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The following checklist is furnished as a guide for inserting the revisions into the Trojan Plant Emergency Procedure Manual. The revision is denoted by the revision number in the lower outside corner of the page.

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<u>Volume 4 Section 3</u>		<u>Volume 4 Section 3</u>	
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TROJAN NUCLEAR PLANT  
 PLANT OPERATING MANUAL  
 RADIOLOGICAL EMERGENCY RESPONSE PLAN IMPLEMENTING PROCEDURES  
 Volume 4, Section 3

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\*Safety Related

RADIOLOGICAL EMERGENCY RESPONSE PLAN IMPLEMENTING PROCEDURE

EP-7

**SAFETY-RELATED**

OPERATION OF THE TECHNICAL SUPPORT CENTER

APPROVED BY \_\_\_\_\_

*CP Jundt*

DATE 9/20/82

A. PURPOSE

1. To describe the sequence of events and the manning requirements for activation of the Technical Support Center, in the event of an Alert, Site Area Emergency, or General Emergency declaration. Areas covered are:
  - a. Functions of the TSC, and its interface with other bodies of the Onsite Emergency Organization.
  - b. Dayshift emergency activation criteria, including a roster of onsite emergency organization personnel available for TSC manning, their duties and responsibilities.
  - c. Off-hours emergency activation criteria, including a roster of the off-hours emergency organization personnel (onshift and dayshift duty personnel), available for manning the TSC; their authority, responsibilities, and duties.

B. FUNCTIONS OF THE TECHNICAL SUPPORT CENTER

1. The TSC is located, on the upper floor of the Trojan TSC Building. Figure 7-3 shows the floor plan of the TSC.
2. In the event of an Alert, Site Area Emergency, or General Emergency, the TSC performs the following functions:
  - a. Provides a location where technical and management personnel gather to support the reactor operation and control functions of the Control Room and the operation of the Operational Support Center (OSC).
  - b. Provides a communications link for data flow between the Control Room and the Emergency Operations Facility (EOF).
  - c. Provides interim offsite dose assessment and communications capabilities until the EOF is prepared to assume those responsibilities or during the evacuation of the EOF to the Alternate EOF (see Procedure EP-29).

C. ACTIVATION OF THE TECHNICAL SUPPORT CENTER DURING DAYSHIFT HOURS

This portion of the procedure deals with the occurrence of a radiological emergency on the dayshift or after augmentation of the off-hours shift by the normal dayshift personnel (i.e., about eight (8) hours after the accident).

1. Time Criteria for Activation of the TSC

On dayshift, the TSC will be activated within 15 minutes of the declaration of an Alert, Site Area Emergency or General Emergency.

2. TSC Manning on Dayshift

a. The TSC staff consists of:

Plant General Manager  
Manager, Operations and Maintenance  
Manager, Technical Services  
Maintenance Supervisor  
Chemistry Supervisor  
Radiation Protection Supervisor  
Engineering Supervisor  
Engineering Emergency Team  
Oregon Department of Energy representative  
NRC representatives  
Westinghouse Manager, Site Services

b. In the absence of key personnel, an alternate or subordinate will assume the responsibility of the unavailable person, as described in subparagraph 3 below.

c. The personnel arriving at the TSC to activate the facility during dayshift hours will enter the building through the normal entrance (see Figure 7-3), without being frisked for radioactive contamination. As part of the activation procedure, a gross frisker will be set up at the TSC entrance (see Figure 7-3) by the radiation protection emergency team member assigned to the TSC (see EP-9).

Once the TSC is activated, all personnel entering the TSC will pass by the gross frisker. If the frisker indicates possible contamination, they will proceed to the decontamination room before entering the TSC, where detailed frisking and decontamination, if required will be performed.

The Radiation Protection Supervisor will determine if more or less stringent entry requirements are required as the event progresses (e.g., a detailed frisk for all personnel entering the TSC).



3. Authorities; Responsibilities; and Duties of TSC Staff

a. Plant General Manager.

- 1) The Plant General Manager serves as is the Emergency Co-ordinator until relieved by the Emergency Response Manager at the EOF.

The authority, responsibilities and duties of the Emergency Coordinator are described in Procedure EP-6.

- 2) After being relieved as Emergency Coordinator, the authority responsibilities and duties of the Plant General Manager are as follows:

Authority

The Plant General Manager supervises the Trojan Nuclear Plant staff. He reports to the Emergency Response Manager. In the absence of the Plant General Manager, this position is assigned to a Duty Manager who is on call 24 hours a day. The Duty Manager is either the Manager, Operations and Maintenance, or the Manager, Technical Services.

Responsibilities

The Plant General Manager is responsible for directing Plant employees to place the Plant in a safe shutdown condition, terminate or minimize releases of radioactive materials, protect Plant personnel and visitors, assess incident severity and transmit emergency status data to the EOF.

Duties

The duties of the Plant General Manager are as follows:

- 1) Direct and coordinate the activities of Trojan Plant personnel in the Control Room, TSC, OSC and elsewhere on the site.
- 2) Direct and supervise the operation of the TSC.
- 3) Direct the transmission of Plant status data to the EOF.
- 4) Recommend changes in emergency classification based on Plant conditions (see EP-30) to the Emergency Response Manager.
- 5) Serve as a member of the Emergency Response Manager's Support Group (see EP-24).

b. Manager, Operations and Maintenance.

Authority:

The Manager, Operations and Maintenance reports to the plant General Manager. He has the authority to specifically direct operations activities in the plant. He authorizes those operational evolutions for establishing safe shutdown conditions, and the attendant controlled releases of radioactive effluents which may be necessary.

Responsibilities:

The Manager, Operations and Maintenance is responsible for independently assessing the efforts of the Control Room emergency operating staff in combatting the emergency. He is responsible for providing technical and management support to the Control Room emergency staff to maintain the plant in a safe shutdown condition or to bring the plant to a safe shutdown condition.

Duties:

- 1) Supervise and coordinate operations and maintenance activities.
- 2) Supervision and implementation of all in-Plant operating emergency plans, procedures and schedules.
- 3) Provide information and recommendations to the Plant General Manager concerning future Plant operations.

c. Manager, Technical Services.

Authority:

The Manager, Technical Services reports to the Plant General Manager in the TSC. He has the authority to supervise the efforts of the Chemistry Supervisor and the Engineering Supervisor in the TSC, the Radiation Protection Supervisor and the Training Supervisor in the EOF, and the Shift Technical Advisor in the Control Room. In the absence of the Manager, Technical Services, this position is assigned to Duty Manager who is on call 24 hours/day. The Duty Manager is either the Chemistry Supervisor, the Training Supervisor, the Engineering Supervisor, or designated Engineering personnel.

Responsibilities:

The Manager, Technical Services is responsible for collecting necessary data to analyze plant conditions and providing and

analyzing results as required by the plant General Manager. The Manager, Technical Services is responsible for providing the technical information regarding plant status to the EOF, the Company Support Center (CSC), NRC, the Oregon Department of Energy (ODOE) representative at the TSC, and Westinghouse. He authorizes any NOTEPAD communications that are to be made. He is responsible for maintaining the TSC data facility. He is also responsible for proposing off-site protective action recommendations to the Plant General Manager.

Duties:

- 1) Supervise and direct the actions of the Engineering Supervisor, Chemistry Supervisