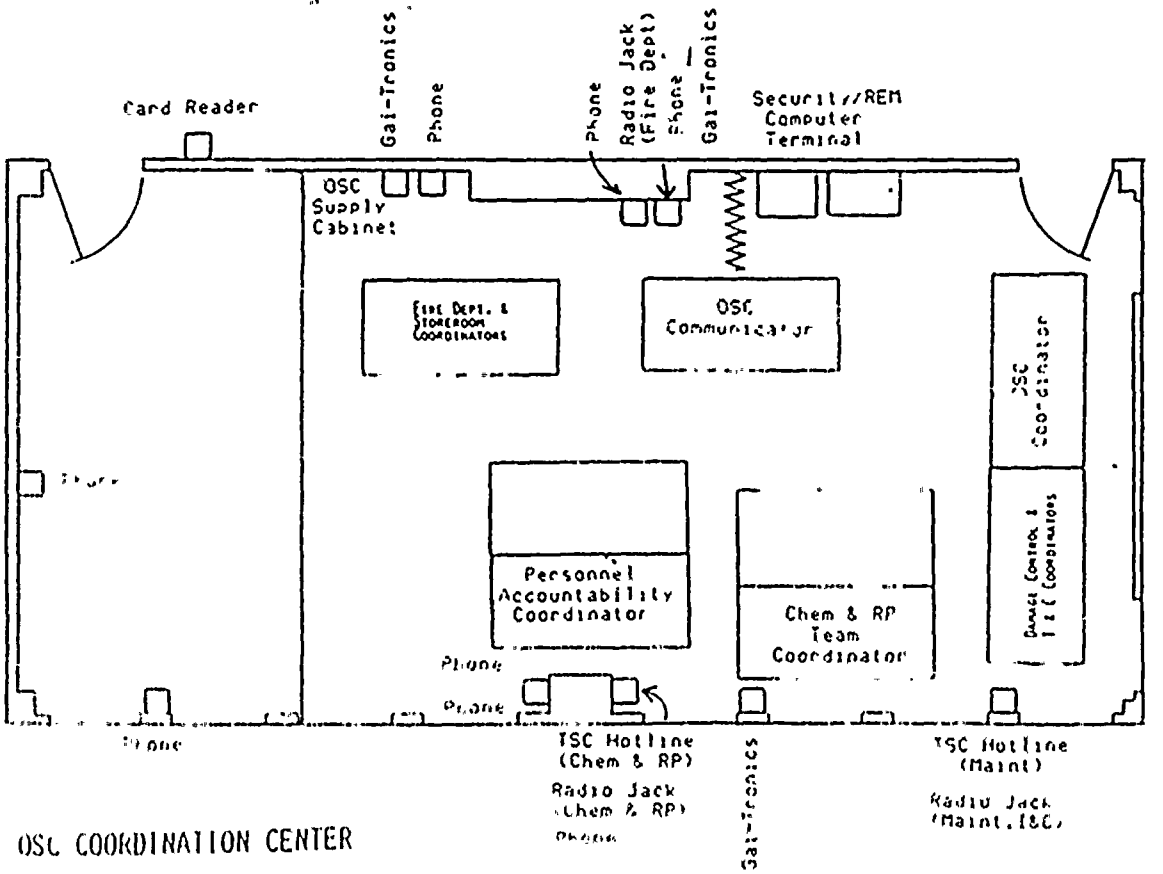
EPP-13
FIGURE 8

OPERATIONS SUPPORT CENTER ARRANGEMENT



ADMIN BLDG 277' EL

ADMIN BLDG 261' EL



OSC COORDINATION CENTER
(ENLARGEMENT)

FIGURE 9

TECHNICAL SUPPORT CENTER GENERAL RULES OF CONDUCT

This figure provides a listing of general rules of conduct for the TSC. All personnel in the TSC shall adhere to these rules.

1. The first TSC staff member to arrive shall perform the following:

   a. Unlock the TSC door using a GM5 or GM (this key may also be obtained from the Control Rooms).

   b. TSC Emergency Ventilation System Activation:

      1. Turn key operated mode select switch from "Normal to Accident".

      2. Confirm "Compressor Running" is operating by RED light being on. Log start time and date on Operation Log (EPP-13, Fig. 13).

      3. Emergency ventilation system is now activated. To deactivate, turn key operated mode select switch (KS-2) from "Accident" to "Normal". Push "Start" button to reset "Compressor Running". Log stop time and date on Operation Log (EPP-13, Fig. 13) then record run time as indicated on log.

   c. Enter name on the Emergency Facility Staff Board as appropriate.

   d. No smoking, eating or drinking will be allowed until habitability surveys have been completed and announced to be satisfactory.

2. Other TSC staff members to arrive should take up assignments and perform the following:

   a. Technical Data Coordinator and staff - Activate process computer terminals, Control Room camera and prepare to activate TSC Status boards. Instruct staff that all postings should contain the time data was recorded, not the time of the posting of the data.

   b. Radiological Assessment Manager and staff - Make general announcement prohibiting smoking, eating and drinking until habitability surveys have been completed and found to be satisfactory. Perform habitability surveys (i.e., turn on and check VAMP and CAM), make recommendations on TSC habitability and need for TSC emergency ventilation system to continue operation. Activate radio system and Meteorological Dose Assessment computer. Request OSC to establish a step-off pad at entrance to TSC.

   c. Communications Coordinator and staff - Ensure hotlines, telecopiers and other communications equipment are ready for service.

3. Personnel initially filling designated staff positions in the TSC shall place their names in the appropriate line on the Emergency Facility Staff Board. When relieved, personnel filling designated staff positions in the TSC shall record their name on the appropriate line.

FIGURE 9 (Cont'd)

TECHNICAL SUPPORT CENTER GENERAL RULES OF CONDUCT

4. All individuals entering and exiting the TSC shall log in and out with the Technical Data Coordinator or his designee. An example of the Accountability Log to be utilized is shown as EPP-13, Figure 5.

5. Record and disburse all messages received or transmitted as follows:

   a. Messages - No Response Required

      All messages not requiring a response shall be recorded on triplicate forms which are provided in the TSC emergency operations kit and disbursed as follows:

      1st copy - To appropriate TSC staff member for action
      2nd copy - To be retained by message taker
      3rd copy - To Technical Data Coordinator for status logging

   b. Messages - Responses Required

      All messages requiring a response shall be recorded on triplicate forms which are provided in the TSC emergency operations kit and disbursed as follows:

      Step 1

      1st and 3rd copy - To appropriate TSC staff member for response

      2nd copy - To be retained by message originator

      Step 2

      1st copy - To message originator with response and for status logging if necessary.

      3rd copy - To be retained by appropriate TSC staff member providing response.

6. When you receive a message, (e.g., copy of the triplicate message form), take appropriate action required and also initial the message to signify you have acknowledged its receipt.

7. Periodically inform the Site Emergency Director (directly or through the individual to whom you report) of actions/assessments/results within your area of responsibility.

FIGURE 9 (Cont'd)

TECHNICAL SUPPORT CENTER GENERAL RULES OF CONDUCT

8. Periodically review the various status boards within the TSC. Verify that information relative to your area of responsibility is up to date and correct. (NOTE: The Emergency Events Status Board should state the current emergency classification, the time declared and a brief description of the emergency action level or plant condition justifying the classification.)

9. Periodically assess personnel requirements:

   a. Determine if sufficient personnel are on hand (e.g., are in the Operations Support Center) to provide any assistance you may anticipate. Have additional personnel called in if necessary.

   b. If it appears that the emergency may be protracted, (i.e., may require shift-type coverage) determine if sufficient personnel are available to provide for continuous 24-hour coverage and set up a duty rotation system. Notify appropriate personnel of their duty schedules.

   c. Utilize the approved personnel lists of EPMP-3 when selecting/assigning personnel.

   d. If additional personnel are required, (e.g., JAFNPP, consultants, etc.) coordinate through the Site Emergency Director to obtain these people.

10. The document control system can be accessed through the document control terminal, located adjacent to the TSC.

11. If additional materials/parts/supplies/etc. are required beyond availability at the station, requests should be coordinated through the Site Emergency Director to the Administrative/Logistics Manager in the Emergency Operations Facility (if activated) or Storeroom Coordinator in OSC.

12. If necessary, food will be periodically provided through the Administrative/Logistics Manager in the EOF (if activated) or the Site Office Supervisor.

13. A calm professional atmosphere shall be maintained at all times.

FIGURE 10

OPERATIONS SUPPORT CENTER GENERAL RULES OF CONDUCT

This figure provides a listing of general rules of conduct for the OSC. All personnel staffing OSC coordinating positions shall adhere to these rules and assure they are observed by other personnel in the OSC.

1. As members of the Operations Support Center arrive, they will pick up their appropriate assignment binders from the OSC Operations Kit and perform the assigned tasks. No smoking, eating or drinking will be allowed until habitability surveys have been completed and announced as being satisfactory.

2. The first individual(s) to arrive at the OSC should ensure the following have been started:

   a. Establish communications with the TSC (normal hours) or CR (off-hours) as appropriate. Establishing communications includes telephone, radio (with backup) and gaitronics.

   b. Ensure a general announcement is made prohibiting smoking, eating, and drinking until habitability surveys have been completed and found to be satisfactory. Ensure a radiation survey and air sample of OSC are started and that a step-off pad and monitor is placed by the employee entrance.

      NOTE: If no release occurred, frisking may be omitted at the direction of the Radiological Assessment Manager or Designee.

   c. Unpack and organize the OSC Emergency Operations Kit.

   d. Move tables and chairs to the front and side of room for the OSC coordinators and staff as per EPP-13 Figure 8.

   e. Place the sign from the OSC kit on the main door to the Unit I Administration Building lobby indicating that all individuals must use the employee entrance.

   f. Place the names and positions of the three OSC Coordinators on the organization board as appropriate.

   g. Inform the TSC when the survey teams are assembled and ready to be dispatched.

   h. Assure that the OSC Coordinator establishes his command post at the front of the room.

FIGURE 10 (Cont'd)

OPERATIONS SUPPORT CENTER GENERAL RULES OF CONDUCT

3. Personnel initially filling designated staff positions in the OSC shall ensure that their name/position is identified on the Emergency Facility Staff Board. When relieved, personnel filling designated staff positions in the OSC shall record their name in the appropriate line.

4. All individuals entering and exiting the OSC shall log in and out with the OSC Coordinator or his designee. An example of the entrance log to be utilized is shown as EPP-13, Figure 5.

5. Record and disburse all messages received or transmitted as follows:

   a. Messages - No Response Required

      All messages received from outside the OSC shall be recorded on triplicate forms which are provided in the OSC emergency operations kit and disbursed as follows:

      Step 1

      1st copy - To appropriate OSC staff member for response

      2nd copy - To be retained by message taker

      3rd copy - To OSC Coordinator

   b. Messages - Response Required

      All outgoing messages from the OSC shall be recorded on triplicate forms which are provided in the OSC emergency operations kit and disbursed as follows:

      Step 1

      1st and 3rd copy - To appropriate OSC staff member for response

      2nd copy - To be retained by message originator

      Step 2

      1st copy - To message originator with response and for status logging if necessary.

      3rd copy - To be retained by appropriate OSC staff member providing response.

FIGURE 10 (Cont'd)

OPERATIONS SUPPORT CENTER GENERAL RULES OF CONDUCT

6. When you receive a message (e.g., copy of the triplicate message form), take appropriate action required and also initial the message to signify you have acknowledged its receipt.

7. Periodically assess personnel requirements in consultation with appropriate coordinators in the TSC.

8. Keep the OSC Coordinator appraised of actions/assessment/results within your area of responsibility.

9. If necessary, food will be periodically provided through the Administrative/Logistics Manager in the Emergency Operations Facility (if activated) or the Site Office Supervisor.

10. A calm, professional atmosphere shall be maintained at all times.

EPP-13 FORM 1

FIGURE 11 Page __ of __

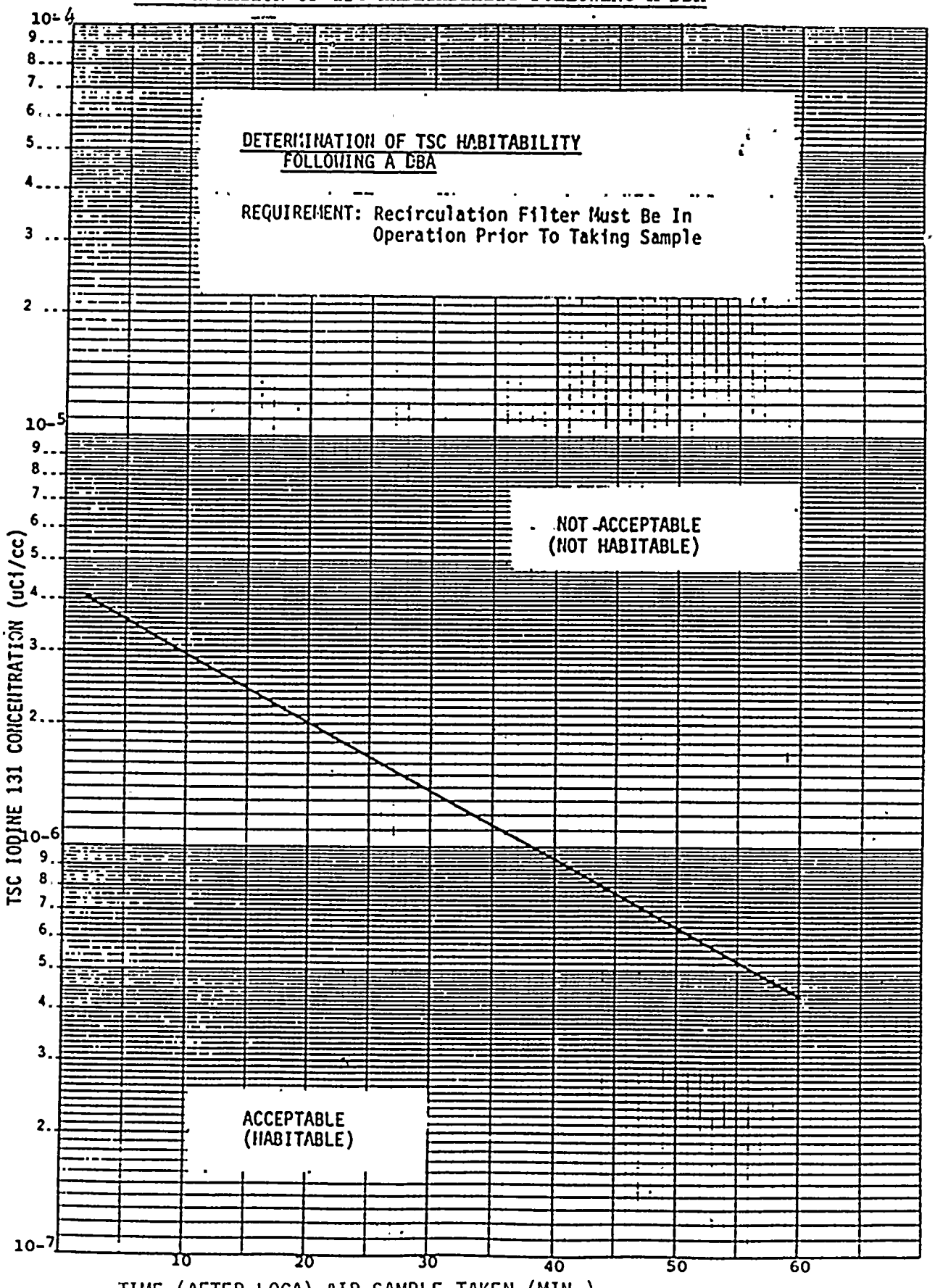
EMERGENCY RESPONSE / RECOVERY ACTION LOG

Position _____ Person _____

Date/Time	Actions/Requests	Assignments	Action Completion	Comments

FIGURE 12

DETERMINATION OF TSC HABITABILITY FOLLOWING A DBA



EPP-13

FIGURE 13

EMERGENCY VENTILATION SYSTEM

OPERATION LOG

Instructions:

1) Record date and time system started and stopped.
2) Record duration of run in units of hours.
3) Notify Respiratory Protection (x2657) when last line completed.

START		STOP		*RUN TIME (Hrs)
Date	Time	Date	Time	
/ /	-	/ /	-	
/ /	-	/ /	-	
/ /	-	/ /	-	
/ /	-	/ /	-	
/ /	-	/ /	-	
/ /	-	/ /	-	
/ /	-	/ /	-	
/ /	-	/ /	-	
		New Total Run (Hrs) =		

Reviewed By _____ Date ___/___/___

*Total Run Time From Previous Log

EPP-14

EMERGENCY ACCESS CONTROL

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5

PROPRIETARY INFORMATION

EPP-14

EMERGENCY ACCESS CONTROL

1.0 PURPOSE

This procedure describes how access to the 10 Mile Emergency Planning Zone (EPZ), NMPNS Site and appropriate Emergency Response Facilities/Equipment is controlled during an emergency at the NMPNS. Personnel having emergency duties that require access to these areas need to follow the steps outlined within this procedure to access the various secured areas or equipment.

2.0 REFERENCES

2.1 EPMP-2 - Emergency Equipment Inventory and Checklists.

2.2 EPMP-3 - Review and Revisions of Site Emergency Plan and Procedures | 5

2.3 OI-13 - Termination of Access to the Protected Area

2.4 ANSI/ANS-3.3-1982 - Security for Nuclear Power Plants (Approved 7-16-82).

2.5 NMPNS Security Dept. Emergency Plan Duties, December 1981.

3.0 EMERGENCY ACCESS - PROCEDURE

3.1 10 Mile Emergency Planning Zone (EPZ)

3.1.1 The 10 Mile EPZ is a designated area approximately 10 miles in radius around the NMPNS used to facilitate offsite emergency planning.

Access to the 10 mile EPZ may be controlled during a radiological emergency at the NMPNS by Police and/or Military control points. In order to access the 10 Mile EPZ when reporting for emergency duties at one of the Emergency Response Facilities (i.e. TSC, OSC, EOF, JNC, etc), personnel will be required to display an Oswego County Access Control Identification Card or other authorized governmental control cards (See Fig. 3) at control points. | 5

3.1.2 Oswego County Access Control ID cards are issued to persons having emergency functions. A permanent or temporary ID card may be obtained if needed by following the steps outlined in Section 5.0 of this procedure. Other governmental control cards are supplied to their personnel by the respective agencies.

3.2 NMPNS Site Boundary

3.2.1 Access control points will be established by site security at two locations; the intersection of County Route 29 and the Private Road (Lake Road), and at the intersection of Lakeview Road and the Private Road (Co.Rte.1A).

3.2.2 NMPC Personnel

In order to gain access to the site, NMPC personnel must display an Oswego County Access Control ID card and an NMPC ID card to the NMPC security guards at the site access control points.

If questions arise relative to the status of any NMPC personnel, request security to contact the EOF Security Director or TSC Security Coordinator for resolution with the Site Emergency Director or his designee. |5

3.2.3 Other Personnel

Personnel, other than NMPC personnel, requiring access to the site will also be required to display an Oswego County Access Control ID card or other authorized governmental control card (see Figure 3) to site security guards at the site access control point. In addition, permission to enter must be granted by the EOF Security Director or the TSC Security Coordinator in consultation with the Site Emergency Director or his designee. |5

Personnel requiring entry to the site who do not possess an Oswego County Access Control ID Card may obtain a permanent or temporary ID Card by following the steps outlined in Section 5.0 of this procedure.

3.3 Emergency Response Facilities/Equipment

3.3.1 On-site Emergency Response Facilities

a. NMPC Personnel
To access emergency response facilities on-site (ie TSC, OSC, EOF, etc.), emergency personnel should first follow the steps outlined in Section 3.2 of this procedure. If access to the protected (fenced) area is required, normal security procedures should be followed. In addition, demonstration of an Oswego County Access Control ID Card will be required to Security personnel before entry will be allowed.

3.3.1 On-site Emergency Response Facilities (Cont.)

b. Other Personnel
To access emergency facilities on-site (ie TSC, OSC, EOF, etc.), emergency personnel other than NMPC personnel should first follow the steps outlined in Section 3.2 of this procedure. In addition, permission to enter must be granted by the EOF Security Director or the TSC Security Coordinator in consultation with the Site Emergency Director or his designee. |5
If access to the protected (fenced) area is required, security procedures should be followed.

3.3.2 Off-site Emergency Response Facilities

a. Alternate Emergency Operations Facility (AEOF)

1) NMPC Personnel
To access the AEOF, NMPC personnel will be required to display an Oswego County Access Control ID card and NMPC ID card to security personnel at the entrance to the AEOF.

2) Other Personnel
Personnel other than NMPC personnel will be required to display an Oswego County Access Control ID card or other authorized governmental control card (See Figure 3) to |5
security personnel at the entrance to the AEOF. In addition, permission to enter must be granted by the EOF Security Director or the TSC Security Coordinator in consultation with the Site Emergency Director or his |5
designee.

b. Joint News Center (JNC) and Oswego County Emergency Operations Center (OCEOC)

To access the JNC or OCEOC, demonstration of an Oswego County Access Control ID card or other authorized governmental control card (See Figure 3) to security personnel at the facility will be required before entry will be allowed.

3.3.3 Emergency Equipment

Emergency equipment (radiological, rescue, operations supplies, vehicles, etc.) has been located at various facilities on-site and off-site. To access this equipment and/or facilities, selected emergency personnel and locations have been issued keys to the emergency facilities and equipment. The control and inventory of these keys is outlined in section 4.0 of this procedure.

4.0 EMERGENCY KEYS

The distribution of emergency keys shall be under the direction of the Emergency Planning Coordinator or his designee and in accordance with the Distribution Chart EPMP-2, Figure 27. As changes are made in personnel assignment, keys will be reassigned. |5

4.1 Distribution

4.1.1 Control Room Key Set

A set of emergency keys shall be maintained per the distribution chart (EPMP-2) at the Nine Mile Point Control Room. The keys shall be kept in a key cabinet and under control of the Shift Supervisor. These keys will be made available to responding emergency personnel who have the need to enter emergency facilities and/or equipment. |5

4.1.2 On-Call Supervisors

Members of the Site On-Call supervisory staff will be provided with a set of emergency keys which they will maintain such that the keys are available to them when called in during an emergency situation.

4.1.3 Emergency Kits

Certain emergency kits contain keys. These keys are checked quarterly as part of the emergency equipment inventories (see EPMP-2).

4.1.4 Maintenance Shop

Keys are supplied to the Maintenance Shop for all emergency vehicles on-site.

4.2 Key Inventory

A quarterly key inventory shall be performed by the Emergency Planning Coordinator or his designee to insure availability of keys to On-Call Supervisors and emergency kits in accordance with EPMP-2, "Emergency Equipment Inventories and Checklists.". |5

5.0 DISTRIBUTION OF OSWEGO COUNTY ACCESS CONTROL IDENTIFICATION CARDS

5.1 Authorization and Control of ID cards

5.1.1 Cards will be issued after the completion of Figure 1 - Authorization for Issuance of the Oswego County Access Control Identification Card. |5

5.1.2 Figure 1 requires the signature of the Training Supervisor, if appropriate, and the Emergency Planning Coordinator before a card will be issued. |5

5.1.3 Personnel requiring an ID card are: personnel in EPMP-3 Attachment 2 - List of Qualified Personnel for Staffing Emergency Positions, NMPC Nuclear Security personnel, and other personnel at the discretion of the Emergency Planning Coordinator. |5

5.1.4 Once completed, EPP-14 Figure 2 will be maintained on file by the Emergency Planning Coordinator for future use.

5.1.5 The Emergency Planning Coordinator will collect ID cards upon the employees termination from NMPC or when a need no longer exists for the individual to possess the card.

5.2 Normal Issuance of ID Cards

5.2.1 The Oswego County Access Control ID card (shown in Figure 4) will be issued by the EPC or his designee after receiving a completed Figure 1. | 5

5.2.2 Photographs will be taken and an Identification System Control Card (shown in Figure 2) will be completed. | 5

5.2.3 The completed control card will be retained on file by the EPC until the ID is terminated or returned.

5.3 Temporary Issuance of ID Cards

5.3.1 Name, agency, social security number, and location to be accessed should be acquired from the individual requiring an ID card by the site contact.

5.3.2 The individual requiring the card should be directed to go to the Oswego County Emergency Operations Center, 200 North Second Street, Fulton, N. Y. and report to the Security desk.

5.3.3 The site contact requesting the issuance shall relay the acquired information (from Step 5.3.1) to one of the following persons authorized to request temporary ID cards; EOF Security Director, TSC Security Coordinator, Site Emergency Planning Coordinator, Assistant Emergency Planning Coordinator. During emergency conditions this list may be expanded as required in consultation with county officials.

5.3.4 One of the authorized individuals will contact the Oswego County Office of Emergency Preparedness Administrative Assistant, Margaret Helmke at 315 598-1191 or via back-up radio if necessary, and provide her with the acquired information. Ms. Helmke will accept requests from authorized personnel only. She will record the information and relay it to the police officer at the EOC Security desk.

5.3.5 Upon arrival at the EOC, security officers will ask persons requiring temporary ID cards their name, agency, social security number, and location to be accessed.

5.3.6 If information provided corresponds with that which was received from the Administrative Assistant, the Temporary ID Card (shown in Figure 3) will be completed and a card issued. The appropriate ingress route to be followed will be given to the temporary ID card holder at this time. | 5

5.4 Use of ID Cards

5.4.1 ID cards allow access through military and/or police control points throughout Oswego County during an emergency at the NMPNS or JAFNPP. Cards should be used only for this purpose.

5.5 Replacement of ID Cards

5.5.1 If an Oswego County Access Control ID Card is lost or becomes unusable through damage or contamination, a replacement photo ID card will be issued following standard procedure.

EPP 14
FIGURE 1

AUTHORIZATION FOR ISSUANCE OF THE OSWEGO
COUNTY ACCESS CONTROL IDENTIFICATION CARD

Last First Middle Initial
NAME
(Authorization Request for)

SOCIAL SECURITY NO.

Department

Work Phone Number

Work Address

Home Phone Number

The above designated individual has completed all pertinent Emergency Plan Training and I request that an Identification Card be issued for his/her use.

Training Supervisor

The above individual is authorized to receive an Identification Card

Emergency Planning Coordinator

Indentification No. from Card

Date of Issuance

This form is to be returned to the Emergency Planning Coordinator along with the Identification System Control Card.

FIGURE 2

EPP-14

IDENTIFICATION SYSTEM CONTROL CARD
(Example)

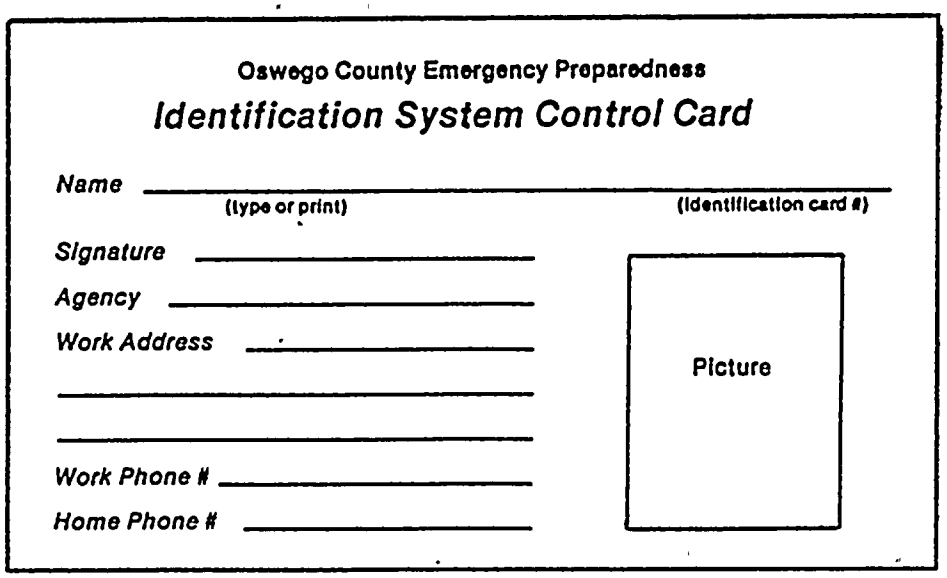
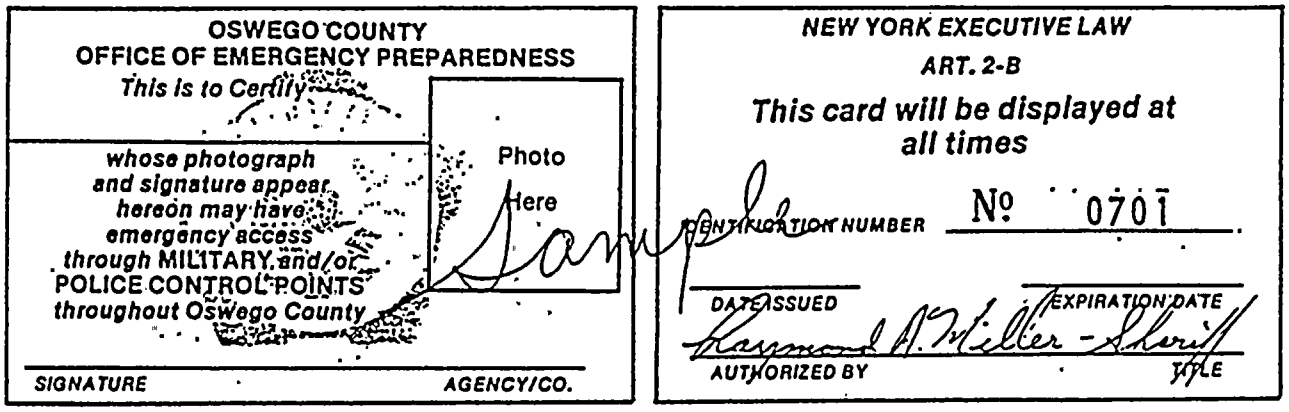


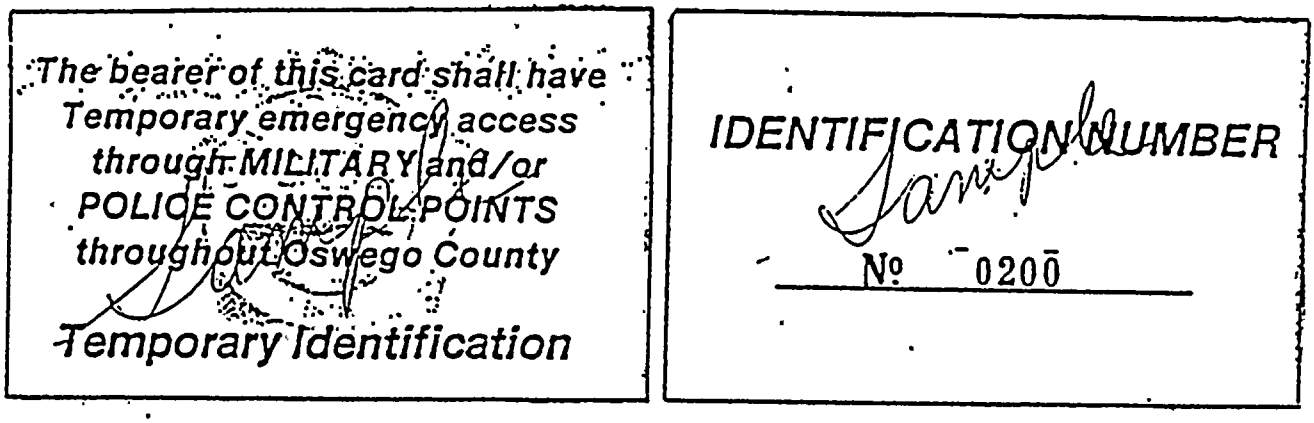
FIGURE 3

EPP-14

AUTHORIZED ACCESS CONTROL IDENTIFICATION CARDS
(Example)



Black on Light Green



Color will be announced as identified for individual exercise or event

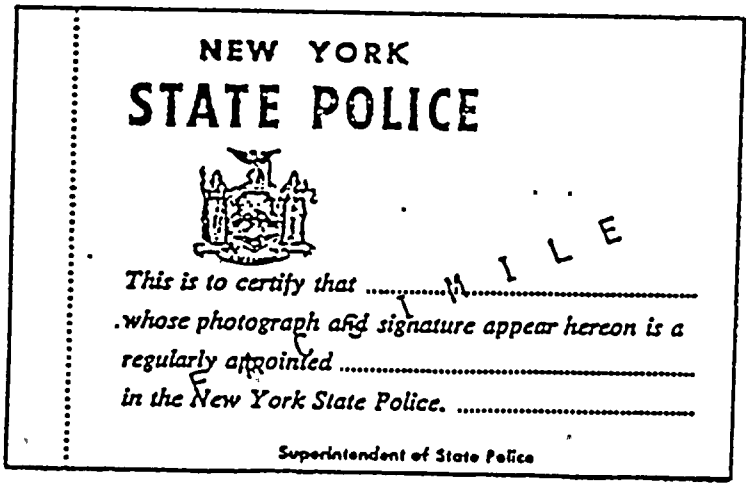


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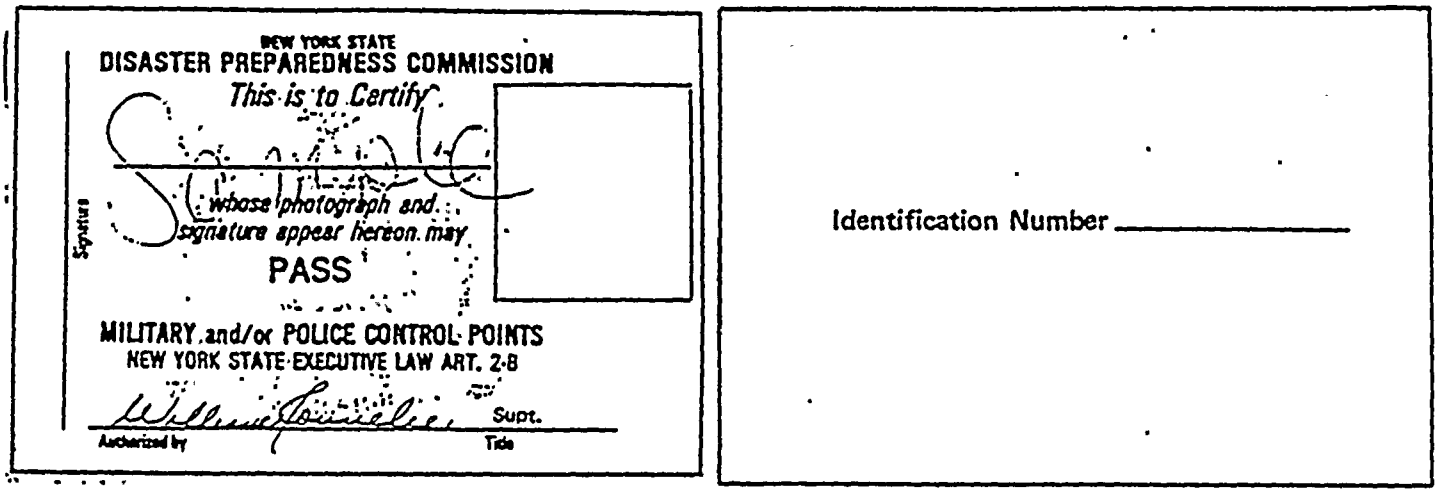
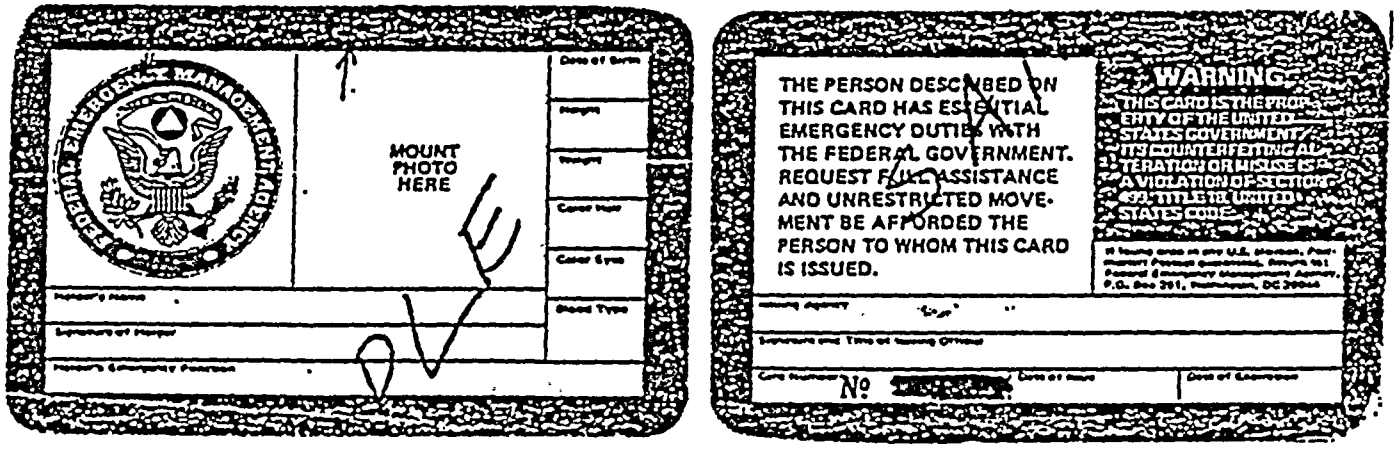
FIGURE 3 (Continued)

EPP-14

AUTHORIZED ACCESS CONTROL IDENTIFICATION CARDS
(Example)



Black on Peach



Black on White - Red Border

NINE MILE POINT NUCLEAR STATION

EMERGENCY PLAN IMPLEMENTING PROCEDURES

PROCEDURE NO. EPP-15

HEALTH PHYSICS PROCEDURE

APPROVALS	SIGNATURES	DATE AND INITIALS REVISION 7	REVISION 8	REVISION 9
Supervisor Radiological Support P. Volza	P. Volza	5/7/87 PV	6/16/87 PV	
Station Superintendent NMPNS Unit 1 T. W. Roman	T W Roman	5/11/87	6/17/87	
Station Superintendent NMPNS Unit 2 R. B. Abbott	RB Abbott	5/11/87 RBA	6/17/87 RBA	
General Superintendent Nuclear Generation T. J. Perkins	T J Perkins	5/11/87 RBA for TJP	6/19/87 TJP	

FOR INFORMATION ONLY

Summary of Pages

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17,22,23,26,28-52	April 1986
20	December 1986 (Reissue)
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3-7	June 1987

NIAGARA MOHAWK POWER CORPORATION

Proprietary Information Removed From Page 14.

THIS PROCEDURE NOT TO BE USED AFTER June 1989
SUBJECT TO PERIODIC REVIEW

HEALTH PHYSICS PROCEDURE

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EPP-15

HEALTH PHYSICS PROCEDURE

1.0 PURPOSE

This procedure describes the health physics requirements to be followed by Station personnel, visitors and contractors during an emergency. It specifically details personnel actions and responsibilities for providing radiological controls in the following areas:

a. Emergency Exposure Control

b. Emergency Dosimetry Control

c. Emergency Respiratory Protection

d. Radioprotective Drug Distribution

e. Personnel, Equipment and Area Decontamination

2.0 REFERENCES

2.1 10CFR20 - Standards for Protection Against Radiation

2.2 NUREG-0737, Clarification of TMI Action Plan Requirements, November 1980. | 7

2.3 NUREG-0041. | 7

2.4 US NRC Regulatory Guide 8.15.

2.5 EPA-520/1-75-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, September 1975. | 7

2.6 NCRP Report No. 55, Protection of the Thyroid Gland in the Event of Releases of Radioiodine.

2.7 ANSI N13.12, Control of Radioactive Surface Contamination on materials, Equipment and Facilities to be Released for Uncontrolled Use. | 7

2.8 AP-7.1, Procedure For Control of the Use and Transfer of Organic Materials. | 7

2.9 EPP-4, Personnel Injury or Illness | 7

2.10 EPP-8, On-Site and Off-Site Dose Assessment Procedure

2.11 S-RP-1, Access and Radiological Control

2.12 S-RP-3, Performance of Radiological Surveys

2.13 S-RP-5, Radiation and Radioactive Contamination Control

2.14 S-RTP-61, Procedure for the Selection of Respiratory Equipment

2.15 S-RTP-62, Respiratory Equipment Assembly, Test & Inspection, Storage

2.16 S-RTP-63, Laundering of Respiratory Equipment 7

2.17 Nuclear Energy Services, Inc, "Shielding Design Review for the Nine Mile Point Nuclear Station Unit 1".

2.18 Nine Mile Point Unit 2 FSAR, Section 12.3.1.3 "Post-Accident Access and Shielding Design Review".

2.19 Correspondence, W. R. Yaeger to R. B. Abbott, NMP2-287, February 19, 1987.

3.0 RESPONSIBILITIES

3.1 Site Emergency Director

a. Coordinates the implementation of the NMPNS Site Emergency Plan and Procedures.

b. Authorizes the use of emergency:

1. Exposure control limits
2. Respiratory protection limits
3. Radioprotective drugs
4. Contamination control limits 7

3.2 Radiological Assessment Manager

The Radiological Assessment Manager (RAM) is responsible to the Site Emergency Director for: 7

a. Managing the radiological monitoring and assessment aspects of the station's emergency response.

b. Managing activities to control radiation.

c. Providing technical and administrative direction to emergency personnel relative to the following areas:

a. Emergency exposure control

b. Emergency dosimetry control

c. Emergency respiratory protection

d. Radioprotective drug distribution

e. Personnel, equipment and area decontamination

4.0 EMERGENCY EXPOSURE CONTROL

4.1 Objective

a. This section provides guidance and criteria for emergency situations when it may be necessary for an individual or individuals to exceed established quarterly and annual radiation exposure limits to save a life or to minimize the possible consequences of an emergency situation.

b. The Site Emergency Director (directly or through the RAM) is the only individual authorized, at his discretion, to waive or modify the established station exposure control criteria and methods in accordance with the provisions of this procedure. This may occur if necessary operations require personnel exposures in excess of normal guides or limits, or if normal station access control and radiological control work practices may result in unacceptable delays. In any case the personnel exposures authorized should not exceed the planned radiation exposure criteria established in this procedure. 7

4.2 Emergency Exposure Criteria

4.2.1 EPP-15, Figure 1 summarizes the emergency exposure criteria for entry or re-entry into areas for the purposes of undertaking protective or corrective actions. Two classifications of emergency exposure are identified: corrective actions and lifesaving actions.

4.2.2 Lifesaving actions include actions such as rescue, first aid, personnel decontamination, medical transport, and medical treatment services, when such actions are immediately necessary to save a life.

4.2.3 Corrective actions include surveillance and/or assessment actions and plant operations necessary to minimize further deterioration of the level of plant safety or to mitigate the consequences of the accident, if failure to perform these actions could result in a significant increase in off-site exposures.

4.2.4 Personnel exposures received performing emergency measures, other than those identified above, shall be limited pursuant to 10CFR20.

4.3 Procedure

4.3.1 General

a. The provisions of this procedure are applicable only in actual emergency situations, and are applicable only to NMPNS personnel, contractors and off-site emergency response personnel performing emergency tasks.

b. The radiation exposure to emergency personnel shall be maintained, if possible, as low as reasonably achievable and should be maintained within the NMPNS administrative exposure guides and/or less than the radiation exposure limits in 10CFR20. (See NMPNS Radiation Protection Procedure RP-1.)

4.3.1 (Cont.)

c. To maintain personnel exposures within established guides and limits, administrative methods used during normal station operations to control and minimize exposures, such as radiation work permits, exposure clearances and ALARA measures, should remain in force during an emergency condition to the degree consistent with timely implementation of emergency measures.

d. The Site Emergency Director (directly or through the RAM and his staff) shall be responsible for the transfer of exposure and dose information between emergency centers. 7

4.3.2 Emergency Pre-exposure Evaluation

The following prerequisites shall be satisfied, time permitting, by the Site Emergency Director or the RAM prior to authorizing entry into an affected area. 7

a. To the degree possible, the probability of success of the proposed action requiring emergency exposure shall be weighed against the projected element of risk.

b. Personnel receiving exposures which may or will exceed 10CFR20 limits shall be volunteers.

1. Volunteers should be more than 45 years of age.
2. All volunteers shall be briefed on potential biological consequences prior to receiving such exposure.
3. Emergency exposures should be limited to one occurrence in a lifetime.
4. Women of child-bearing age shall not be permitted to receive exposures which exceed 10CFR20 limits.

c. Personnel shall not be permitted to enter any area where dose rates are unknown.

d. Dosimetry equipment capable of measuring the anticipated maximum exposure and type of radiation(s) shall be worn by personnel receiving emergency exposure per EPP-15, Section 5.0. Reasonable measures shall be taken to minimize skin contamination and the intake of radioactive materials.

e. A review of the Unit I and Unit II Radiation Zone Maps (EPP-15, Figures 10, 11 and 12 respectively) shall be performed to assess its applicability in determining personnel access to critical plant areas.

f. Dose calculations for a post-design basis accident, have shown that access to the Unit II Radwaste Control Room may be prohibitive for approximately one hour following the accident. This period may be used for planning purposes but current ARM, process monitor and survey readings should be utilized prior to entry. 7

4.3.3 Emergency Exposure Documentation

The following actions shall be performed to document emergency radiation exposure. Although it is preferable to perform these steps before the exposure is received, the Site Emergency Director may, at his discretion, verbally authorize the emergency exposure with documentation to be completed at a later time.

a. A RWP shall be completed for any emergency survey or damage control operations using the normal station issuance process. When the TSC and OSC facilities have been staffed and activated by the Site Emergency Director, the normal RWP process may be modified as follows: 8

The Site Emergency Director shall approve a RWP for any emergency survey or in the case of damage control operations, an approved Emergency Damage Control Summary Form (EPP-22, Figure 1). Notification to the appropriate SSS shall be promptly made by the Coordinator whose team required the RWP; this will include a description of the task or mission of the team. Furthermore, pre-exposure surveys may be waived when Radiation Protection Technician(s) accompanies damage control team during emergency activities.

b. The Site Emergency Director or the RAM shall complete or have completed per a designee Section A of the Emergency Exposure Authorization Form (EPP-15, Figure 2).

c. The individual who will receive the emergency exposure shall complete Section B of the form (EPP-15, Figure 2).

d. Prior to entry into the affected area, the individual shall be briefed on the radiological conditions and other conditions known or expected to exist in the area, the task(s) to be performed, ALARA measures applicable to the task(s), and any contingency measures.

e. Following the exposure, the Site Emergency Director, RAM, or their designee shall complete or have completed Section C and D of the form.

f. Any dose received during the emergency shall be added to the workers occupational dose history.

4.3.4 Emergency Post-exposure Evaluations

a. Individuals receiving emergency exposure shall be restricted from further occupational radiation exposure pending the outcome of exposure evaluations and, if necessary, medical surveillance.

b. An exposure evaluation shall be performed per procedure(s) to determine a dose equivalent of the emergency exposure. This evaluation shall be based on measured area dose rates, airborne radioactivity measurements, dosimetry results and contamination surveys including surface/skin contamination measurements, body cavity smears, and invivo and invitro analyses as applicable.

4.3.4 (Cont.)

c. If an individual's dose equivalent exceeds 10 rem for the whole body, 60 rem for the skin, and/or 150 rem for an extremity (two times the annual dose equivalent limits), the details of the exposure shall be brought to the attention of a physician. The physician shall determine the degree of injury through clinical, biological and/or biochemical examinations of the injured individual. Based upon the results of these tests additional treatment will be developed for the personnel involved.

NOTE: Whole body includes: head and trunk; active blood forming organs; lens of eyes; or gonads.
Extremity includes: hands and forearms; feet and ankles.
Skin is the skin of the whole body.

d. If an individual's dose equivalent exceeds 25 rem for the whole body, 150 rem for the skin, and/or 375 rem for an extremity (5 times the annual dose equivalent limits) the individual shall be examined by a physician. The physician shall determine the need for, extent and nature of any clinical, biological, or biochemical examinations and any necessary medical surveillance.

NOTE: The dose equivalent is equal to the total risk to the organ of interest, be it from internal exposure, external exposure or both.

5.0 EMERGENCY DOSIMETRY CONTROL

5.1 Objective

a. This section provides guidance and criteria for the selection, use and distribution of dosimetry during emergency situations.

b. The Site Emergency Director (directly or through the RAM) is responsible for determining (or having determined through the Site Dosimetry Coordinator) the proper dosimetry to be worn by emergency personnel.

5.2 Personnel Dosimetry Guidelines

5.2.1 Dosimetry equipment capable of measuring the anticipated maximum exposure and types of radiation shall be worn by personnel receiving emergency exposure.

5.2.2 Survey instruments accompanying emergency workers shall not substitute for any personnel dosimetry but shall be considered complimentary.

5.2.3 The types of dosimetry available for use on-site include:

- Film badges
- Self-reading pocket dosimeters (0-500 mr, 0-1 R, 0-5R, 0-50R and 0-200R)

5.2.3 (Cont'd)

- Thermoluminescent dosimeters (TLD's)
- Neutron dosimeters (Neutrak-ER, a combination of Neutrak 144 and albedo dosimetry) for detection of thermal and fast neutrons
- Audible Alarming Dosimeters
- Extremity Dosimeters (ring TLDs)

5.2.4 The type of dosimetry to be used shall be selected so as to accurately measure all types of radiation expected (e.g., gamma, beta X-ray, neutron).

5.2.5 Extremity dosimetry will be issued on corrected dose rates as described in S-RP-1, Section 5.4.

5.3 Procedure

5.3.1 The RAM shall direct a designated staff member (preferably the Site Dosimetry Coordinator) to set up a dosimetry issue area in the Operations Support Center (or where designated by the RAM). This dosimetry area should contain the following items:

a. TLD's (whole body and extremity)

b. Film badges

c. Self-Reading Pocket Dosimeters (all ranges)

d. Emergency Exposure Authorization Forms (EPP-15, Figure 2)

e. Pencils and/or pens

f. A sign explaining the steps for issuing dosimetry

g. Automatic or manual TLD reader

NOTE: Until this dosimetry area is set up, sufficient numbers of self-reading pocket dosimeters are available in the OSC emergency cabinets to handle immediate needs.

5.3.2 As inplant dose rates are made available and/or estimated per EPP-8, the RAM will ensure that this information is transmitted to the Dosimetry Coordinator. This information and that provided on RWP's will be used by the Dosimetry Coordinator to determine the type and range of dosimetry to be provided to survey and damage control teams.

5.3.3 The Site Dosimetry Coordinator shall utilize current NMPNS Radiation Protection Procedures for controlling dosimetry issuance, maintenance and record keeping during emergencies.

6.0 EMERGENCY RESPIRATORY PROTECTION CONTROL

6.1 Objective

a. This section provides guidance and criteria for the selection and use of respiratory equipment against airborne contaminants during an emergency condition.

6.1 (Cont)

b. The Site Emergency Director (directly or through the RAM) is the only individual authorized, at his discretion, to waive or modify the established station Respiratory Protection Program in accordance with the provisions of this procedure. This may occur if necessary operations require personnel exposure in excess of normal guides or limits or if normal respiratory protection work practices may result in unacceptable delays. 7

6.2 Emergency Respiratory Protection Guidelines

6.2.1 The NMPNS Respiratory Protection Program, which is responsive to US NRC Regulatory Guide 8.15 and NUREG-0041 shall apply to all usage and distribution of respiratory protection equipment during emergency conditions (see NMPNS S-RTP-61, 62, and 63). 7 7

6.2.2 Three exceptions to the normal respiratory protection practices which may be instituted by the Site Emergency Director or the RAM are as follows: 7

a. Extension of Normal Uptake Limits

1. Exposure limits and respirator selection shall be based on potential 80 hours per week usage, similar to controls applied during outage periods (see EPP-15, Figure 3 "Respirator Selection - Emergency Periods").

2. Under these provisions internal exposure is controlled such that the total dose commitment due to internal and external exposure does not exceed the emergency exposure limit established in EPP-15, Figure 1.

b. Use of Iodine Sorbent Canisters in Respirators

1. During emergencies, an iodine sorbent canister may be used in full face filter respirators with credit taken for a protection factor of 50.

2. If Iodine-131 airborne activity in the occupied area exceeds 4.5 E-7 Ci/m^3 ($\mu Ci/cc$) or if airborne activity was not documented, a post-exposure evaluation shall be performed in accordance with EPP-15, Section 4.3.4.

3. As a minimum, any individual using an iodine sorbent canister and exposed to an iodine-131 airborne activity greater than 10xMPC (9E-8 Ci/m^3) should have a whole body count performed by the Chemistry and Radiation Management group, time permitting.

c. Use of Thyroid Prophylaxis

1. Potassium iodide (KI) is provided for use by emergency workers who must remain in an affected area and for which other means of respiratory protection are not available, practical or sufficient. 7

2. Potassium iodide shall be administered per the requirements and guidance set forth in EPP-15, Section 7.0.

7.0 RADIOPROTECTIVE DRUG DISTRIBUTION

7.1 Objective

a. This section provides guidance for determining when potassium iodide (KI) should be issued to NMPNS personnel, contractors and corporate emergency support personnel on a voluntary basis for thyroid blocking in order to minimize Iodine-131 uptake by the thyroid.

b. The Site Emergency Director or the RAM, in consultation with the Niagara Mohawk Power Corporation medical consultant (EPP-15, Section 8.3.12, if available) and in accordance with the provisions of this procedure, shall be responsible for the administration of KI at the Nine Mile Point Nuclear Station during an emergency condition. The Emergency Planning Coordinator shall ensure an adequate inventory of potassium iodide tablets is maintained in the NMPNS First Aid Room for emergency use. 7 7

7.2 Potassium Iodide Distribution Guidelines

7.2.1 Unless medical personnel are available to administer potassium iodide (KI), the Site Emergency Director shall designate an individual to administer KI to emergency personnel from its storage location in the Unit 1 Administration Building First Aid Room, 261' elevation. 7

7.2.2 KI shall be administered only when the thyroid dose is estimated to be 10 rads or greater based on estimated or measured I-131 airborne concentrations or if airborne I-131 concentration is estimated or measured to be greater than 9E-5 µCi/cc.

NOTE: 9E-5 µCi/cc is the maximum level of activity for which a self-contained breathing apparatus (SCBA) provides adequate protection.

7.2.3 Only one 130 mg KI tablet shall be administered daily to each individual involved.

7.2.4 After KI administration has been initiated for an individual, daily KI administration shall continue for the individual for at least 6 additional consecutive days but in no case shall the total length of administration exceed 10 consecutive days (for a total iodide dose of about 1 gram).

7.2.5 The maximum efficiency for thyroid blocking is achieved if KI is administered before an I-131 uptake occurs or within two hours after an I-131 uptake occurs. KI administration is of some value for thyroid blocking as long as 12 hours after an I-131 uptake occurs but is of little value thereafter.

7.2.6 The administration of KI must be documented.

7.2.7 KI administration to emergency personnel shall be on a voluntary basis.

7.2.8 Followup medical surveillance is required for individuals who take KI.

7.3 Procedure

7.3.1 Determining the Need for KI Distribution

The Site Emergency Director or the RAM shall determine the need for KI administration prior to a planned uptake or after an uptake has occurred, as follows: |7

a. Determine by estimation or actual measurement the I-131 airborne concentration in the area of interest.

b. Divide the I-131 airborne concentration by the protection factor (PF) of the respiratory protective equipment used. If respiratory protective equipment is not used, the PF=1.

NOTE: 9E-5 μCi/cc is the maximum level of activity for which a self-contained breathing apparatus (SCBA) provides adequate protection. At this level, KI will be administered regardless of residence time and the following steps.

c. Determine the residency time of the individual(s) in the area.

d. Find the time determined in EPP-15, Step 7.3.1c on the vertical "Minutes" axis of the graph in EPP-15, Figure 4, Potassium-Iodine Determination Curve. |7

e. Find the I-131 concentration determined in EPP-15, Step 7.3.1b on the horizontal "I-131 CONCENTRATION (μCi/cc)" axis on the graph in EPP-15, Figure 4 and follow the line vertically until it intersects the time line located in EPP-15, Step 7.3.1d |7

f. If the point of intersection is to the left of the curve on the graph in EPP-15, Figure 4, the projected dose to the thyroid is less than 10 rad and no further action is required as thyroid blocking is unnecessary. |7

g. Using the graph in EPP-15, Figure 4, if the point of intersection lies on the curve or the right of the curve, the projected dose to the thyroid is 10 Rad or more and thyroid blocking is necessary. Review EPP-15, Section 4.2 for additional guidance. |7

7.3.2 Administering KI

A person designated by the Site Emergency Director or the Radiological Assessment Manager shall administer KI to emergency personnel as follows: |7

a. Instruct individual that the KI is being distributed on a voluntary basis and hand him a copy of the patient package insert (see EPP-15, Figure 5).

b. Enter the name and social security number of each individual who will receive a KI tablet on a KI Issue Record form (see EPP-15, Figure 6).

7.3.2 (Cont.)

c. Enter the date of the first administration and the initials of the individual who is dispensing the KI tablets in the first column on the form.

d. Give one KI tablet to each individual requiring KI.

e. Continue to dispense one KI tablet each day to each individual on the form for at least 6 additional consecutive days but in no case for greater than a total of 10 consecutive days.

7.3.3 Medical Surveillance

Medical surveillance is required for any individual(s) administered KI. The surveillance program will be established by the Chemistry and Radiation Management Department through the NMPC Medical Consultant.

8.0 PERSONNEL, EQUIPMENT AND AREA DECONTAMINATION

8.1 Objective

The following section provides guidelines for the decontamination of any individual, equipment and/or areas contaminated by radioiodine or other particulates as a result of an emergency condition at the NMPNS. 7

8.2 Personnel Decontamination Guidelines

8.2.1 Decontamination Facilities:

a. On-Site

1. Direct or assist the person who is found to be contaminated from the restricted area to a decontamination room. One room is located near the main exit near the Unit I Radiation Protection Office. Other rooms are located at the Unit 2 Elevation 306 Turbine Bldg. and Elevation 250 Turbine Building. In addition, supplementary decontamination supplies are available in the OSC emergency cabinets. 7

8.2.1 (Cont.)

2. Decontamination of large numbers of personnel (>10) whether at Unit I or II, will be performed in the employee locker room immediately adjacent to the Unit I Radiation Protection Office. Decontamination supplies to assist in this effort are available from the normal decontamination facility and the Station Storeroom. Prior to the commencement of decontamination activities in this facility the Radiological Assessment Manager or his designee shall request the Maintenance Coordinator to assure that a sufficient volume exists in the non-controlled shower hold-up tanks. If not, tanks should be pumped down. In addition, the pump should be de-energized to prevent the inadvertent pumping of the liquids to the sewage treatment facility so that the liquid wastes generated from these operations can be contained. 7 7

3. The volume of the liquids in the shower hold-up tank shall be monitored to avoid overloading the shower hold-up tanks. The liquid wastes shall be analyzed and routed to its normal discharge path or the radioactive waste processing system as determined by the Radiological Assessment Manager. The volume of liquids used during large scale decontamination operations must be kept small to avoid overloading the liquid waste processing system. 7

b. Off-Site

1. Personnel decontamination equipment and supplies are available at the primary off-site assembly area (Volney Service Center). In addition, a portable decontamination kit is available in the OSC emergency cabinets for distribution to alternate off-site assembly areas. A complete description of decontamination equipment and supplies is contained in EPMP-2, Emergency Equipment Inventories and Checklists. 7

2. When decontaminating personnel off-site, waste liquids shall not be permitted to discharge into a public sewer system or other disposal system unless approved by the Site Emergency Director or the Radiological Assessment Manager. Waste liquid that cannot be immediately released shall be collected in temporary holdup containers (e.g., buckets, tanks, drums) and brought back to the NMPNS for analysis and proper disposal. 7

8.2.3 The actual method or combination of methods to be used for personnel decontamination can be evaluated only after the specific conditions of the contamination occurrence are known. The general approach to personnel decontamination should be to use the simplest, mildest method first before proceeding to harsher methods. EPP-15, Figure 7, Personnel Decontamination Methods describes decontamination methods in increasing order of severity and complexity.

8.2.4 Personnel monitoring prior to and during decontamination should be adjusted according to the number of individuals involved. This may include:

a. Performing an initial frisk to establish contamination levels.

b. Segregating individuals per gross levels.

c. Full whole body frisk prior to release.

8.2.5 The use of absolute numerical values for acceptable levels of decontamination may not always be practical. In some cases even after repeated decontamination efforts, the acceptable levels of contamination specified in this procedure may not be attained. In these cases, it may be necessary to release an individual with higher levels of contamination after an evaluation of the potential dose to the individual and risk to others. The Site Emergency Director, with guidance from the Chemistry and Radiation Management Staff shall make this determination as well as the need for medical advise or assistance. (This may also be necessary in cases where decontamination would have an adverse or highly undesirable effect, or upon the individual's objection to further treatment.)

8.2.6 Should additional supplies and/or manpower be necessary to support decontamination operation, the Radiological Assessment Manager or his designee shall contact appropriate individuals at the James A. FitzPatrick Nuclear Power Plant or the Robert E. Ginna Nuclear Power Station for assistance.

8.3 Procedure-Personnel Decontamination

8.3.1 Prior to commencing decontamination inspect for minor wounds such as cuts and abrasions. If they are found, refer to EPP-4 for decontamination of injured personnel. If no wounds are found, decontaminate using one of the approved methods listed in EPP-15, Figure 7.

8.3.2 Decontamination of localized contamination should be performed carefully to prevent the spread of contamination to lesser contaminated or uncontaminated areas. High activity areas should be decontaminated first.

8.3.3 Any decontamination agent or method which appears to cause skin reddening or irritation should be discontinued immediately.

NOTE: Any chemical/material that is to be used for decontamination and may enter into the station water system is to be on the approved list (AP-7.1).

8.3.4 Exercise caution during the decon process to prevent decon liquids from entering body cavities.

8.3.5 The temperature of the water used with decon solutions and for rinsing should be slightly warm to prevent opening skin pores.

8.3.6 Protective clothing should be worn as appropriate for the degree of contamination involved.

8.3.7 Care should be taken anytime contaminated skin is rubbed to prevent imbedding the contamination in the skin.

8.3.8 Contaminated skin areas should be surveyed frequently during decon efforts, using a count rate instrument with a thin window GM detector (such as an HP-210), to determine decontamination effectiveness. All such surveys should be made in a low background area and preferably in an area when the liquid decontaminate may be collected or drained into the Rad Waste System.

8.3.9 If contamination levels after decontamination do not exceed 100 cpm above background (1000 dpm on a 15 cm^2 probe area) no further action is required.

8.3.10 All decontamination should be documented on a Skin Contamination Record form (see Sample EPP-15, Figure 8). | 7

8.3.11 For cases of severe and/or persistent personnel contamination, medical advice and/or direct assistance may be necessary to assure effective safe decon. The need for medical advice and/or direct assistance shall be communicated to the Site Emergency Director or his designee by the individual responsible for personnel decontamination.

8.3.12 The Site Emergency Director, Radiological Assessment Manager or their designee shall call the following physician/medical consultant for medical advice and/or direct assistance. | 7

	Office Phone	Home Phone
		(Summer)

| 7

*On off-hours this number is answered by an answering service. | 7

If unable to contact medical consultant and are requested to leave a message, ask that the medical consultant call the Control Room (either Unit I or Unit II, as appropriate) at:

Unit I Control Room
or Unit II Control Room

8.3.13 Further decon efforts will follow the advice of the physician/consultant or will be performed with direct assistance by the physician/consultant. If necessary, follow-up bioassays will be performed in accordance with established station procedures.

8.4 Equipment, Tool, Floor and Area Decontamination

8.4.1 General Guidelines

a. Techniques used for the decontamination of equipment, tools, floors and areas shall vary with the level and extent of contamination. The general approach to decontaminating these items should be to use the least expensive but effective method available. In addition the method chosen should minimize the spread of contamination if possible. EPP-15, Figure 9 describes various decontamination methods which may be employed during emergency conditions.

b. Decontamination should proceed from areas of least to greatest contamination to reduce the chance of spreading contamination.

c. For high level contamination it may be advisable to cut levels down to a manageable level by cleaning areas of greatest contamination first, then proceed from areas of least to greatest contamination.

d. All waste generated during the decontamination process should be collected and disposed of as radioactive waste.

e. The volume of liquids used during decontamination should be minimized to avoid overloading the liquid waste processing system. Any chemical/material that is used for decontamination and may enter into the station water system is to be on the approved list (AP-7.1). 7

8.4.2 Procedure-Equipment and Tools

a. Equipment and tools may be decontaminated at the work locations or they may be brought into the equipment decontamination area, time and contamination or radiation levels permitting.

b. Whenever possible equipment may be decontaminated utilizing installed decontamination connections or piping, if available, by flushing demineralized water or service water through the piping or equipment to assist in reducing the amount of radioactive material deposited on internal surfaces .

c. A typical technique for equipment and tool decontamination would be:

1. Place plastic sheeting under the equipment to be decontaminated. This sheeting should be extended two to three feet in each direction to assure that the floor is not contaminated.

2. Soak a bundle of 12 atomic wipes with water; squeeze out excess water. Sprinkle wet pads with a detergent to cut oily film if present. 7

8.4.2 (Cont.)

3. Using an individual pad, rub an area approximately 6" x 6" and then place the used pad in a plastic bag.

   NOTE: This technique of wiping small areas reduces the chance of spreading contamination from areas of high contamination to areas of low contamination.

4. Using a dry pad, wipe up the detergent-water residue and then place the used pad in the plastic bag.

5. Repeat 3 and 4 in a new area. (Intermittent surveys with an appropriate radiation-detecting instrument will show which areas must be cleaned again.)

8.4.3 Procedure-Floors and Areas

a. During the decontamination process, floor areas should be segregated and roped off to prevent recontamination until cleared by Chemistry and Radiation Protection technicians.

b. If possible, high traffic areas should be cleaned and cleared first to allow the movement of personnel through this area without interfering with the cleaning process.

c. For low level contamination of large areas, a scrubbing machine or mop is used with water and detergent. In addition a masslin cloth used with a sweeping pad may be used for decontaminating large areas.

d. For high level or spotting contamination, techniques employed should avoid spreading the contamination to clean areas.

8.5 Contamination Control Limits

EPP-15, Figure 13 provides the contamination control limits and shall be applied by the Site Emergency Director or Radiological Assessment Manager at his discretion if normal station radiological contamination controls would result in an unacceptable delay in performing emergency actions. 7

FIGURE 1

EMERGENCY EXPOSURE GUIDELINES FOR PLANNED ACTIONS[1]

Organ	Protective or Corrective Actions[2]	Lifesaving Actions[3]
Whole Body	25 rem	75 rem
Hands and Forearms (includes whole body exposure)	100 rem	300 rem
Thyroid	125 rem	No Limit[4]

NOTES:

1. Planned actions are actions which are performed intentionally. The degree of planning may be a simple decision to perform the action ranging to detailed planning, as time permits. The term planned actions is not meant to infer administrative actions such as ALARA reviews, radiation work permits or other similar work planning actions.

2. Protective or corrective actions are actions necessary to mitigate the consequences of the emergency such as to eliminate the further release of effluent or to control fires.

3. Lifesaving actions are actions related to the search for and rescue of injured persons, or corrective or protective actions to mitigate conditions which could result in imminent injury or substantial overexposure to numbers of individuals.

4. No limit is specified for thyroid exposure for lifesaving actions because the complete loss of a thyroid may be considered an acceptable risk for saving life. However, thyroid exposure should be minimized by the use of respirators and/or thyroid prophylaxis.

EPP-15

FIGURE 2

EMERGENCY EXPOSURE AUTHORIZATION FORM

SECTION A

Name of Individual to Receive Exposure: _____

SSN: _____

Film Badge/TLD Badge No: _____

Employer/NMPC Department: _____

Date of Authorization: _____

Authorized Exposure Limit: _____

Radiological Assessment Manager: _____ Date: _____
(Signature)

Site Emergency Director: _____ Date: _____
(Signature)

SECTION B

I have volunteered to perform the task(s) during which I will receive the emergency exposure and I have been briefed on the potential biological consequences of the proposed emergency exposure.

Individual to Receive Exposure: _____ Date: _____
(Signature)

SECTION C (Attach Exposure Evaluation Records)

Film Badge/TLD/Direct-Reading Dosimeter Results: _____

FIGURE 2 (Cont.)

EMERGENCY EXPOSURE AUTHORIZATION FORM

SECTION C (Cont.)

Bioassay or Whole Body Counting Results: _____

Medical Evaluation/Action: _____

Dose Equivalent Assigned to Individual: _____

Radiological Assessment Manager: _____ Date: _____
(Signature)

SECTION D

Disposition (Allow additional exposure, restrict access, etc.):

Radiological Assessment Manager: _____ Date: _____
(Signature)

FIGURE 3

RESPIRATOR SELECTION - EMERGENCY PERIODS (80 HOUR WEEK)

Contaminant	P.F. Span	Respiratory Requirement
Particulate	<0.25	No mask required
	0.25-0.5	1/2 Mask with HEPA Cartridge
	0.5-25	Full Mask with HEPA Canister
	25-1000	Air-line mask in P.D. Mode* Supplied Air Hood
	>1000	Scott SCBA in P.D. mode only
Iodine	<0.10	No mask required
	0.10-0.25	1/2 Mask with sorbent cartridge
	0.25-0.50	Full mask with sorbent canister**
	0.5-1000	air-lined mask in P.D. Mode Supplied Air Hood
	>1000	Scott SCBA in P.D. mode only
O_2 Deficiency	<19.5% O_2	Scott SCBA in P.D. mode only
Particulate/Iodine Combination	Varies with Concentration of Particulate Component vs. Iodine Component	Based on P.F. of the component requiring the greatest protection, as long as PF of the other components and the sum of all components is satisfied.

Any deviations to the above guidelines will be approved by Chemistry and Radiation Management Supervisor.

* Scott SKA-PAK may be used for entry to and exit from an area as long as the air line mask is used in the area.

** During emergency conditions when the use of air-line masks and Scott SCBA are inappropriate due to lack of supplies, space or time, a protection factor of 50 will be used for respiratory protection.

FIGURE 4

POTASSIUM-IODIDE DETERMINATION CURVE

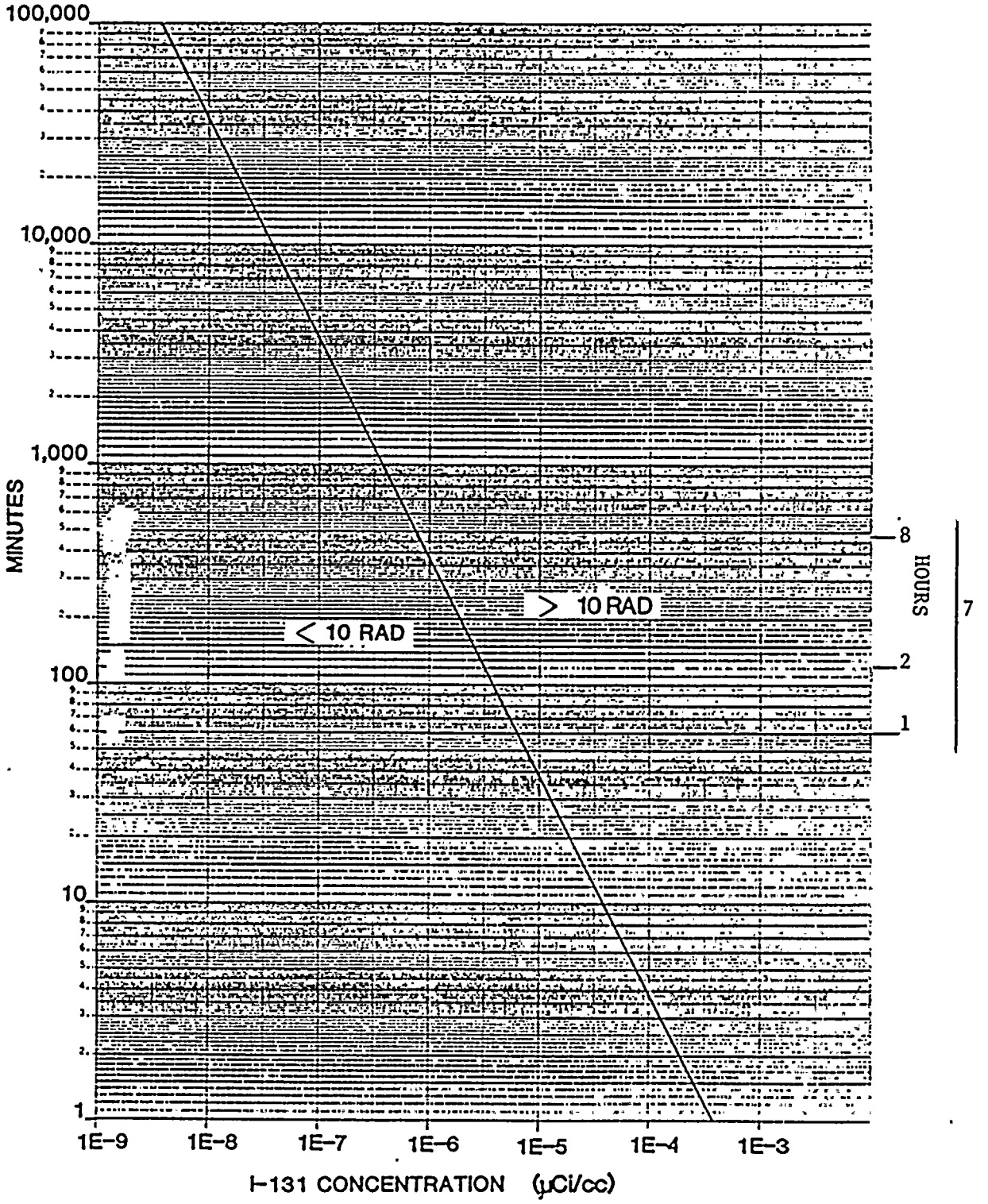

Figure 5

Potassium Iodide (KI) Patient Package Insert

Patient Package Insert For

THYRO-BLOCK™

(POTASSIUM IODIDE)
(pronounced poe-TASS-e-um EYE-oh-dyed)
(abbreviated: KI)
TABLETS and SOLUTION U.S.P.

TAKE POTASSIUM IODIDE ONLY WHEN PUBLIC HEALTH OFFICIALS TELL YOU. IN A RADIATION EMERGENCY, RADIOACTIVE IODINE COULD BE RELEASED INTO THE AIR. POTASSIUM IODIDE (A FORM OF IODINE) CAN HELP PROTECT YOU.

IF YOU ARE TOLD TO TAKE THIS MEDICINE, TAKE IT ONE TIME EVERY 24 HOURS. DO NOT TAKE IT MORE OFTEN. MORE WILL NOT HELP YOU AND MAY INCREASE THE RISK OF SIDE EFFECTS. *DO NOT TAKE THIS DRUG IF YOU KNOW YOU ARE ALLERGIC TO IODIDE.* (SEE SIDE EFFECTS BELOW.)

INDICATIONS

THYROID BLOCKING IN A RADIATION EMERGENCY ONLY.

DIRECTIONS FOR USE

Use only as directed by State or local public health authorities in the event of a radiation emergency.

DOSE

Tablets:	ADULTS AND CHILDREN 1 YEAR OF AGE OR OLDER: One (1) tablet once a day. Crush for small children. BABIES UNDER 1 YEAR OF AGE: One-half (1/2) tablet once a day. Crush first.
Solution:	ADULTS AND CHILDREN 1 YEAR OF AGE OR OLDER: Add 6 drops to one-half glass of liquid and drink each day. BABIES UNDER 1 YEAR OF AGE: Add 3 drops to a small amount of liquid once a day.

For all dosage forms: Take for 10 days unless directed otherwise by State or local public health authorities.

Store at controlled room temperature between 15° and 30°C (59° to 86°F). Keep container tightly closed and protect from light. Do not use the solution if it appears brownish in the nozzle of the bottle.

WARNING

Potassium iodide should not be used by people allergic to iodide. Keep out of the reach of children. In case of overdose or allergic reaction, contact a physician or the public health authority.

DESCRIPTION

Each THYRO-BLOCK™ TABLET contains 130 mg of potassium iodide.

Each drop of THYRO-BLOCK™ SOLUTION contains 21 mg of potassium iodide.

HOW POTASSIUM IODIDE WORKS

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

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

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

WHO SHOULD NOT TAKE POTASSIUM IODIDE

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

HOW AND WHEN TO TAKE POTASSIUM IODIDE

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

SIDE EFFECTS

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

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

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

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

WHAT TO DO IF SIDE EFFECTS OCCUR

If the side effects are severe or if you have an allergic reaction, stop taking potassium iodide. Then, if possible, call a doctor or public health authority for instructions.

HOW SUPPLIED

THYRO-BLOCK™ TABLETS (Potassium Iodide, U.S.P.) bottles of 14 tablets (NDC 0037-0472-20.) Each white, round, scored tablet contains 130 mg potassium iodide.

THYRO-BLOCK™ SOLUTION (Potassium Iodide Solution, U.S.P.) 30 ml (1 fl. oz.) light-resistant, measured-drop dispensing units (NDC 0037-4287-25). Each drop contains 21 mg potassium iodide.

WALLACE LABORATORIES
Division of
CARTER-WALLACE, INC.
Cranbury, New Jersey 08512

CW—107915—10/79 Issue 10/79

EPP-15

FIGURE 6

POTASSIUM IODIDE KI ISSUE RECORD

	KI Administration									
	1	2	3	4	5	6	7	8	9	10
	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date
	Init.	Init.	Init.	Init.	Init.	Init.	Init.	Init.	Init.	Init.
Name:										
SS No.:										
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EPP-15

FIGURE 7

PERSONNEL DECONTAMINATION METHODS

Method*	Surface	Action	Technique	Advantages	Disadvantages
Soap and water	Skin and hands	Emulsifies and dissolves contaminant.	Wash 2-3 minutes and monitor. Do not wash more than 3-4 times.	Readily available and effective for most radioactive contamination.	Continued washing will defat the skin. Indiscriminate washing of other than affected parts may spread contamination.
Soap and water	Hair	Same as above.	Wash several times. If contamination is not lowered to acceptable levels, shave the head and apply skin decontamination methods.		
Waterless handcleaning cream	Skin and Hands	Emulsifies and dissolves contaminate.	Wash several times.	Good for grease. Less irritating than scrubbing methods.	

Use Lanolin hand cream between washes. Apply to prevent skin irritation from heavy scrubbing.

*Begin with the first-listed method and then proceed step by step to the more severe methods, as necessary.

FIGURE 7
(continued)

PERSONNEL DECONTAMINATION METHODS

Method*	Surface	Action	Technique	Advantages	Disadvantages
Detergent (plain)	Skin and Hands	Emulsifies and dissolves contaminate.	Make into a paste. Use with additional water with a mild scrubbing action. Use care not to erode the skin.	Slightly more effective than washing with soap.	Will defat and abrade skin and must be used with care.
Flushing	Wounds	Physical removal by flushing	Wash wound with large amounts of water and spread edges to stimulate bleeding, if not profuse. If profuse stop bleeding first, clean edges of wound bandage, and if any contamination remains, it may be removed by normal cleaning methods, as above.	Quick and efficient if wound not severe.	May spread contamination to other areas of body if not done carefully.

*Begin with the first-listed method and then proceed step by step to the more severe methods, as necessary.

FIGURE 7
(continued)

PERSONNEL DECONTAMINATION METHODS

Method*	Surface	Action	Technique	Advantages	Disadvantages
Sweating	Skin of elbows, knees and feet	Physical removal by sweating	Place hand or foot in plastic glove or booty. Tape shut. Place near source of heat for 10-15 minutes or until hand or foot is sweating profusely. Remove glove and then wash using standard techniques or gloves can be worn for several hours using only body heat.	Cleansing action is from inside out. Hand does not dry out.	If glove or booty is not removed shortly after profuse sweating starts and part washed with soap and water immediately, contamination may seep into the pores.
Flushing	Eyes, ears, nose and mouth	Physical removal by flushing.	Roll back the eyelid as far as possible flush with large amounts of water. If isotonic irrigants are available obtain them without delay. Apply to eye continually and then flush with large amounts of water. Further decontamination should be done under medical supervision.	If used immediately will remove contamination. May also be used for ears, nose and throat.	When using for nose and mouth, contaminated individual should be warned not to swallow the rinses.

*Begin with the first-listed method and then proceed step by step to the more severe methods, as necessary.

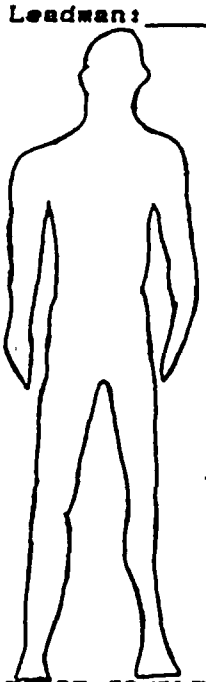
**Last resort method. Seek medical supervision.

FIGURE 8

Unit No._____ **SKIN CONTAMINATION RECORD** SCR NO._____
Sheet____of____

TO BE COMPLETED BY SURVEYING TECH:

Name:_____ Rate Meter Type:_____No._____
Company:_____ Efficiency:_____cpm/dpm
Job Title:_____ Background:_____cpm
Film Badge No:_____ Probe No:_____
Soc. Sec. No:_____ Sector Code:_____
Leadman:_____ Supervisor:_____



AREA: 1._____ 2._____ 3._____ 4._____

INITIAL SURVEY (>30,000 CPM USE ABSORBER):

CPM				
AREA SIZE	cm^2	cm^2	cm^2	cm^2
SKIN COND				
TIME				
ABSORBER				

AFTER DECON:

CPM				
AREA SIZE	cm^2	cm^2	cm^2	cm^2
DECON AGENT				
SKIN COND				
TIME				
ABSORBER				

SURVEYING TECH:_____

* Additional Decons or Areas, Record on Separate Sheet

TO BE COMPLETED BY JOB TECH:

DESCRIBE OCCURRENCE: _____
_____
_____

OCCURRENCE DATE:_____ TIME:_____ RWP NO:_____ JOB TECH:_____N/A___

TO BE COMPLETED BY R.P. FOREMAN OR ON-DUTY TECH:
SDC WORKSHEET ATTACHED: YES____ NO ____
IS WBC REQUIRED PER S-RTP-10, SECTION 5.2.1? YES___ NO___ RECOMMENDED____
ADDITIONAL AREA SURVEY NO:_____ FOREMAN/TECH_____

TO BE COMPLETED BY RP SUPERVISOR:
WBC COMPLETED: YES ____ NO ____ N/A ____
SKIN DOSE CALC COMPLETED: YES ____
NET NO:_____ N/A ____
UNIT RP SUPERVISOR REVIEW:_____ DATE:_____

FIGURE 9

DECONTAMINATION METHODS

Method	Advantages	Disadvantages	Miscellaneous
Manual Cleaning (i.e. wiping, scrubbing, mopping etc.)	-Effective in removing low or or moderate levels of contami- contamination. -Presents minimal airborne and surface contamination control problems.	-Time consuming in some instances	Can be used in conjunction with water, detergents, solvents, chelating agents, and other chemicals.
Mechanical Cleaning			
1) Vacuuming, wet or dry	-Effective in removing loose particulate contamination.	-Vacuum systems must be properly filtered to prevent the spread of contamination to surrounding areas and to reduce the hazard of airborne contamination. -Concentration of radioactive material in vacuum system may create an unusual radiation exposure source to personnel if not emptied in a timely fashion.	-Frequently used as an initial decontamination step in preparation for manual cleaning.
2) Jet Cleaning	-Effective in attaining high decontamination factor. -Ideally suited for remote operation and for cleaning large surface areas.	-High pressure jet cleaning has the disadvantage of spreading contamination over a large area.	-High pressure steam and water can be used alone or mixed with chemicals and detergents. -More effective when used in a cave or cell designed to minimize spread of contamination.
3) Soaking and Spraying	-Spraying has the advantage of combining mechanical as well as chemical action. -Soaking provides good access to surfaces. -Together very effective in removing contamination.	-Both methods make use of chemical solutions and may require support features such as catch tanks, liquid recycle ability, and filtered ventilation systems. -In some cases the shape of the object being sprayed prevents cleaning action on all surfaces. -Soaking by itself does not provide good mechanical action.	-Used extensively for decontamination of small and moderate size material and and equipment.

FIGURE 9 (Cont.)

DECONTAMINATION METHODS

Method	Advantages	Disadvantages	Miscellaneous
Mechanical Cleaning			
4) Ultrasonic Cleaning	-Combines the advantage of chemical action and mechanical energy for cleaning. -Offers advantage of remote operation. -Rapidly decontaminates objects with irregular shapes and crevices.	--	--
Grinding	-Effective means of decontaminating metal and concrete surfaces. -Produces a high decontamination factor.	-Wears down surface being cleaned. -Inherently leaves residual contamination on the surface of the object which must therefore require final cleaning by some other method (i.e. vacuuming, wiping etc.) -Frequently produces particulate airborne activity and is generally not economical for large surface areas.	-Usually limited to small objects or isolated spots of contamination where all the surface is reasonably smooth.
Abrasive Blasting	-Very rapid means of removing contamination. -Effective on metal and concrete surfaces. -Provides a high decontamination factor. -Effective on irregular shaped surfaces. -Can be used on large areas.	-Usually generates high airborne contamination and spreads surface contamination.	-Abrasive blasting makes use of a large variety of abrasives (sand, shells, glassheads, metal, etc.) with velocity, shape and size of the abrasive influency surface - removal characteristics. -Airborne and surface contamination problems can be minimized by wet blasting techniques, vacuum systems, or filtered enclosures.

FIGURE 9 (Cont.)

DECONTAMINATION METHODS

Method	Advantages	Disadvantages	Miscellaneous
Destructive Decontamination	-Harsher chemicals may be used.	-Changes surface characteristics possibly resulting in removal of surface defects of analytical value.	-Physical removal of contaminated parts or sections with little or no effort made to clean the parts prior to disposal as waste. -Containment and other radiological controls associated with destructive clearly dependent on contamination levels, the nature of the contaminant, and the physical characteristics of the parts being removed.

3.5.4 Preparation of Radiation Zone Maps

The Radiation Zone Maps were constructed to show both known danger areas and areas which could become dangerous. Any area labeled as restricted access would not normally contain any large source of radiation. Such areas have the possibility of becoming inaccessible through additional equipment failure, e.g., leakage at the main steam or feedwater isolation valves). Restricted areas must be regarded as potentially dangerous until surveyed and proved otherwise.

The zone maps are plant elevations divided into three zones: prohibited access, restricted access, and unrestricted access. These areas are defined as follows:

Prohibited Access

Extensive Health Physics sampling and surveys are required prior to entry.

Restricted Access

Potential degradation of equipment requires periodic Health Physics surveys in post-LOCA conditions.

Unrestricted Access

Area dose rates are not anticipated to exceed 15 mr/hr. Periodic Health Physics surveys are recommended.

FIGURE 10

UNIT I RADIATION ZONE MAP

DOSE RATES TO AREAS OR ITEMS IDENTIFIED FOR ACCESS
(Excluding airborne doses)

	Dose Point Location	Location	Source	t = 30' (Rem/Hr)	t = 24 hrs (Rem/Hr)
1.	Power Boards 161-A & 161-B	Reactor Bldg. Elev. 261'	Shutdown HX, pumps, and associated piping	322+ 30.6*	140+ 13.3*
2.	Reactor Water Sampling Station	Reactor Bldg. Elev. 261'	Reactor Water	4.3+ 410mRem/hr*	1.09+ 105mRem/hr*
3.	Power Boards: a. 155 b. 167	Reactor Bldg. Elev. 281'	Containment Spray Lines	 836 109	 353 45
4.	Stairwell SE	Reactor Bldg. Elev. 281'	Containment Spray Lines	323	135
5.	Power Board 16	Reactor Bldg. Elev. 281'	Containment Spray Lines	667	280
6.	Boron Tank	Reactor Bldg. Elev. 298'	Drywell	13mRem/hr	<1mRem/hr
7.	H_2-O_2 Monitoring Panel	Turbine Bldg. Elev. 291'	Drywell Air	6	2

+ Without containment spray
* With containment spray

NOTES:

1. Dose rates for these access items were not calculated for times after 24 hours since their access will probably precluded by airborne dose rates.
2. Dose rate calculations were performed at the worst case point about a foot away from the access item.
3. Dose rate calculations were performed only for those items which are located in the direct line of a source; other items not listed in this table are hampered from access by the airborne dose rates.

FIGURE 10

UNIT I RADIATION ZONE MAP

DOSE RATES FROM REACTOR BUILDING EMERGENCY VENTILATION FILTERS

ELEVATION 289'

WITH CAD (Rem/Hr)

Dose Point Location	t = 30 min.	t = 24 hr.	t = 2 day	t = 3 day	t = 7 day	t = 11 day	t = 30 day	t = 100 day
3. 18" from midplane of charcoal filters	157	42,300	87,500	123,000	168,000	152,000	38,100	230
9. Eye level below charcoal filters on El. 261'	6.19	753	1,560	2,190	2,980	2,710	678	4.10
10. Screenhouse-Turbine-Aux. Bldg. doorway	1.17	125	258	363	495	449	112	0.68
11. Waste Bldg. Control Room Door	0.27	61.6	127	179	244	222	55.4	0.34

WITHOUT CAD (Rem/Hr) (1)

Dose Point Location	t = 30 min.	t = 24 hr.	t = 2 day	t = 3 day	t = 7 day	t = 11 day	t = 30 day	t = 100 day
8. 18" from midplane of charcoal filters	161	41,200	70,700	88,400	89,500	68,200	12,100	74.2
9. Eye level below charcoal filters on El. 261'	2.88	732	1,260	1,570	1,600	1,210	214	1.32
10. Screenhouse-Turbine-Aux. Bldg. doorway	.48	121	209	261	264	201	35.4	0.22
11. Waste Bldg. Control Room Door	.24	59.7	103	129	131	99.1	17.4	0.11

NUCLEAR ENERGY SERVICES, INC.

FIGURE 10

UNIT I RADIATION ZONE MAP

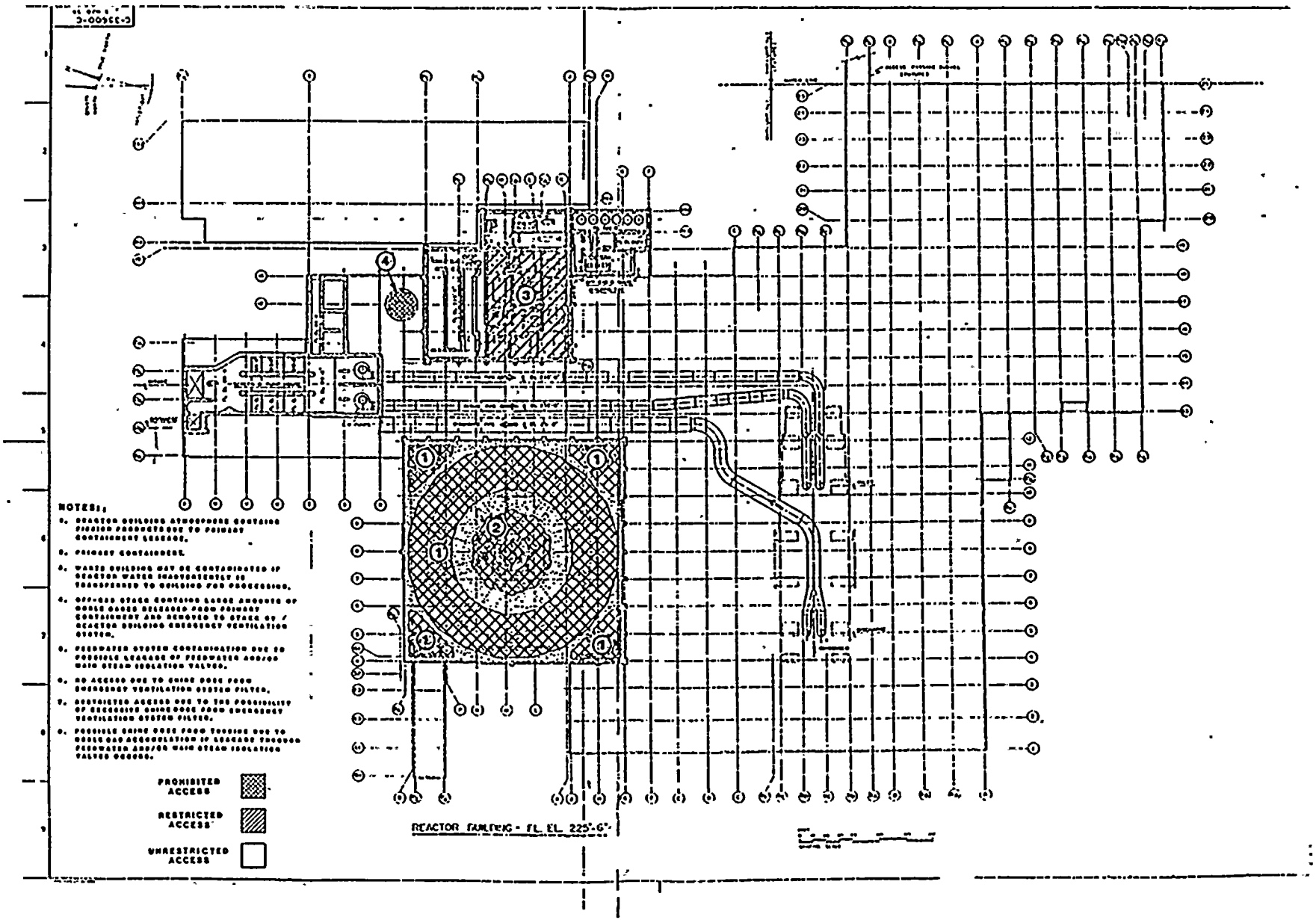


FIGURE 10 (cont.)

UNIT I RADIATION ZONE MAP

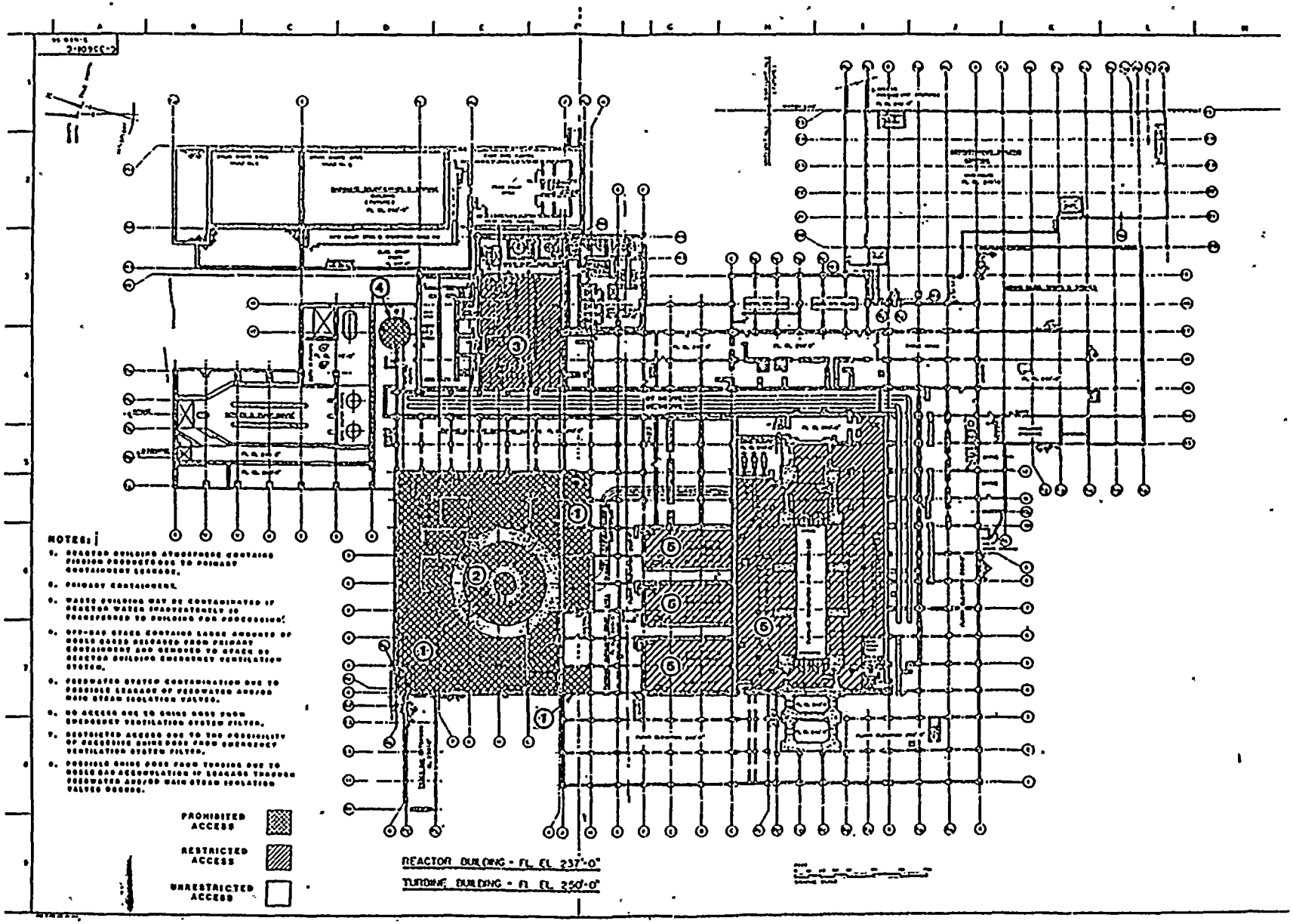
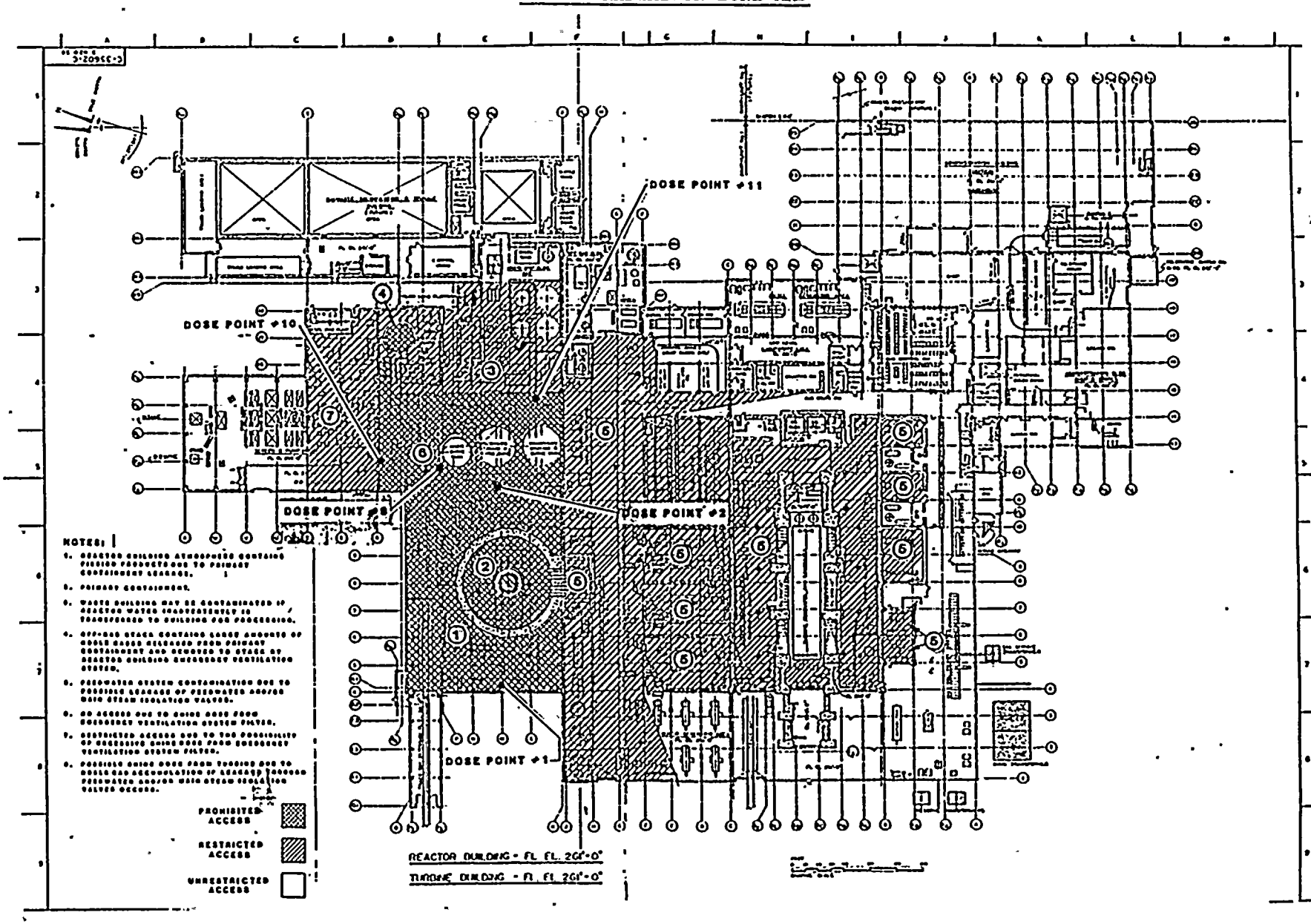


FIGURE 10 (cont.)

UNIT I RADIATION ZONE MAP



URE 10 (cont.)

UNI[illegible] RADIATION ZONE MAP

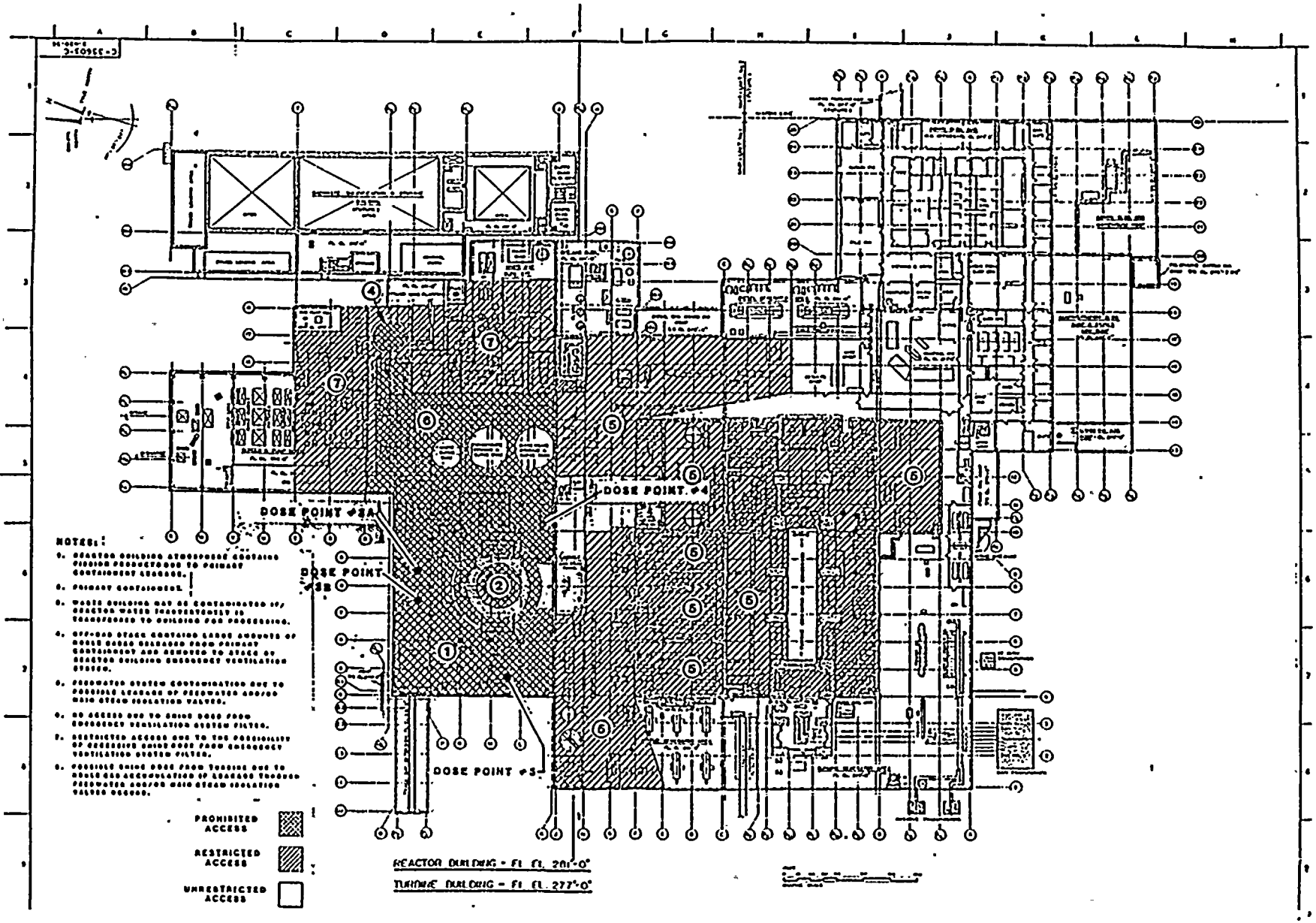


FIGURE 10 (cont.)

UNIT I RADIATION ZONE MAP

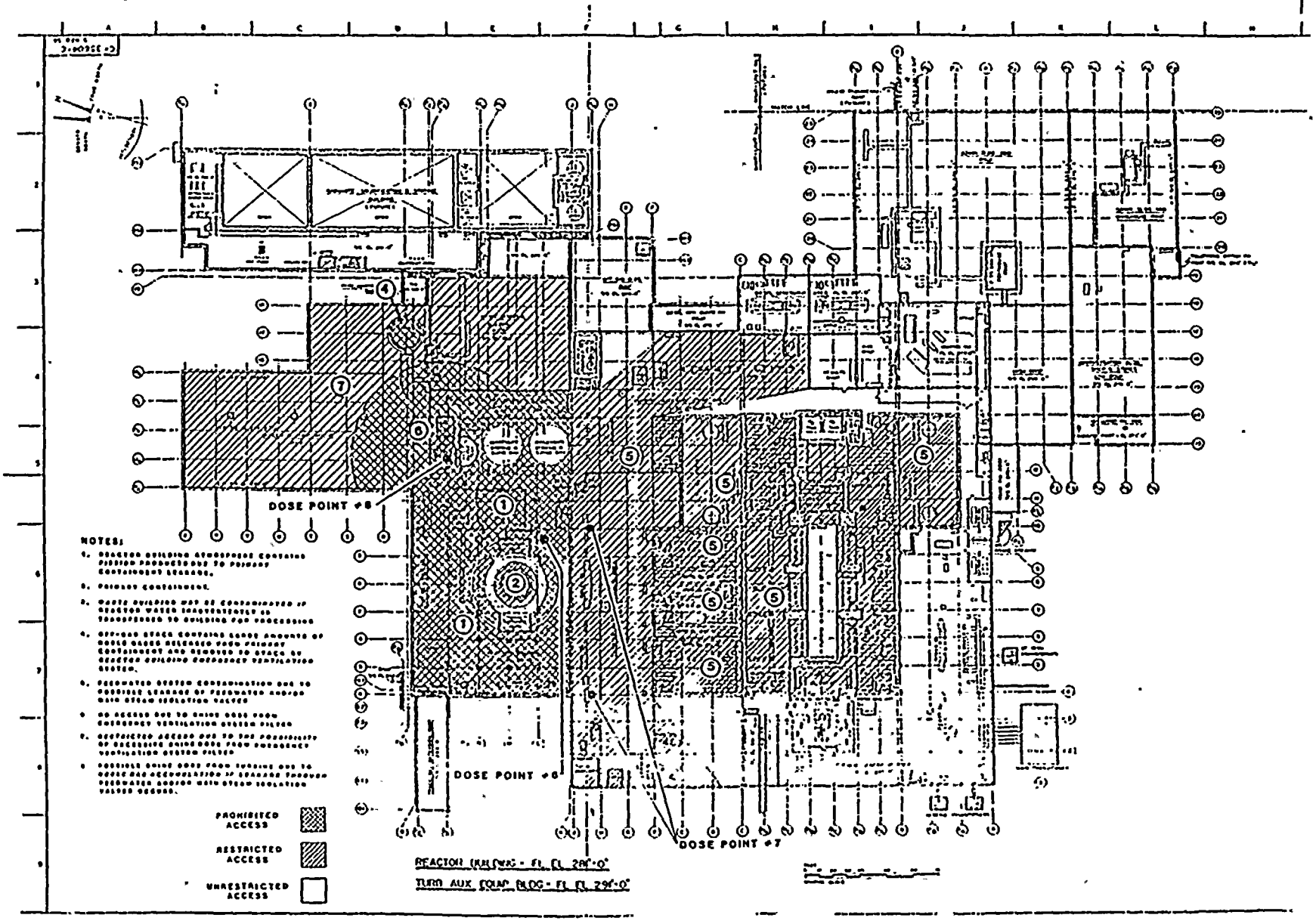


FIGURE 10 (cont.)

UNIT I RADIATION ZONE MAP

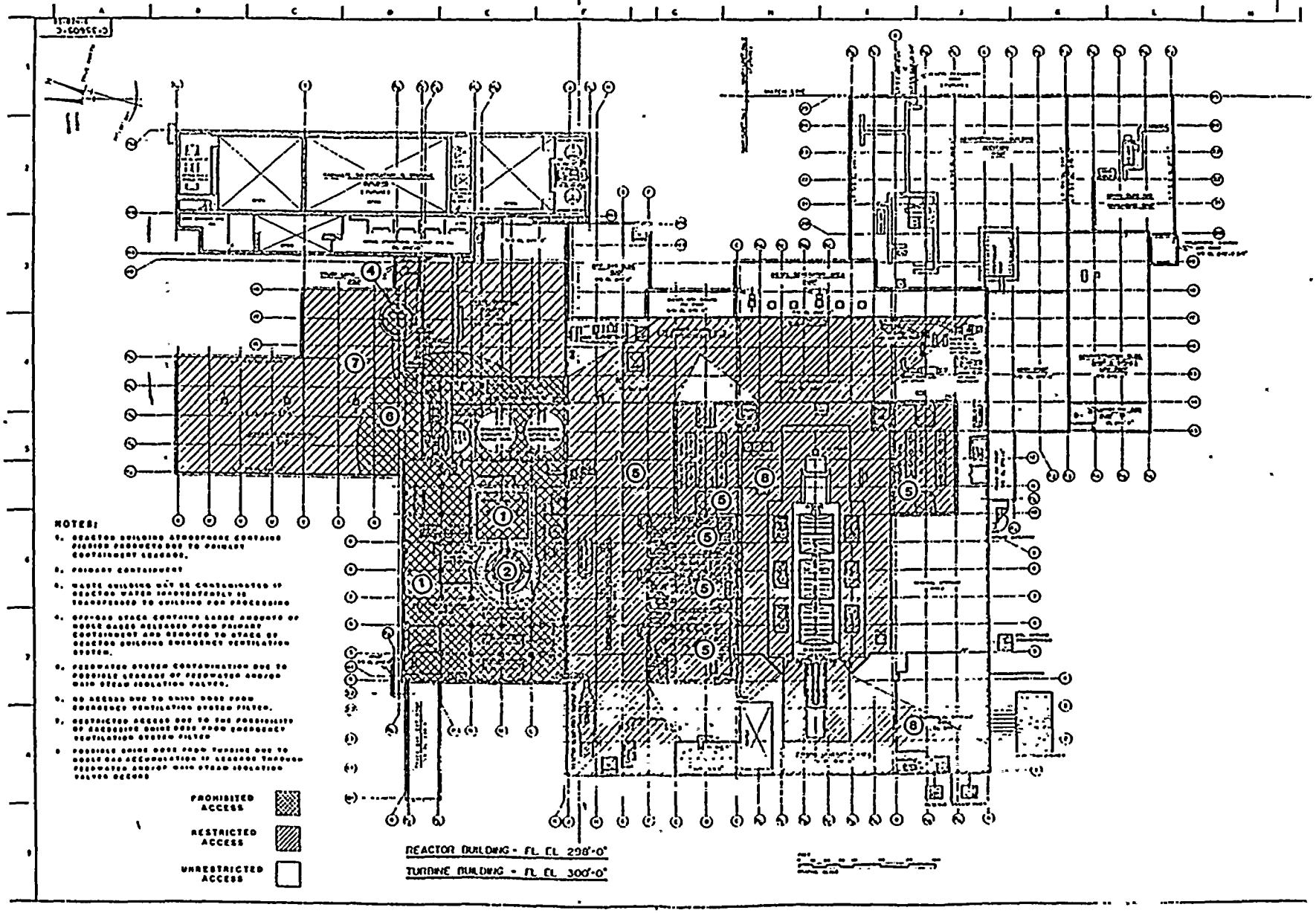


FIGURE 10 (cont.)

UNIT I RADIATION ZONE MAP

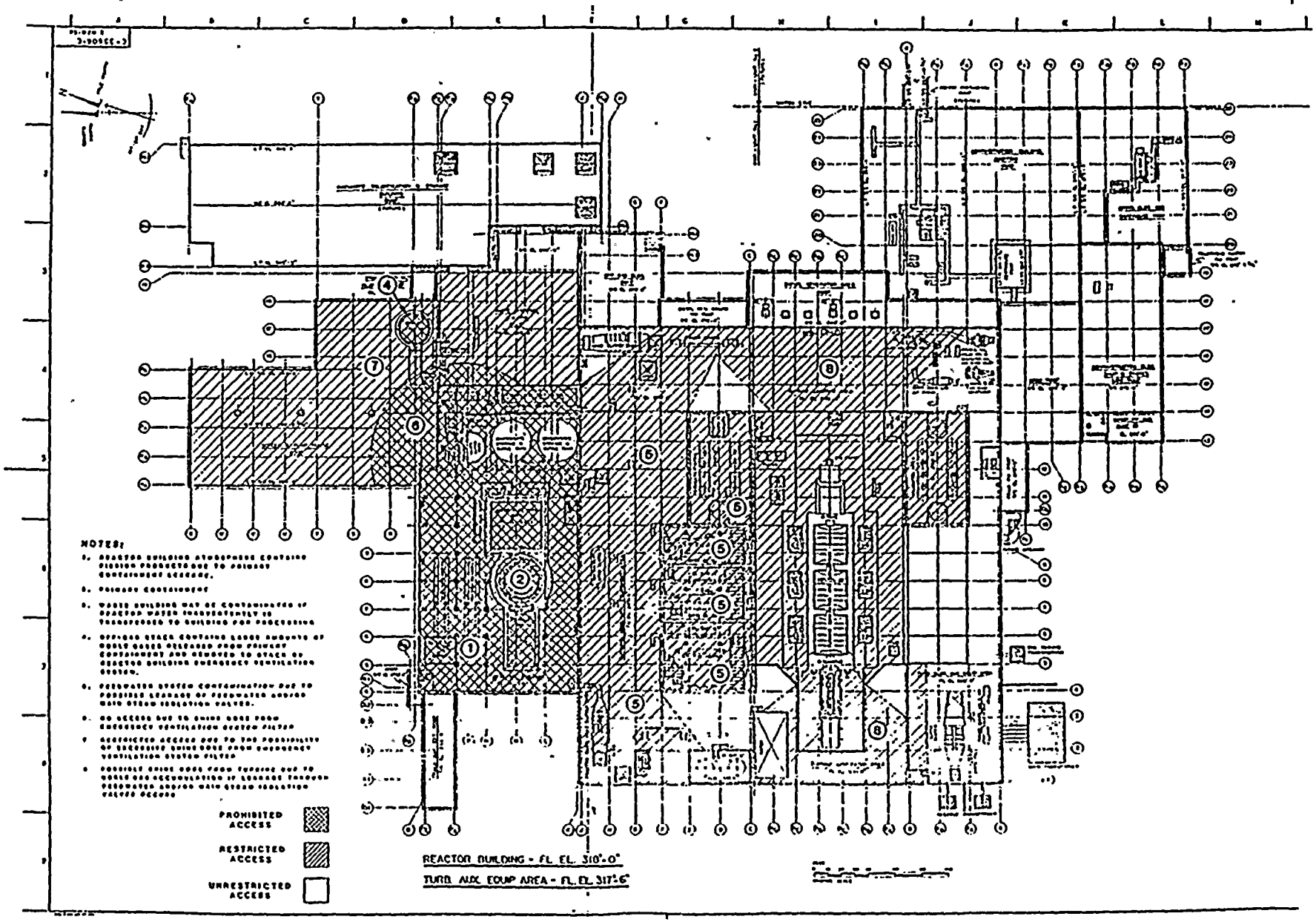


FIGURE 10 (cont.)

UNIT I RADIATION ZONE MAP

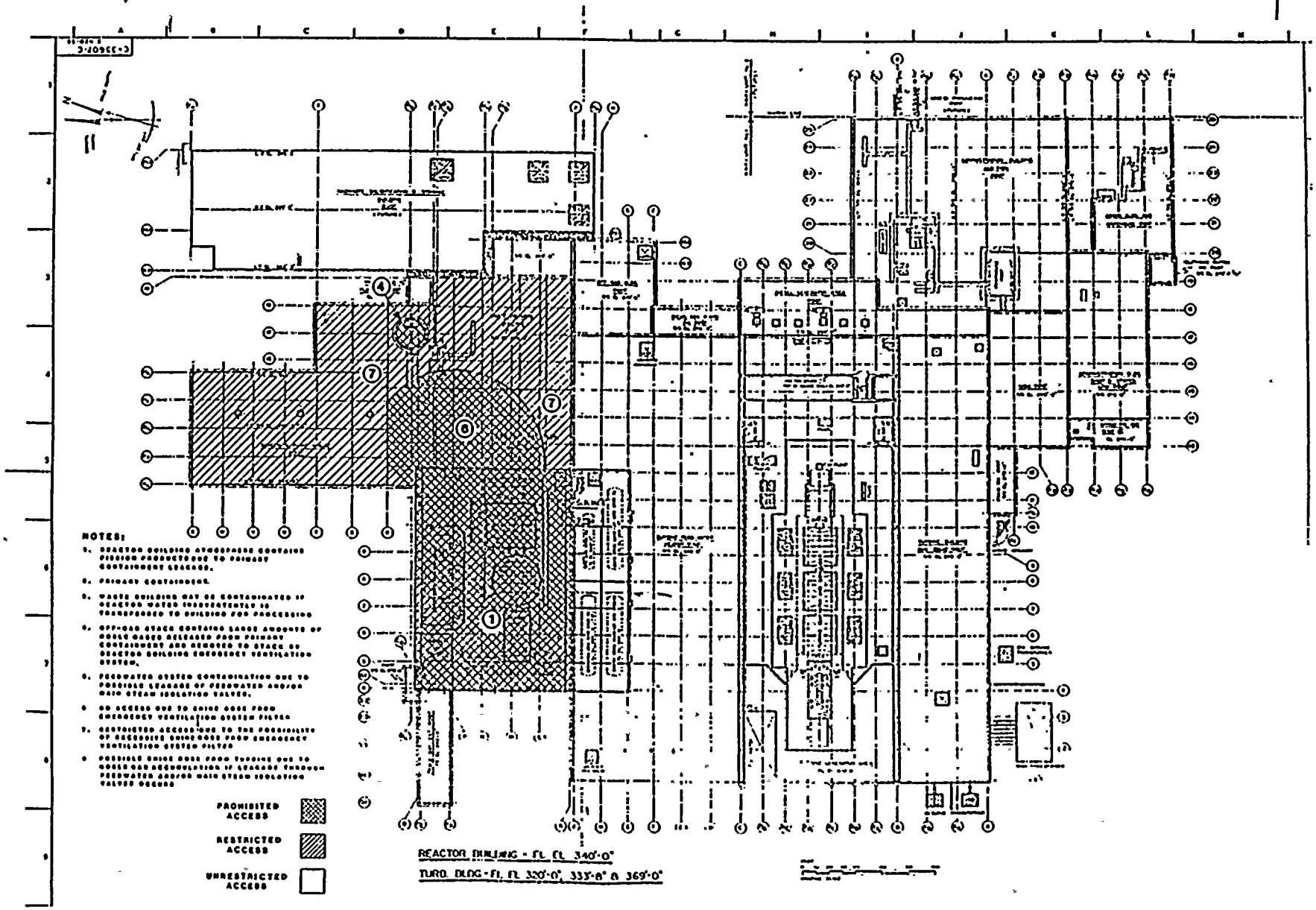


FIGURE 11

UNIT II RADIATION ZONE MAP

6

12.3.1.3 Post-Accident Access and Shield Design Review

A post-accident access and shield design review was performed in accordance with NUREG-0737, Item II.B.2 to ensure personnel accessibility to vital areas following a design basis accident (DBA). The DBA considered in this analysis is the loss-of-coolant accident (LOCA). The source terms used are those specified in Regulatory Guide 1.3 and discussed in Section 15.6.5.5.2.

FIGURE 11

UNIT II RADIATION ZONE MAP

Nine Mile Point Unit 2 FSAR

The plant is designed so that access after an accident is essential in only a limited number of areas. All Unit 2 post-accident vital access areas are listed as follows:

1. Main control room - control building, el 306 ft
2. Relay and computer room - control building, el 288 ft 6 in
3. Health physics/counting room - Unit 1 turbine building, el 261 ft

6

FIGURE 11

UNIT II RADIATION ZONE MAP

Nine Mile Point Unit 2 FSAR

6

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4. Radwaste sample room (post-accident sampling) - turbine building, el 261 ft

5. Online isotopic monitors - turbine building, el 306 ft and main stack, el 261 ft

6. Radwaste control room - turbine building, el 279 ft

7. Technical support center (TSC) - Unit 1 administration building

13 8. Chemistry laboratory - Unit 1 turbine building, el 261 ft

9. Associated connecting access paths

Other post-accident vital access areas suggested by NUREG-0737 either do not apply to Unit 2, or access to them is not required at Unit 2. 6

The doses received by individuals working in or traveling between the various vital areas in performing necessary tasks are presented in Table 12.3-3. The tasks to be performed in the area, the occupancy times in the area including travel time to and from the area, and the doses received in performance of each task are presented for each vital area. The following radiation sources contribute to the doses received for each task:

1. Direct shine from secondary containment

13 2. Airborne releases (described in Section 15.6.5.5.3)

3. Air-scattered radiation from secondary containment (sky shine)

Additional dose contributions from localized sources (e.g., post-accident samples) are accounted for on a case-specific basis.

Dose rates as a function of time at various areas requiring possible occupancy following an accident are presented in Table 12.3-4 and on Figure 12.3-69.

The calculated doses received in performing vital post-accident functions were determined based on the following:

1. Unless otherwise specified, tasks are assumed to be performed at the time post-accident at which the

highest dose rates occur in order to provide a maximum possible dose for the task.

2. Allowable dose limits are based on 10CFR50 Appendix A, General Design Criterion 19, as specified by NUREG-0737.

3. Personnel transit times are based on:

   a. A constant walking speed of 3 ft/sec, or

   b. A constant driving speed of 15 miles/hr (22 ft/sec)

4. Areas requiring continuous occupancy are analyzed to ensure that the 30-day average dose rates are less than 15 mRem/hr, specified by NUREG-0737.

5. The source terms used to calculate the dose contribution due to the samples during operation of the post-accident sampling system (PASS) are as follows: 6

Source	Source Term (% of core inventory)
Pressurized reactor coolant	100 noble gases 50 halogens 50 cesium 1 remaining isotopes
Depressurized reactor coolant	0 noble gases 50 halogens 50 cesium 1 remaining isotopes
Containment atmosphere	100 noble gases 25 halogens

6. Other than the main control room and the technical support center (TSC), no vital area requires access within the first hour after the accident.

7. The starting and ending point for all post-accident activities is the Operational Support Center located in the Unit 1 administration building.

Descriptions of the post-accident vital areas and tasks to be performed are provided as follows. Area numbers correspond with those provided above.

1&2. Main Control Room/Relay and Computer Room - Together, these two areas make up the control room emergency zone. Continuous occupancy for 30 days is required to execute safe shutdown of the plant. Shielding and ventilation system designs ensure habitability for 30 days within the dose limits of GDC 19. See Section 6.4 for details of this habitability analysis.

3. Health Physics/Counting Room - Intermittent occupancy is required to perform routine health physics functions and analyze radioactive grab samples. Since a specific stay time in this area is not defined, the maximum dose is calculated based on full-time occupancy for a standard 8-hr workday.

4&8. Radwaste Sample Room/Unit 1 Chemistry Lab - Intermittent occupancy is required to obtain, transport, and analyze post-accident samples. The samples are assumed to be taken at t=1 hr post-LOCA. See Section 1.10, Item II.B.3, for details of the sampling and analysis procedure. 6

5a. Turbine Building Online Isotopic Monitor - One-time access could be required at 22 days post-LOCA to replace the 160 liter liquid nitrogen supply dewar that feeds the three small dewars on the monitor skid. The stay time at the monitor location is assumed to be 15 minutes. 13

5b. Main Stack Online Isotopic Monitor - As above, one-time access could be required at 22 days to replace the 160 liter liquid nitrogen dewar. Also, due to the increased radioactivity concentration in the stack effluent after an accident, access could be required as frequently as every 6 hr throughout the accident to refill the sample cartridge supply hoppers. It is assumed that the person servicing the stack monitor will drive from the administration building to the stack to perform these functions. Assuming both tasks must be performed during the same trip, the stay time is 15 min plus 5 min for the cartridge refill, for a total of 20 min.

6a. Radwaste Control Room - One-time access is required to turn off reactor building equipment and floor drain pumps in order to prevent the discharge of post-LOCA fluids to the radwaste building. Although this task will probably be performed early

in the accident, the dose is calculated using worst-case dose rates to provide a conservative dose. The stay time for this task is assumed to be 5 minutes.

6b. Access is also required at t=1 hr and again at t=12 hr post-LOCA to service the emergency response facility (ERF) computer system. Again, one dose is calculated using worst-case dose rates to provide a conservative dose. The stay time for each task is 15 minutes.

7. Technical Support Center - Continuous occupancy for 30 days is required to:

   a. Provide plant management and technical support to plant operations personnel during emergency conditions

   b. Relieve the reactor operators of peripheral duties and communications not directly related to reactor system manipulations

   c. Prevent congestion in the control room

   d. Perform emergency operations facility (EOF) functions for the alert emergency class, the site emergency class, and the general emergency class events until the EOF is functional.

9. Associated Connected Access Paths - All pathways used to perform vital post-accident functions are shown on Figure 12.3-69. Calculated doses, except for those continuously occupied areas, include the dose received for a round trip between the OSC and the vital area based on the average dose rate for the path at the appropriate time post-LOCA.

FIGURE 11

UNIT II RADIATION ZONE MAP

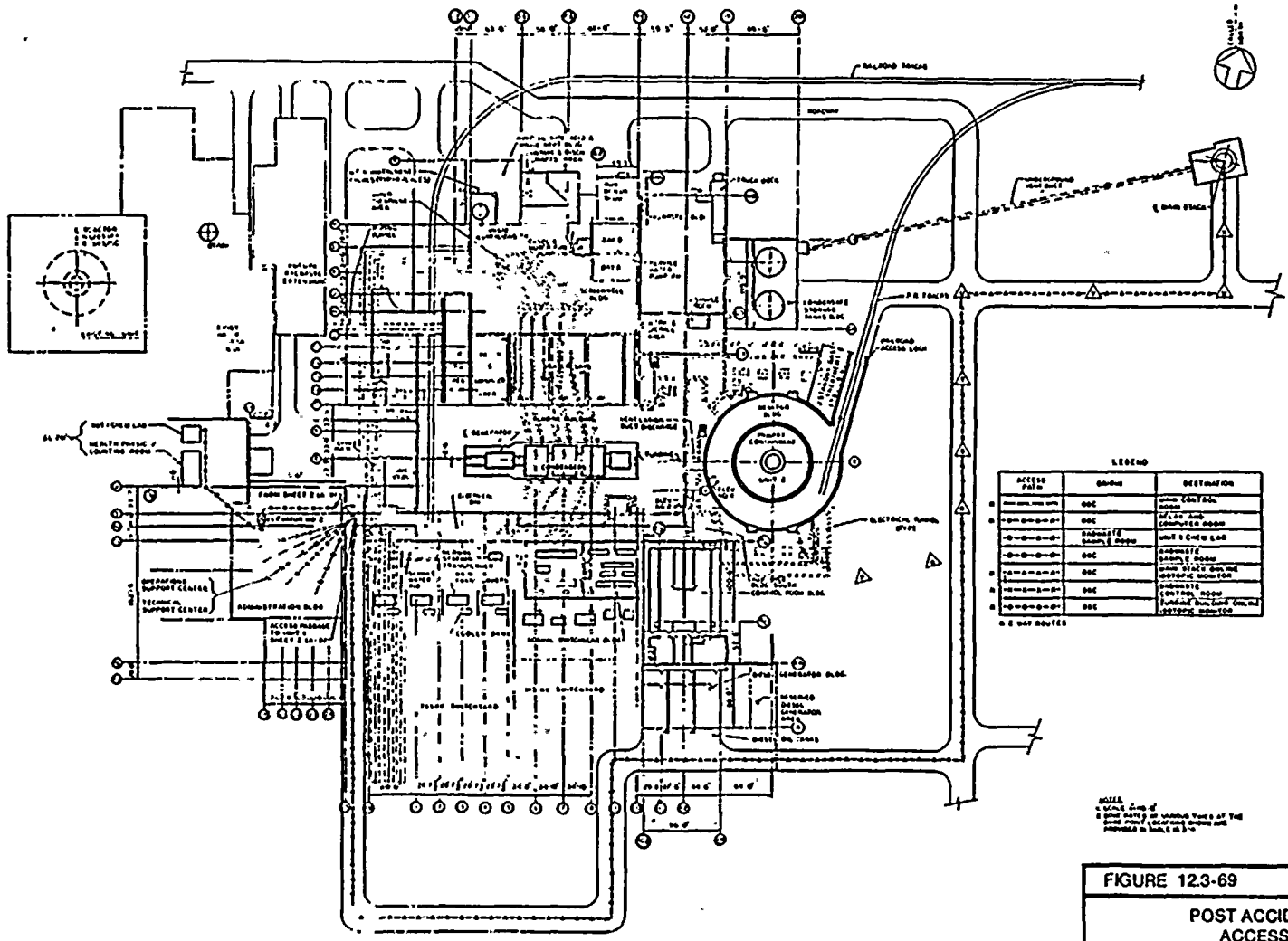

FIGURE 12.3-69

POST ACCIDENT VITAL
ACCESS AREAS
SHEET 1 OF 4

NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT-UNIT 2
FINAL SAFETY ANALYSIS REPORT

FIGURE 11

UNIT II RADIATION ZONE MAP

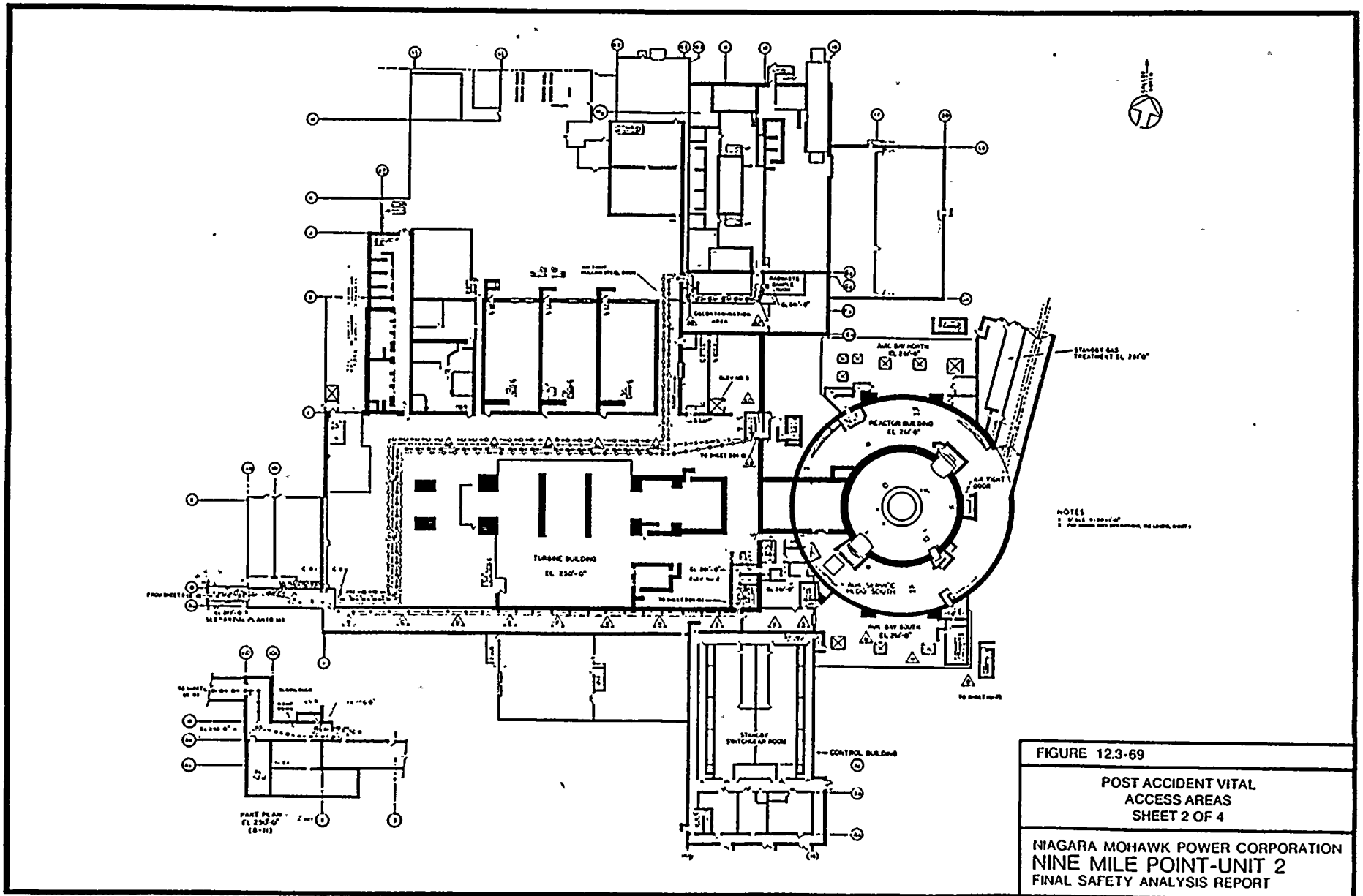

FIGURE 12.3-69

POST ACCIDENT VITAL
ACCESS AREAS
SHEET 2 OF 4

NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT-UNIT 2
FINAL SAFETY ANALYSIS REPORT

FIGURE 11

UNIT II RADI[illegible] ZONE MAP

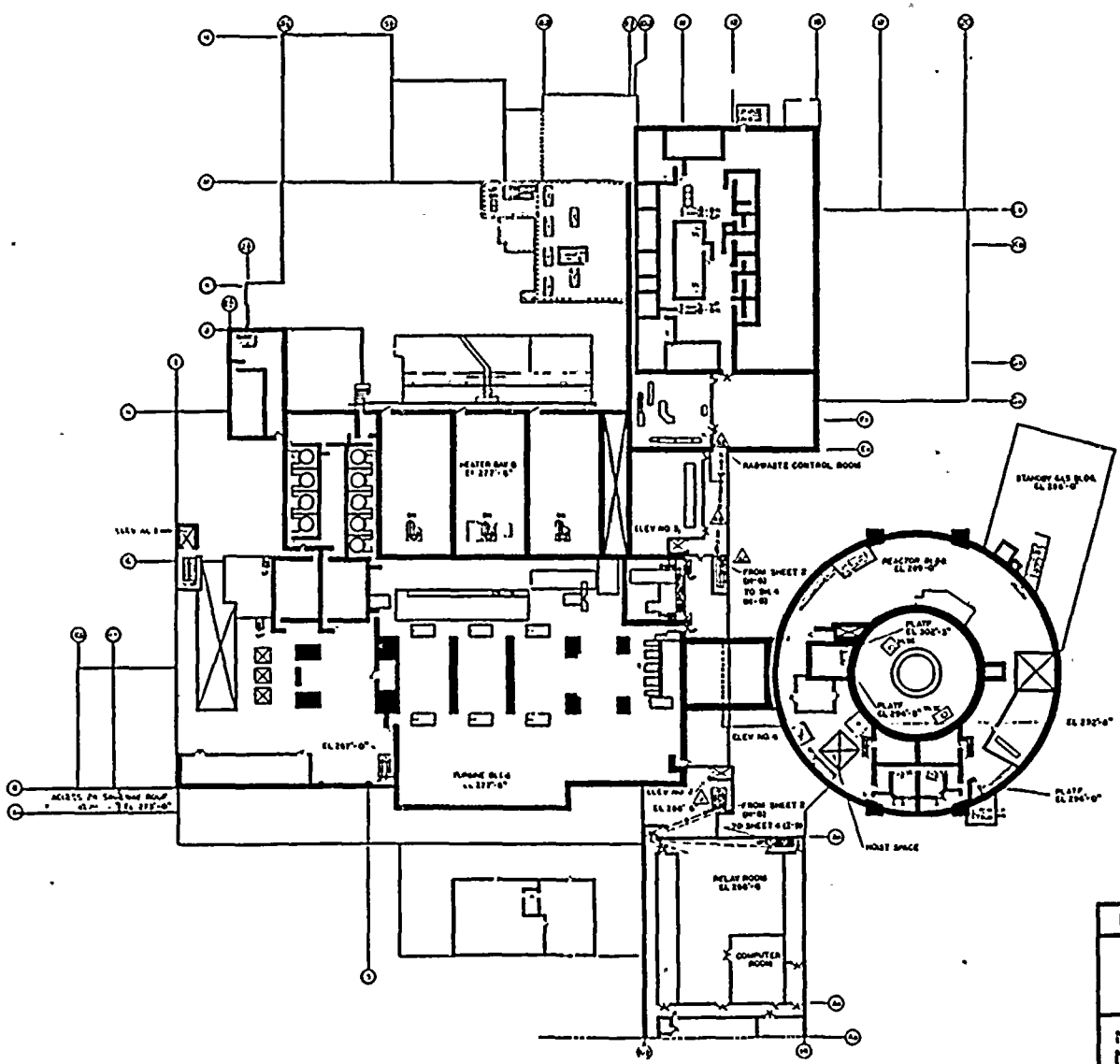

FIGURE 12.3-69

POST ACCIDENT VITAL
ACCESS AREAS
SHEET 3 OF 4

NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT-UNIT 2
FINAL SAFETY ANALYSIS REPORT

FIGURE 11

UNIT II RADIATION ZONE MAP

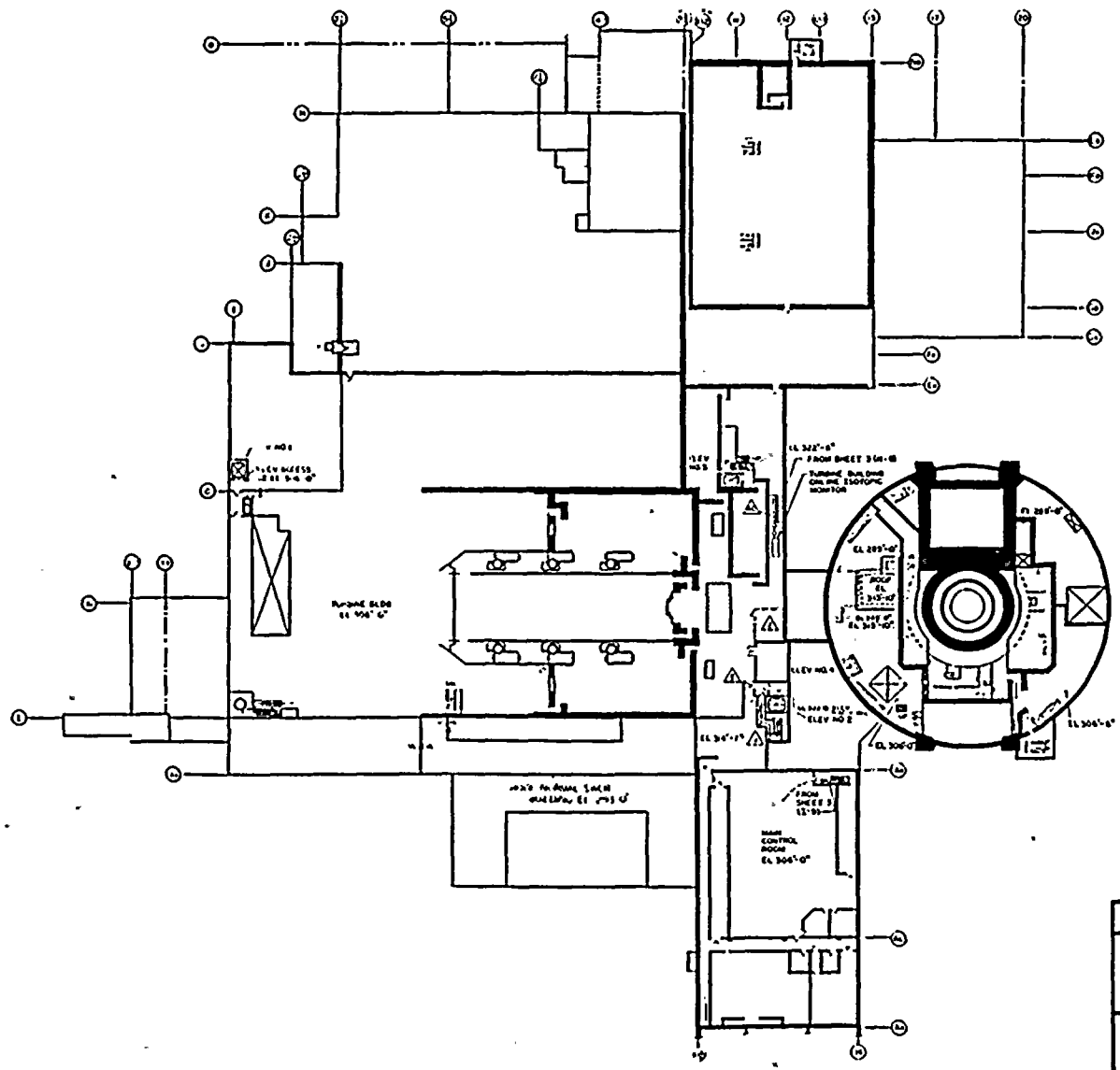

FIGURE 12.3-69

POST ACCIDENT VITAL
ACCESS AREAS
SHEET 4 OF 4

NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT-UNIT 2
FINAL SAFETY ANALYSIS REPORT

Nine Mile Point Unit 2 FSAR

TABLE 12.3-3

PERSONNEL DOSES FOR REQUIRED OCCUPANCY TIMES IN VITAL AREAS

Vital Area	Task Performed	Occupancy Time	Dose (rem)	Notes
Main control room and relay and computer room	Execute the safe shutdown of the plant	Continuous for 30 days	1.15+0	30-day average dose rate = 1.60 mRem/hr
Health physics/ counting room Unit 1	Perform routine health physics functions and analyze radioactive grab samples	8 hr	1.46+0	Dose based upon continuous occupancy for an 8-hr workday at the time of maximum dose rate
Radwaste sample room/ Unit 1 chemistry lab (PASS)(1)	a) Obtain and perform general isotopic and Boron analysis of dilute reactor coolant sample(2)	55 min	1.09+0 1.24+0	Whole body Extremity
	b) Obtain and perform isotopic analysis of containment atmosphere sample(2)	1 hr	1.40+0 2.63+0	Whole body Extremity
	c) Determine level of dissolved gases (e.g, H_2) in reactor coolant	2 hr, 5 min	5.89-1 5.93-1	Whole body Extremity
	d) Obtain and perform chloride analysis of undiluted reactor coolant sample(2)	1 hr, 30 min	2.47+0 1.66+1	Whole body Extremity
Turbine building online isotopic monitor	Replace large liquid nitrogen dewar(3)	1 or 2 min	2.79+0	Dose includes dose received for one round trip between the OSC and the monitor location
Main stack online isotopic monitor	Replace large liquid nitrogen dewar and refill sample cartridge feed hopper(3)	24 min	2.74+0	Dose includes dose received for one round trip between the OSC and the monitor location
Radwaste control room	a) Turn off reactor building equipment and floor drain pumps	12 min	8.26-1	Dose includes dose received for one round trip between the OSC and the radwaste control room

FIGURE 12 (Cont.)

Nine Mile Point Uni 2 FSAR

TABLE 12.3-3 (Cont)

Vital Area	Task Performed	Occupancy Time	Dose (rem)	Notes
	b) Service ERF computer system	22 min	1.18+0	
Round trip between the OSC and the control room emergency zone	For information only	6 min	1.60+0	
Technical support center	Per NUREG-0696	Continuous for 30 days	Later	

(1)t = 1 hr source terms used. See Section 1.10, Item II.B.3, for specific information on the post-accident sampling system and Table II.B.3-1 for a breakdown of the tasks and required occupancy times.
(2)Dose includes exposure received for one round trip from the OSC, to the radwaste sample room, to the Unit 1 chem lab, and back to the OSC.
(3)This assumes that the spare dewar is stored at the monitor location.

Nine Mile Point Unit 2 FSAR

TABLE 12.3-4

DOSE RATE (REM/HR) AT LOCATION:*

Time Post-LOCA (Hr)	A	B	C	D	E	F	G	H	I
1	2.85+0	3.16+0	3.49+0	3.93±0	4.29+0	4.86+0	5.14+0	5.32+0	5.31+0
3	3.17+0	3.75+0	4.48+0	5.43+0	6.15+0	7.01+0	7.46+0	7.90+0	7.75+0
6	4.29+0	5.03+0	6.01+0	7.03+0	7.73+0	8.91+0	9.49+0	1.01+1	1.00+1
9	4.35+0	5.30+0	6.32+0	7.47+0	8.07+0	9.51+0	1.02+1	1.08+1	1.05+1
12	4.61+0	5.78+0	7.01+0	7.99+0	8.99+0	1.05+1	1.13+1	1.18+1	1.14+1
18	5.26+0	6.36+0	7.82±0	9.23+0	1.01+1	1.20+1	1.26+1	1.33+1	1.30+1
24	5.90+0	7.30+0	8.77+0	1.03+1	1.12+1	1.28+1	1.44+1	1.46+1	1.45+1
30	6.09+0	7.50+0	8.98+0	1.04+1	1.14+1	1.32+1	1.44+1	1.46+1	1.46+1
50	6.69+0	8.11+0	9.69+0	1.11+1	1.21+1	1.42+1	1.44+1	1.57+1	1.46+1
75	7.36+0	8.69+0	1.03+1	1.21+1	1.26+1	1.44+1	1.56+1	1.69+1	1.58+1
100	8.06+0	9.72+0	1.17+1	1.38+1	1.48+1	1.67+1	1.69+1	1.82+1	1.71+1
200	9.53+0	1.16+1	1.37+1	1.63+1	1.73+1	1.93+1	2.07+1	2.10+1	2.09+1
400	8.23+0	9.79+0	1.17+1	1.37+1	1.47+1	1.66+1	1.79+1	1.81+1	1.71+1
550	5.84+0	6.90+0	8.31+0	9.57+0	1.05+1	1.16+1	1.24+1	1.28+1	1.21+1
720	4.27+0	4.74+0	5.54+0	6.27+0	6.77+0	7.59+0	8.02+0	8.14+0	7.80+0

	J	K	L	M	N	O	P	Q	R
1	4.87+0	3.17+0	2.51+0	3.41+0	3.61+0	5.05+0	5.74+0	6.33+0	6.23+0
3	7.31+0	4.10+0	2.92+0	4.37+0	4.87+0	7.46+0	8.30+0	8.48+0	8.28+0
6	8.79+0	4.66+0	3.18+0	5.20+0	5.80+0	8.91+0	1.04+1	1.03+1	1.02+1
9	9.20+0	4.11+0	2.63+0	5.13+0	5.83+0	9.20+0	1.10+1	1.03+1	1.00+1
12	1.02+1	4.53+0	2.79+0	5.59+0	6.49+0	1.02+1	1.18+1	1.13+1	1.11+1
18	1.16+1	4.78+0	3.16+0	6.46+0	7.66+0	1.16+1	1.34+1	1.27+1	1.25+1
24	1.22+1	5.05+0	3.19+0	6.88+0	8.08+0	1.22+1	1.47+1	1.44+1	1.34+1
30	1.27+1	5.06+0	3.29+0	7.09+0	8.59+0	1.27+1	1.47+1	1.44+1	1.34+1
50	1.32+1	5.18+0	3.30+0	7.60+0	9.30+0	1.32+1	1.58+1	1.44+1	1.44+1
75	1.44+1	5.32+0	3.46+0	8.26+0	9.86+0	1.44+1	1.60+1	1.56+1	1.56+1
100	1.57+1	5.62+0	3.65+0	9.25+0	1.07+1	1.57+1	1.83+1	1.69+1	1.69+1
200	1.83+1	6.62+0	4.38+0	1.12+1	1.25+1	1.83+1	2.11+1	2.07+1	2.07+1
400	1.46+1	5.48+0	3.63+0	9.43+0	1.07+1	1.46+1	1.82+1	1.79+1	1.69+1
550	1.06+1	3.94+0	2.59+0	6.69+0	7.69+0	1.06+1	1.26+1	1.23+1	1.23+1
720	7.09+0	2.66+0	1.78+0	4.38+0	5.18+0	7.09+0	8.09+0	8.02+0	7.92+0

*Refer to Figure 12.3-69.

FIGURE 12 (Cont.)

Nine Mile Point Unit 2 PSAR

TABLE 12.3-4 (Cont)

Time Post-LOCA (Hr)	S	T	U	V	W	X	Y	Z
1	6.33+0	6.15+0	5.98+0	4.91+0	3.95+0	3.81+0	4.59+0	3.54+0
3	8.38+0	7.76+0	7.44+0	4.96+0	3.64+0	3.43+0	6.49+0	4.71+0
6	1.03+1	9.87+0	8.81+0	6.11+0	4.04+0	3.71+1	7.82+0	5.64+0
9	1.01+1	9.70+0	8.06+0	4.99+0	2.57+0	1.93+0	8.02+0	5.64+0
12	1.13+1	1.08+1	9.08+0	5.27+0	2.80+0	2.36+0	9.03+0	6.39+0
18	1.26+1	1.21+1	1.01+1	6.05+0	3.13+0	2.68+0	1.03+1	7.46+0
24	1.44+1	1.31+1	1.13+1	6.89+0	3.45+0	2.89+0	1.09+2	7.89+0
30	1.44+1	1.32+1	1.14+1	7.10+0	3.65+0	2.99+0	1.14+1	8.29+0
50	1.44+1	1.42+1	1.21+1	7.71+0	3.85+0	2.98+0	1.23+1	8.90+0
75	1.56+1	1.54+1	1.26+1	8.29+0	4.29+0	3.51+0	1.25+1	9.56+0
100	1.69+1	1.67+1	1.48+1	9.22+0	4.75+0	4.16+0	1.37+1	1.05+1
200	2.07+1	2.03+1	1.73+1	1.11+1	5.72+0	4.50+0	1.62+1	1.25+1
400	1.79+1	1.66+1	1.47+1	9.39+0	4.93+0	4.05+0	1.37+1	1.04+1
550	1.24+1	1.20+1	1.05+1	6.60+0	3.58+0	2.94+0	9.74+0	7.49+0
720	8.02+0	7.69+0	6.77+0	4.54+0	2.24+0	1.45+0	6.46+0	4.98+0

	AA	AB	AC	AD	AE	AF	AG	AH	AI
1	2.62+0	2.49+0	4.39+0	3.37+0	3.58+0	3.07+0	3.04+0	2.81+0	2.87+0
3	3.01+0	2.69+0	6.06+0	4.10+0	4.46+0	3.61+0	3.55+0	3.29+0	3.43+0
6	3.24+0	2.82+0	7.29+0	4.62+0	5.03+0	3.95+0	3.88+0	3.59+0	3.77+0
9	2.54+0	2.02+0	7.42+0	4.01+0	4.45+0	3.18+0	3.10+0	2.91+0	3.10+0
12	2.79+0	2.13+0	8.33+0	4.07+0	4.62+0	3.36+0	3.28+0	3.09+0	3.29+0
18	3.16+0	2.28+0	9.58+0	4.36+0	4.84+0	3.60+0	3.50+0	3.29+0	3.50+0
24	3.19+0	2.35+0	1.02+1	4.46+0	5.05+0	3.71+0	3.62+0	3.39+0	3.62+0
30	3.29+0	2.36+0	1.05+1	4.38+0	4.97+0	3.73+0	3.63+0	3.41+0	3.63+0
50	3.30+0	2.38+0	1.14+1	4.41+0	4.90+0	3.77+0	3.67+0	3.44+0	3.67+0
75	3.46+0	2.52+0	1.21+1	4.59+0	5.11+0	3.99+0	3.88+0	3.64+0	3.88+0
100	3.75+0	2.72+0	1.27+1	4.86+0	5.41+0	4.31+0	4.19+0	3.93+0	4.19+0
200	4.38+0	3.22+0	1.52+1	5.64+1	6.37+0	5.11+0	4.97+0	4.66+0	4.97+0
400	3.63+0	2.68+0	1.27+1	4.71+0	5.35+0	4.24+0	4.13+0	3.87+0	4.13+0
550	2.69+0	1.94+0	9.24+0	3.42+0	3.85+0	3.08+0	2.99+0	2.81+0	2.99+0
720	1.78+0	1.26+0	6.16+0	2.23+0	2.50+0	1.99+0	1.94+0	1.82+0	1.94+0

*Refer to Figure 12.3-69.

FIGURE 12 (Cont.)

Nine Mile Point Unit 2 PSAR

TABLE 12.3-4 (Cont)

Time Post-LOCA (Hr)	AJ	AK	AL	AM	AN	AO	AP	AQ
1	2.92+0	2.84+0	2.76+0	2.58+0	2.41+0	2.18+0	2.04+0	2.04+0
3	3.49+0	3.38+0	3.24+0	2.93+0	2.63+0	2.47+0	2.22+0	2.22+0
6	3.84+0	3.73+0	3.55+0	3.16+0	2.79+0	2.66+0	2.34+0	2.34+0
9	3.18+0	3.11+0	2.92+0	2.49+0	2.08+0	2.07+0	1.72+0	1.72+0
12	3.37+0	3.29+0	3.09+0	2.63+0	2.19+0	2.19+0	1.81+0	1.81+0
18	3.60+0	3.51+0	3.30+0	2.81+0	2.34+0	2.33+0	1.92+0	1.92+0
24	3.71+0	3.62+0	3.39+0	2.89+0	2.40+0	2.40+0	1.97+0	1.97+0
30	3.73+0	3.63+0	3.41+0	2.90+0	2.40+0	2.40+0	1.98+0	1.98+0
50	3.77+0	3.67+0	3.44+0	2.93+0	2.42+0	2.42+0	1.99+0	1.99+0
75	3.99+0	3.88+0	3.64+0	3.10+0	2.56+0	2.56+0	2.10+0	2.10+0
100	4.31+0	4.19+0	3.93+0	3.35+0	2.76+0	2.76+0	2.26+0	2.26+0
200	5.11+0	4.97+0	4.66+0	3.97+0	3.27+0	3.27+0	2.68+0	2.68+0
400	4.24+0	4.13+0	3.87+0	3.30+0	2.71+0	2.71+0	2.23+0	2.23+0
550	3.08+0	2.99+0	2.81+0	2.39+0	1.97+0	1.97+0	1.61+0	1.61+0
720	1.99+0	1.94+0	1.82+0	1.55+0	1.27+0	1.27+0	1.04+0	1.04+0

Time Post-LOCA (Hr)	AR	AS	Health Physics/ Counting Room Unit 2	Turbine Building Radwaste Sample Room	Online Isotopic Monitor	Main Stack Online Isotopic Monitor
1	2.04+0	1.91+0	4.25-2	2.76-1	4.19+0	1.78+0
3	2.22+0	1.94+0	3.19-2	2.40-1	5.79+0	2.52+0
6	2.34+0	2.04+0	2.61-2	2.09-1	7.02+0	3.69+0
9	1.72+0	1.41+0	4.38-4	6.74-2	7.22+0	2.92+0
12	1.81+0	1.45+0	3.45-4	5.99-2	8.03+0	2.99+0
18	1.92+0	1.50+0	2.30-4	4.76-2	9.28+0	3.17+0
24	1.97+0	1.55+0	1.68-4	3.88-2	9.85+0	2.41+0
30	1.98+0	1.53+0	7.07-5	3.25-2	1.03+1	3.31+0
50	1.99+0	1.51+0	3.45-5	2.24-2	1.10+1	3.24+0
75	2.10+0	1.57+0	2.21-5	1.84-2	1.17+1	3.37+0
100	2.26+0	1.67+0	7.72-6	1.71-2	1.25+1	3.66+0
200	2.68+0	1.97+0	5.07-6	1.73-2	1.52+1	4.08+0
400	2.23+0	1.64+0	3.51-6	1.48-2	1.26+1	2.90+0
550	1.61+0	1.19+0	2.50-6	1.11-2	9.04+0	2.01+0
720	1.04+0	7.84-1	1.64-6	7.34-3	6.06+0	1.66+0

*Refer to Figure 12.3-69.

FIGURE 12 (Cont.)

Nine Mile Point Unit 2 FSAR

TABLE 12.3-4 (Cont)

Time Post-LOCA (Hr)	Radwaste Control Room	Unit 1 Chemistry Lab
1	1.43+0	9.00-2
3	1.89+0	6.87-2
6	2.08+0	5.65-2
9	1.96+0	3.17-3
12	1.95+0	2.62-3
18	1.93+0	1.84-3
24	1.90+0	1.36-3
30	1.87+0	9.41-4
50	1.73+0	5.15-4
75	1.72+0	3.58-4
100	1.83+0	2.85-4
200	2.09+0	2.58-4
400	1.71+0	2.24-4
550	1.26+0	1.69-4
720	8.15-1	1.13-4

*Refer to Figure 12.3-69.

FIGURE 13

CONTAMINATION CONTROL GUIDES

		NORMAL STATION CONTROL LEVELS	EMERGENCY STATION CONTROL LEVELS
Unrestricted Areas and Release of Material, Equipment, Tools, Vehicles, etc. to Unrestricted Areas	Transferable	<100dpm ß- γ per 100cm^2 (disc smear) <1000dpm ß- γ per ft^2 (wipe) <10dpm α per 100cm^2 (disc smear)	<1000dpm ß- γ per 100cm^2 (disc smear) <10,000dpm ß- γ per ft^2 (wipes) <10dpm α per 100cm^2 (disc smear)
	Fixed	No activity above background (Background must be <300cpm)	<1 mrad/hr
Restricted Areas	Transferable	<400dpm ß- γ per 100cm^2 (disc smear) <4000dpm ß- γ per ft^2 (wipe) <40dpm α per 100cm^2 (disc smear)	<4000dpm ß- γ per 100cm^2 (disc smear) <40,000dpm ß- γ per ft^2 (wipe) <40 dpm α per 100cm^2 (disc smear)
	Fixed	<5mrad/hr at contact	<5mrad/hr at contact
Restricted Area Equipment and Tools	Transferable	<400dpm ß- γ per 100cm^2 (disc smear) <4000dpm ß- γ per ft^2 (wipe) <40dpm α per 100cm^2 (disc smear)	<4000dpm ß- γ per 100cm^2 (disc smear) <40,000dpm ß- γ per ft^2 (wipe) <40 dpm α per 100cm^2 (disc smear)
	Fixed	<5mrad/hr at contact	<5mrad/hr at contact
Respiratory Equipment (except hoses and manifolds - see "Equipment and Tools")	Transferable	<400dpm ß- γ per 100cm^2 (disc smear) <40dpm α per 100cm^2	<400dpm ß- γ per 100cm^2 (disc smear) <40 dpm α per 100cm^2 (disc smear)
	Fixed	<800cpm, 1.4-2.0mg/cm^2 probe	<800cpm, 1.4-2.0mg/cm^2 probe

FIGURE 13

CONTAMINATION CONTROL GUIDES (Cont.)

	NORMAL STATION CONTROL LEVELS	EMERGENCY STATION CONTROL LEVELS
Personnel Decontamination (Personnel Clothing, Shoes)	<100 cpm or 1000 dpm/15cm^2 (probe area) (Background < 500 cpm)	<1000 cpm or 10,000 dpm/15cm^2 (probe area) (Background < 500 cpm)

NOTES:

1. During emergency situations, if decontamination is warranted and possible contamination levels should be brought down below normal station control levels.
2. Once the emergency has been terminated, all tools, equipment and areas released under emergency guidelines shall be resurveyed and decontaminated (if necessary) to be brought back into compliance with normal station control levels.

NINE MILE POINT NUCLEAR STATION

EMERGENCY PLAN IMPLEMENTING PROCEDURE

PROCEDURE NO. EPP-16

ENVIRONMENTAL MONITORING

APPROVALS	SIGNATURES	DATE AND INITIALS REVISION 8	REVISION 9	REVISION 10
Supervisor Radiological Support E. C. Gordon		5/23/88		
Station Superintendent NMPNS Unit 1 T. W. Roman				
Station Superintendent NMPNS Unit 2 R. B. Abbott		5/25/88		
General Superintendent Nuclear Generation J. L. Willis		5/27/88		

FOR INFORMATION ONLY

Summary of Pages

Revision 8 (Effective 6/1/88)

Pages	Date
i, 1-26	May 1988

Proprietary Information Removed From Pages 12, 15-17.

NIAGARA MOHAWK POWER CORPORATION

THIS PROCEDURE NOT TO BE USED AFTER JUNE 1990 SUBJECT TO PERIODIC REVIEW.

EPP-16

ENVIRONMENTAL MONITORING

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EPP-16

ENVIRONMENTAL MONITORING

1.0 PURPOSE

1.1 The purpose of this procedure is to describe the radiological environmental sampling program to be instituted during the post-emergency recovery/re-entry phase. The results of the sampling program will assist in the refinement of radiological dose and contamination estimates. The information will be essential in an assessment of whether the emergency satisfies the criteria set forth in 10 CFR Part 140 for an extraordinary nuclear occurrence.

2.0 REFERENCES

2.1 EPP-7, Downwind Radiological Monitoring

2.2 EPP-8, On-site & Off-site Dose Assessment Procedure

2.3 EPP-16, Environmental Monitoring

2.4 EPP-25, Emergency Reclassification and Recovery

2.5 EPP-26, Protective Action Recommendations

2.6 S-ENVSP-4, Environmental Station Inspection and Sample Collection

2.7 10 CFR 140 Subpart E-Extraordinary Nuclear Occurrences

2.8 NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants

3.0 RESPONSIBILITIES

3.1 Radiological Assessment Manager (RAM) | 8

Responsible to the Site Emergency Director for:

a. Managing downwind survey monitoring. | 8

b. Providing technical and administrative direction to the Environmental Survey/Sample Team Coordinator relative to overall emergency conditions and inplant response actions.. | 8

3.2 Off-Site Dose Assessment Manager

Responsible to the Radiological Assessment Manager for:

a. Coordinating activities on protective action recommendations and off-site projected doses.. | 8

3.2 (Cont'd)

b. Interfacing with the Corporate Emergency Director/Recovery Manager as well as with County, State and Federal Officials concerning projected dose assessment activities. 8

3.3 Environmental Survey/Sample Team Coordinator (ESSTC)

Responsible to the Radiological Assessment Manager for:

a. Providing technical and administrative direction to environmental monitoring teams (on-site and off-site) during a declared emergency.

b. Providing technical input to the Radiological Assessment Manager and the Off-site Dose Assessment Manager regarding downwind monitoring and the radiological environmental monitoring program (as applicable) during and following a declared emergency. 8

3.4 Environmental Monitoring Teams

Responsible to the Environmental Survey/Sample Team Coordinator for performing and reporting radiological environmental surveys and sampling.

3.5 Emergency Planning Coordinator

Responsible to the Superintendent of Chemistry and Radiation Management for maintaining emergency TLD's and associated data as required by EPP-16, Section 5.4.

4.0 EQUIPMENT

4.1 On-Site Monitoring Stations

There are nine (9) On-Site Monitoring Stations located on the land side surrounding the two plants on the NMP-JAF Site (see EPP-16, Figure 1b and Figure 3 for a map and description of locations). Each station is equipped with an air sampling pump capable of collecting a particulate and halogen air sample. Each is also equipped with a continuous recording G.M. monitor with a range of 0.01 mr/hr to 100 mr/hr. The G.M. detector is mounted on the station housing so that it can monitor an overhead radioactive plume as it passes.

4.2 Off-Site Monitoring Stations

There are six (6) Off-Site Monitoring Stations which are located from 6 to 17 miles from the NMP-JAF Site (see EPP-16, Figures 2 and 3 for a map and description of locations). These stations are equipped the same as the on-site stations except they do not have G. M. monitoring capabilities.

4.3 Environmental TLD Monitoring Stations

There are approximately one hundred (100) Environmental Thermoluminescent Dosimeter (TLD) Stations located at or near the NMP-JAF site. Fifteen TLDs are located (one each) at the 15 On-Site and Off-Site Monitoring Stations described above. Several other monitoring stations are located at background control points up to 20 miles from the site, and others are located near important population areas (see EPP-16, Figures 1b, 2 and 4 for maps and descriptions of environmental TLD locations). All of these TLDs are changed on a quarterly basis as part of the environmental monitoring program.

4.4 Emergency TLD Monitoring Station

In addition to the environmental TLDs, thirty-three (33) Emergency TLDs are located in 22.5 degree land based sectors forming 3 rings at approximately 2, 5 and 10 miles from the site (see EPP-16, Figures 1a, 2 and 5 for maps and descriptions of emergency TLD locations). These TLDs are for emergency use during and after an emergency to estimate the severity of the gamma dose received during the emergency situation. The Emergency TLDs are changed quarterly.

4.5 Other Environmental Monitoring Stations

Monitoring for the other environmental media listed in EPP-16, Figure 6 shall be performed at locations which are consistent with the current (non-emergency) Site Radiological Environmental Monitoring Program. In addition, should the emergency situation require an increase in the number and frequency of sample locations, the Environmental Survey/Sample Team Coordinator shall implement and coordinate the expanded Site Radiological Environmental Monitoring Program. 8

At least two (2) Ludlum Model-19 Micro-R Meters are available for additional environmental monitoring at the discretion of the Environmental Survey/Sample Team Coordinator. The Ludlum Model-19 is a NaI scintillation detector with a range of 0.5 uR/hr (micro R per hour) to 5 mR/hr.

5.0 COLLECTION OF SAMPLES AND DATA

5.1 Selection of Sample Locations

Samples will be collected from stations and other locations selected on a priority basis by the Environmental Survey/Sample Team Coordinator with the assistance of the Radiological Assessment Manager. The initial command center will be based in the Technical Support Center. Subsequently, the command center will be shifted to the EOF once it is staffed so as to afford site personnel the ability to interface with governmental agencies.

Sample locations should be given the following order of priority:

a. Downwind on-site
b. Downwind off-site
c. Upwind on-site
d. Upwind off-site

5.1 (Cont'd)

Samples from the first downwind monitoring station selected should be collected as part of the downwind survey (see EPP-7, Downwind Surveys) when directed by the Environmental Survey/Sample Team Coordinator. The other collections should be made as soon as practicable without interfering with other emergency operations.

5.2 Air Sample Collection and Analysis

5.2.1 Upon arriving at the station, unlock the door using the P-5 key (found in the Downwind Survey Kits). Open the door using the "T" shaped key or the lever handle located on the locking device on the right hand cabinet door.

5.2.2 Shut off the sample pump after recording the date, time and flow rate on the sample collection envelope found in the cabinet.

5.2.3 Replace the particulate and charcoal filters, and place the used air particulate filters in plastic petri dishes (extras located in the cabinets). Petri dishes are placed in the sample collection envelopes.

5.2.4 Label a new envelope with the starting date and time of new sample, and record the flow rate. Place envelope in cabinet under pump motor or other suitable and visible location.

5.2.5 Place hand over filter inlet nozzle to ensure that there is a sample air flow.

5.2.6 Return the particulate and charcoal samples to the laboratory as soon as practicable (either the NMP lab or JAF lab, as directed by the Environmental Survey/Sample Team Coordinator).

5.2.7 The particulate sample should be counted on a Low Background Alpha/Beta Counter or a Multi-Channel Gamma Analyzer (see Environmental Sample Analysis Procedure).

5.2.8 The charcoal cartridge should be counted on the Multi-Channel Gamma Analyzer (see Environmental Sample Analysis).

5.3 G.M. Monitor Data Collection and Analysis

5.3.1 Observe the dose rate indication on the G.M. Monitor meter face. Report this dose rate in mr/hr via the radio to the TSC or EOF (as appropriate) and record dose rate on air sampler envelope.

5.3.2 Strip back the recorder strip chart and report any anomalies such as start of increased dose rates, any unusually high dose rates, etc., over the past few hours. Report these via radio also.

5.3.3 Mark the recorder paper with the proper time and date.

5.3.4 Using a portable G.M. survey meter, place the detector close to the monitoring station's detector and compare the two dose rates. Record this dose rate comparison on the recorder strip chart.

5.4 TLD Collection and Readout

5.4.1 Emergency TLDs shall be read out at selected times during and following an emergency to assess the severity of the gamma dose released to the environment. The decision as to which Emergency TLDs should be pulled and when, will be determined by the Environmental Survey/Sample Team Coordinator in consultation with the Radiological Assessment Manager.

5.4.2 Environmental TLDs shall be collected from selected locations after the emergency situation at the site is deemed to be over or as directed by the Site Emergency Director. The environmental TLDs shall be used to establish doses received from the start of the emergency, as well as verify doses predicted during the emergency as a result of the Emergency TLD readouts.

5.4.3 Emergency TLDs and Environmental TLDs shall be sent to the processor for readout on an emergency priority basis. | 8

5.4.4 Doses established through TLD readout shall be recorded on the appropriate map to indicate the location and severity of gamma doses during the emergency situation.

6.0 COLLECTION AND ANALYSIS OF REFINED CONTAMINATION SURVEYS OR OTHER ENVIRONMENTAL MEDIA SAMPLES

6.1 10 CFR Part 140.84 provides radiological criteria which assists the NRC in evaluating whether an Extraordinary Nuclear Occurrence (ENO) has occurred. These radiological criteria are included as EPP-16, Figure 8. Additional personal and property damage criteria are also provided in 10 CFR Part 140 which should also be consulted. The Radiological Assessment Manager and Environmental Survey/Sample Team Coordinator should refer to the ENO radiological criteria in formulating the post-accident recovery environmental surveillance program. Any conclusions to be made regarding the occurrence of an ENO must follow a thorough review of all technical data, in consultation with the Corporate Emergency Director/Recovery Manager, Legal, Claims and Risk Management Department Representatives.

In addition to collecting samples for immediate thyroid and whole body dose assessment, other environmental media may need to be sampled as part of the Normal Environmental Monitoring Program to adequately determine the dose contribution to the general population from the emergency condition. EPP-16, Figure 6 lists a few examples of media which may be sampled during and/or following an emergency situation. This list, though not all inclusive, should be supplemented with other media as deemed necessary during or after the emergency. This procedure describes the general methodology to sample snow, grass, soil, leafy vegetation and surface water. Deviations from this procedure may occur. | 8 | 8

6.1.1 Sample collection and analysis shall be performed on a priority basis by the environmental sampling and analysis consultants currently used for the site environmental sampling and analysis programs or by site personnel.

6.1.2 Collection specifications and frequency will be determined by the Environmental Survey/Sample Team Coordinator in consultation with the Radiological Assessment Manager.

6.1.3 Procedures used to analyze these samples should be consistent with presently established station environmental monitoring procedures to provide a basis for comparison of pre- and post-accident samples.

6.2 Snow Samples

NOTE: Snow samples are dependent upon several weather related variables: a) rate of snowfall at and since the time of release, b) air temperatures since the snowfall of interest has occurred, c) wind speed and direction, and d) sunshine, rain or other weather conditions occurring after the snowfall of interest.

6.2.1 Select the area to be sampled from the general location requested that has not been subjected to non-meteorological disturbances (plowing, snowmobiles, pedestrians, etc.).

NOTE: Snow falling at time of interest or snow on the ground at the time of deposition may have drifted. Melting and freezing and/or rain may mean the snow deposition is fixed in an ice layer and is not affected by winds. These possibilities must be considered and existing weather conditions must be used to determine the area to be sampled.

6.2.2 Take radiation readings with survey meter(s) one centimeter and one meter above the surface of the snow, and record on EPP-16, Figure 7.

6.2.3 Measure the selected area to be sampled in units of square feet. Approximate measurements are acceptable in the event sufficient time is not available.

6.2.4 Take up the snow to a depth sufficient to collect the snow of interest.

NOTE: A crust layer may have formed on an earlier snowfall, collect the snow from the surface to this crust. The snow of interest may be below a crust layer formed later, sweep loose snow away to this crust layer and then sample the crust layer and loose snow to the next crust layer.

NOTE: A sample volume to give meaningful data should exceed 3 liters of melted snow. Loose snow volume is 4 times its liquid volume. Icy snow is approximately twice its liquid volume. The snow can be packed in the collection bag. Different sample locations must be placed in different collection bags.

6.2.5 Estimate the depth of snow collected.

6.2.6 Securely close the sample bag. It is recommended that all samples be doubly bagged to prevent leakage as snow melts.

6.2.7 Remeasure radiation levels at one centimeter and one meter. Record on EPP-16, Figure 7.

6.2.8 Record the data requested on EPP-16, Figure 7: location requested, specific area selected, area sampled in sq. ft., depth sampled, direction and approximate feet from a permanent reference object, weather conditions, time of sample, and radiation readings at one centimeter and one meter before and after sampling. (Label bags clearly identifying the sample.)

6.2.9 Return the sample bag for analysis to the NMP lab or JAF lab or as directed by the Environmental Survey/Sample Team Coordinator.

6.3 Refined Radiation Contamination Surveys (of small selected land areas for possible contamination)

6.3.1 Select an area where natural or man-made disturbances are limited. The area may be roped off or staked, if necessary.

6.3.2 Measure or pace off an approximate 80 foot square (for low contamination) or a 40 foot square (for moderate contamination) or a 20 foot square (for heavy contamination). An 80 foot square is measured as 80 feet on each side.

6.3.3 Slowly, perform a general survey of the delineated area noting radiation levels at ground level (1 cm) and waist level (approximately 1 meter).

6.3.4 Record the minimum, maximum and approximate average readings for the area on EPP-16, Figure 7. The Environmental Survey/Sample Team Coordinator should be consulted for the type of instrument to be used.

6.3.5 The results should be located on a map showing the exact sample location.

6.4 Ground Deposition Samples

6.4.1 Survey 1 cm above the surface to determine the maximum activity in the general area of interest.

6.4.2 Select a specific area to be sampled as determined by the size of the sample necessary. Areas should be free of natural or man-made disturbances.

6.4.3 Grassy area. (Measure the selected sampling area in units of square feet).

a. Take radiation readings at 1 cm and 1 meter above the surface of the area to be sampled.

b. Clip the grass in the sample area as close to the roots as possible without including dirt in the sample. Grass samples should fill a volume of approximately 1 gallon (compressed).

6.4.3 (Cont'd)

NOTE: Do not pull up clumps of grass and dirt and submit as a sample. This sample would be meaningless for the determination of contamination.

c. Collect the top 1/2 in. of soil from the area in which the grass was clipped as a second sample. Obtain enough soil for an approximate mass of 2 Kg (4.4 lbs.).

d. Remeasure radiation levels at 1 cm and 1 meter above the surface.

e. Record on EPP-16, Figure 7 the location of the sample, area sampled in sq. ft., depth of soil sampled, location (number of feet and direction from permanent reference object), time of the sample and radiation readings before and after sampling.

f. Label the sample collection bag clearly identifying the location.

6.4.4 Non-grassy areas. (Measure selected area in square feet.)

a. Measure the radiation levels at 1 cm and 1 meter above the surface.

b. If leaves and/or other debris, other than sticks, are in the selected areas, they should be collected as a separate sample.

c. Collect the top 1/2 in. of soil from the area selected. Collect an approximate mass of 2 Kg (4.4 lbs).

d. Remeasure radiation levels at 1 cm and 1 meter.

e. Record on EPP-16, Figure 7 the location of the sample, depth sampled, number of feet and direction from a permanent reference object, time of sample and radiation readings before and after sampling.

f. Label the sample bag clearly, identifying the sample location.

6.5 Sampling Vegetation

6.5.1 Choose vegetation to be sampled based on deposition possibilities and availability for sufficient sample size. The Environmental Survey/Sample Team Coordinator will determine the types and locations of vegetation to be sampled.

NOTE: Tree leaves should be sampled from the top most part of tree. Deposition is unlikely on leafy areas under taller trees or bushes. Ground covers such as burdock, lettuce or flowers should be selected from open areas. Sampling from open areas is recommended (i.e., no trees or bushes are in the immediate area). Leafy vegetation for human consumption is preferred, however, other types of leafy vegetation are acceptable. Large leafy vegetation is better than small. If rain has occurred since the release, deposited contamination may have been washed off.

6.5.2 Take as large a sample as possible considering that it will be compressed into a counting container. A sample size of 2 Kg is optimal. Radiation levels should be taken at 1 meter and 1 cm.

NOTE: Consider that edible vegetation will be prepared as normally used for eating, prior to counting.

6.5.3 Record on EPP-16, Figure 7 the location of the sample, type of sample, time of sample and other data necessary for full descriptive purposes as required by EPP-16, Section 6.5.

6.6 Surface Water Samples

6.6.1 Water samples may be required to be collected from various ponds and streams near the site. Samples are collected as directed by the Environmental Survey/Sample Team Coordinator.

6.6.2 Measure the radiation levels at 1 cm and 1 meter above the surface. These measurements are only required once prior to sampling.

6.6.3 Obtain approximately 2 gallons of sample from the designated water body. Samples should be obtained such that the surface water is sampled.

6.6.4 Record this information on EPP-16, Figure 7. The sample type should indicate whether the sample is still water (as a pond) or running water (as a stream).

7.0 TOTAL POPULATION DOSE

NUREG-0654 requires that a method be established for periodically estimating the total population exposure.

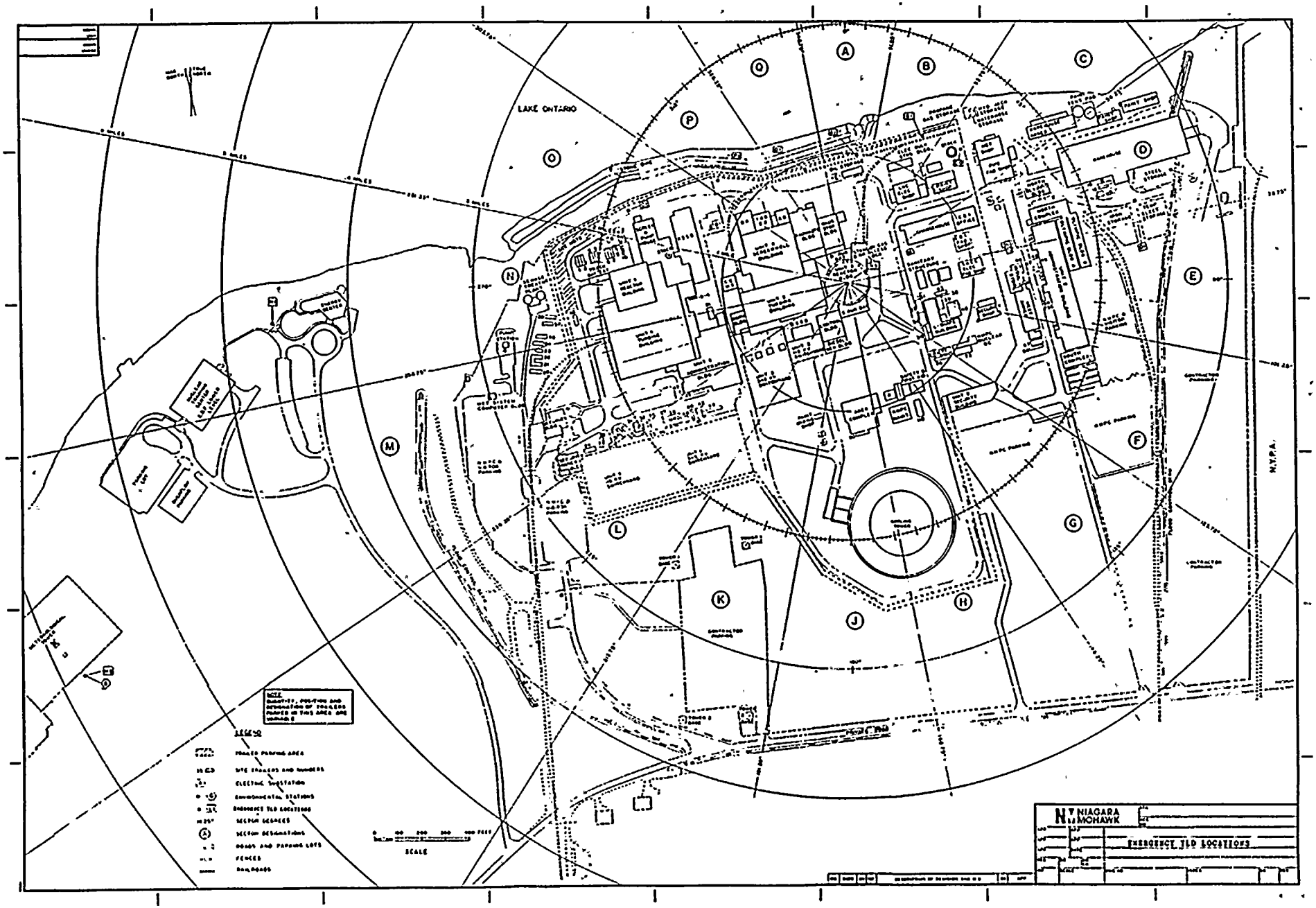
7.1 During the course of the nuclear emergency, preliminary population doses will be based upon projected and actual field radiation measurements as discussed in EPP-8. The population of each Emergency Response Planning Area (ERPA), assuming all persons within the ERPA are exposed to the maximum radiation levels, will be used to calculate total population exposure. Population estimates are available in EPP-26.

7.2 Following the reclassification of the emergency and entry into the Recovery Phase per EPP-25, the Corporate Emergency Director/Recovery Manager will ensure that procedures are prepared in accordance with Section 9 of the Corporate Emergency Response/Recovery Plan, and EPP-16 to better estimate the total population dose. This procedure will take into account the following factors:

- Actual field radiation levels as determined by analysis of the Emergency and Environmental TLDs
- Estimates of the numbers of persons evacuated and/or sheltered as determined by the Oswego County Emergency Management Office
- Evacuation time estimates for various ERPAs (EPP-26)
- For sheltered individuals, an estimate of the type of structure used for sheltering and the shielding effectiveness of each

EPP-16, FIGURE 1a

ON-SITE EMERGENCY TLD LOCATIONS

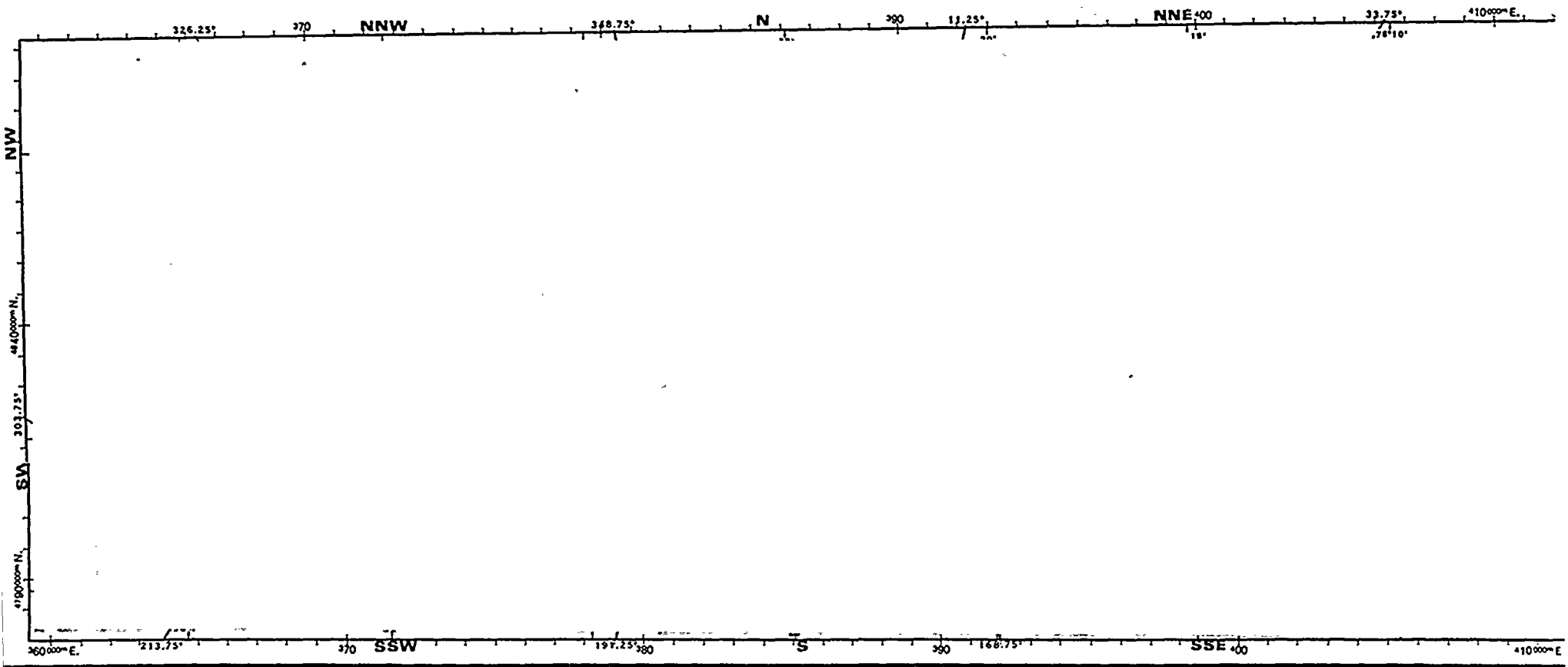


EPP-16

FIGURE 1b

ON-SITE ENVIRONMENTAL STATION AND TLD LOCATIONS

(See Procedure S-ENVSP-4 for map indicating the locations of the Environmental Program on-site environmental stations and TLD's)



Offsite Environmental Station Locations

LEGEND

- Interstate Highways
- U.S. & State Highways
- County Roads
- Town Roads
- County Boundaries
- Township Boundaries
- City & Village Boundaries
- Railroads
- Emergency Response Planning Areas (ERPA) & Number — 22
- ERPA — Water Area Nos. — (27)

SCALE
0 1 2 3 4 Miles
0 1 2 3 4 5 Kilometers

James A. FitzPatrick/Nine Mile Poin
Radiological Emergency Plans and Procedure

MAP NUMBER 7

Figure 2

EPP-16

FIGURE 3

LIST OF ENVIRONMENTAL MONITORING STATION LOCATIONS

ON-SITE

(See Procedure S-ENVSP-4 for locations)

8

EPP-16

FIGURE 4

LIST OF ENVIRONMENTAL TLD LOCATIONS

ON-SITE

OFF-SITE

(See Procedure S-ENVSP-4 for listing)

8

EPP-16

FIGURE 5

LIST OF EMERGENCY TLD LOCATIONS

TLD ID#	Sector	Location Description	Direction from Site	Distance from NMPNS Unit II Reactor Bldg.

FIGURE 5

LIST OF EMERGENCY TLD LOCATIONS (Cont'd)

TLD ID#	Sector	Location Description	Direction from Site	Distance from NMPNS Unit II Reactor Bldg.

FIGURE 5

LIST OF EMERGENCY TLD LOCATIONS (Cont'd)

TLD ID#	Sector	Location Description	Direction from Site	Distance from NMPNS Unit II Reactor Bldg.

FIGURE 6

RADIOLOGICAL ENVIRONMENTAL SAMPLING PROGRAM TABLE

The following table should be used in determining environmental samples and quantity to be sampled:

Medium Sampled Location	Approximate Quantity/Volume of Each Sample	Analysis	Preferred Sample
Air-particulate	27,000 ft^3** 20 ft^3*	Beta, gamma	Downwind from site
Air-Iodine	27,000 ft^3** 20 ft^3*	Beta, gamma	Downwind from site
Water-Lake site, (Note 1)	8 liters (2 gal)	Beta, gamma Isotopic	10 downstream from 2 upstream from site for control
Water-Tap (Note 2)	8 liters (2 gal)	Gamma Isotopic	2 from control 15 mi from site, 4 downwind from site
Soil (Note 3)	2 kg. (wet)	Gamma Isotopic	2 from control 15 mi from site, 6 downwind from site
Vegetation (Note 3)	2 kg. (wet)	Gamma Isotopic	2 from control 15 mi from site, 6 downwind from site
Milk (Note 4)	3 gallons	I^{131} Gamma Isotopic Sr^{90}	2 from control 15 mi from site 5-10 downwind from site***
Snow	1 $yard^2$	Gamma Isotopic	As directed by Environmental Survey/Sample Team Coordinator.

*Downwind Survey Team Air Sample
**Normal Environmental Monitoring Program Air Sample
***If Owner Cooperation Available

FIGURE 6

8

RADIOLOGICAL ENVIRONMENTAL SAMPLING PROGRAM TABLE (Cont'd)

Note #1: Upstream samples should be a minimum of 5 miles upstream of plant outfall.

Note #2: Control samples should come from a least prevalent wind direction from township (municipal) water supply.

Note #3: Control samples should come from a 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 farms in a least prevalent wind direction for control purposes.

NOT ALL SAMPLES ON THIS TABLE 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. However, this procedure should continue in effect until all required samples have been collected, prepared and analyzed as appropriate.

EPP-16

FIGURE 7

EMERGENCY ENVIRONMENTAL SAMPLE DATA SHEET

Type of Sample: _____ Number: _____

Date: _____ Time: _____ Technician: _____

Location: _____

DRAW MAP

Reference Object: _____

_____

Direction: _____

Distance: _____ ft

Survey Before Sampling:

Radiation Reading @ 1 cm _____

@ 1 meter _____

Survey After Sampling:

Radiation Reading @ 1 cm _____

@ 1 meter _____

Snow Sample (as applicable):

Sample Size (sq. ft.): _____

Sample Depth (inches): _____

Refined Radiation Contamination Survey (as applicable):

Square Size (80, 40, 20 ft): _____

Result (1 cm): _____ (min.) _____ (max.) _____ (approx. avg.)

(1 meter): _____ (min.) _____ (max.) _____ (approx. avg.)

Ground Deposition Samples (as applicable):

_____ Grass sample taken, size: _____ sq. ft.

_____ Soil sample, size: _____ sq. ft. depth _____ inches

_____ Leaves and/or Debris sample taken, size: _____ sq. ft.

Weather Conditions: _____

_____

Other Comments:

FIGURE 8

10 CFR PART 140.84 RADIOLOGICAL CRITERIA FOR EXTRAORDINARY NUCLEAR OCCURRENCE

(Criterion 1-Substantial Discharge of Radioactive Material or Substantial Radiation Levels Off-Site)

The Commission will determine that there has been a substantial discharge or dispersal of radioactive material off-site, or that there have been substantial levels of radiation off-site, when, as a result of an event comprised of one or more related happenings, radioactive material is released from its intended place of confinement or radiation levels occur off-site and either of the following findings is also made:

a. The Commission finds that one or more persons off-site were, could have been, or might be exposed to radiation or to radioactive material, resulting in a dose or in a projected dose in excess of one of the levels in the following table:

TOTAL PROJECTED RADIATION DOSES

CRITICAL ORGAN	DOSE (rems)
Thyroid	30
Whole Body	20
Bone Marrow	20
Skin	60
Other organs or tissues	30

Exposures from the following types of sources of radiation shall be included:

1. Radiation from sources external to the body;

2. Radioactive material that may be taken into the body from its occurrence in air or water; and

3. Radioactive material that may be taken into the body from its occurrence in food or on terrestrial surfaces.

FIGURE 8 (Cont'd)

10 CFR PART 140.84 RADIOLOGICAL CRITERIA FOR EXTRAORDINARY NUCLEAR OCCURRENCE

(Criterion 1-Substantial Discharge of Radioactive Material or Substantial Radiation Levels Off-Site)

b. The Commission finds that:

1. Surface contamination of at least a total of any 100 square meters of off-site property has occurred as the result of a release of radioactive material from a production or utilization facility and such contamination is characterized by levels of radiation in excess of one of the values listed in Column 1 or Column 2 of the following table, or

2. Surface contamination of any off-site property has occurred as the result of a release of radioactive material in the course of transportation and such contamination is characterized by levels of radiation in excess of one of the values listed in Column 2 of the following table:

TOTAL SURFACE CONTAMINATION LEVELS(1)

Type of Emitter	Column 1 Off-Site Property, Contiguous to Site, Owned or Leased by Person with Whom An Indemnity Agreement is Executed.	Column 2 Other Off-Site Property
Alpha emission from transuranic isotopes	3.5 microcuries per square meter	0.35 microcuries per square meter
Alpha emission from isotopes other than transuranic isotopes	35 microcuries per square meter	3.5 microcuries per square meter
Beta or gamma emission	40 millirads/hour @ 1 cm(2)	4 millirads/hour @ 1 cm(2)

(1) The maximum levels (above background), observed or projected, 8 or more hours after initial deposition.

(2) Measured through not more than 7 milligrams per square centimeter of total absorber.

EPP-16
FIGURE 9

PREVENTATIVE PAG

RECOMMENDED INGESTION EXPOSURE ZONE PROTECTIVE ACTIONS
GENERAL POPULATION

INSTRUCTIONS: 1. For the "SAMPLE LOCATION" identified below, record the sample time and date for each pathway being assessed.

2. Place results from analysis (having the same units as listed) in space under "SRV" (survey) for that radionuclide.

3. If "SRV" value is the same as or greater than the value for that pathway, place a check mark (✓) beside the "SRV" value.

SURVEY LOCATION _____

PATHWAY: INITIAL ACTIVITY AREA DEPOSITION (pCi/m^2) _____ : / /
(time 24hr) (MM/DD /YY)

*1 I-131	SRV /	*3 Cs-134	SRV /	*3 CS-137	SRV /	SR-89	SRV /	Sr-90	SRV /
1.3E5	/	2.0E6	/	3.0E6	/	6.0E6	/	5.0E5	/

PATHWAY: FORAGE CONCENTRATION (pCi/Kg) *2 _____ : / /
(time 24hr) (MM/DD /YY)

*1 I-131	SRV /	*3 Cs-134	SRV /	*3 CS-137	SRV /	SR-89	SRV /	Sr-90	SRV /
5.0E4	/	8.0E5	/	1.3E6	/	3.0E6	/	1.8E5	/

PATHWAY: PEAK MILK ACTIVITY (pCi/1) _____ : / /
(time 24hr) (MM/DD /YY)

*1 I-131	SRV /	*3 Cs-134	SRV /	*3 CS-137	SRV /	SR-89	SRV /	Sr-90	SRV /
1.5E4	/	1.5E5	/	2.4E5	/	1.4E5	/	9.0E3	/

PATHWAY: TOTAL INTAKE (pCi)

*1 I-131	SRV /	*3 Cs-134	SRV /	*3 CS-137	SRV /	SR-89	SRV /	Sr-90	SRV /
9.0E4	/	4.0E6	/	7.0E6	/	2.6E6	/	2.0E5	/

*#FOOTNOTE REFERENCED ON BACK OF THIS FIGURE

DATA COMPILED BY: _____ _____ : / /
(time 24hr) (MM /DD /YY)

PREVENTATIVE PAG

B. Footnotes:

1. From fallout, iodine-131 is the only radioiodine of significance with respect to milk contamination beyond the first day. In case of a reactor accident the cumulative intake of iodine-133 via milk is about 2 percent of iodine-131 assuming equivalent deposition.
2. Fresh weight.
3. Intake of cesium via the meat/person pathway for adults may exceed that of the milk pathway, therefore, such levels in milk should cause surveillance and protective actions for meat as appropriate. If both cesium-134 and cesium-137 are equally present as might be expected for reactor accidents, the response levels should be reduced by a factor of two.

C. Recommended Actions

1. For pasture:
   (a) Removal of lactating dairy cows from contaminated pasturage and substitution of uncontaminated stored feed.
   (b) Substitute source of uncontaminated water.
2. For milk:
   (a) Withholding of contaminated milk from the market to allow radioactive decay of short-lived radionuclides. This may be achieved by storage of frozen fresh milk, frozen concentrated milk or frozen concentrated milk products.
   (b) Storage for prolonged times at reduced temperatures also is feasible provided ultrahigh temperature pasteurization techniques are employed for processing (Finley, R.D., H.B. Warren, and R.E. Hargrove, "Storage Stability of Commercial Milk," Journal of Milk and Food Technology. 31(12):382-387, December 1968).
   (c) Diversion of fluid milk for production of dry whole milk, nonfat dry milk, butter, cheese, or evaporated milk.
3. For fruits and vegetables:
   (a) Washing, brushing, scrubbing, or peeling to remove surface contamination.
   (b) Preservation by canning, freezing, and dehydration or storage to permit radioactive decay of short-lived radionuclides.
4. For grains:
   (a) Milling
   (b) Polishing
5. For other food products, processing to remove surface contamination.
6. For meat and meat products, intake of cesium-134 and cesium-137 by an adult via the meat pathway may exceed that of the milk pathway: therefore, levels of cesium in milk approaching the "response level" should cause surveillance and protective actions for meat as appropriate.
7. For animal feeds other than pasture, action should be on a case-by-case basis taking into consideration the relationship between the radionuclide concentration in the animal feed and the concentration of the radionuclide in human food. For hay and silage fed to lactating cows, the concentration should not exceed that equivalent to the recommendations for pasture.

EPP-16
FIGURE 10

EMERGENCY PAG _____ RECOMMENDED INGESTION EXPOSURE ZONE PROTECTIVE ACTIONS
GENERAL POPULATION

INSTRUCTIONS:
1. For the "SAMPLE LOCATION" identified below, record the sample time and date for each pathway being assessed.
2. Place results from analysis (having the same units as listed) in space under "SRV" (survey) for that radionuclide.
3. If "SRV" value is the same as or greater than the value for that pathway, place a check mark (✓) beside the "SRV" value.

SURVEY LOCATION_____

PATHWAY: INITIAL ACTIVITY AREA DEPOSITION (pCi/m^2)_____ : / /
(time 24hr) (MM/DD /YY)

*3 I-131	SRV /	*5 Cs-134	SRV /	*5 CS-137	SRV /	SR-89	SRV /	Sr-90	SRV /
I=1.3E6	/	I=2.0E7	/	I=3.0E7	/	I=8.0E7	/	I=5.0E6	/
A=1.8E7	/	A=4.0E7	/	A=5.0E7	/	A=1.6E9	/	A=2.0E7	/

PATHWAY: FORAGE CONCENTRATION *2 (pCi/Kg) _____ : / /
(time 24hr) (MM/DD /YY)

*3 I-131	SRV /	*5 Cs-134	SRV /	*5 CS-137	SRV /	SR-89	SRV /	Sr-90	SRV /
I=5.0E5	/	I=8.0E6	/	I=1.3E7	/	I=3.0E7	/	I=1.8E6	/
A=7.0E6	/	A=1.7E7	/	A=1.9E7	/	A=7.0E8	/	A=8.0E6	/

PATHWAY: PEAK MILK ACTIVITY (pCi/l) _____ : / /
(time 24hr) (MM/DD /YY)

*3 I-131	SRV /	*5 Cs-134	SRV /	*5 CS-137	SRV /	SR-89	SRV /	Sr-90	SRV /
I=1.5E5	/	I=1.5E6	/	I=2.4E6	/	I=1.4E6	/	I=9.0E4	/
A=2.0E6	/	A=3.0E6	/	A=4.0E6	/	A=3.0E7	/	A=4.0E5	/

PATHWAY: TOTAL INTAKE (pCi)

*3 I-131	SRV /	*5 Cs-134	SRV /	*5 CS-137	SRV /	SR-89	SRV /	Sr-90	SRV /
I=9.0E5	/	I=4.0E7	/	I=7.0E7	/	I=2.6E7	/	I=2.0E6	/
A=1.0E7	/	A=7.7E7	/	A=8.0E7	/	A=4.0E8	/	A=7.0E6	/

*#FOOTNOTE REFERENCED ON BACK OF THIS FIGURE

DATA COMPILED BY:_____ _____ : / /
(time 24hr) (MM /DD /YY)

EMERGENCY PAG

B. Footnotes:

1. Newborn infant includes fetus (pregnant women) as critical segment of population for iodine-131.
2. "Infant" refers to child less than 1 year of age.
3. From fallout, iodine-131 is the only radionuclide of significance with respect to milk contamination beyond the first day. In case of a reactor accident the cumulative intake of iodine-133 via milk is about 2 percent of iodine-131 assuming equivalent deposition.
4. Fresh weight.
5. Intake of cesium via the meat/person pathway for adults may exceed that of the milk pathway; therefore, such levels in milk should cause surveillance and protective actions for meat as appropriate. If both cesium-134 and cesium-137 are equally present, as might be expected for reactor accidents, the response levels should be reduced by a factor of 2.

C. Recommended Actions

Responsible officials should isolate food containing radioactivity to prevent its introduction into commerce and determine whether condemnation or another disposition is appropriate. Before taking this action, the following factors should be considered:

(a) The availability of other possible protective actions discussed preventative PAG recommendations.
(b) Relative proportion of the total diet by weight represented by the item in question.
(c) The importance of the particular food in nutrition and the availability of uncontaminated food or substitutes having the same nutritional properties.
(d) The relative contribution of other foods and other radionuclides to the total projected dose.
(e) The time and effort required to effect corrective action.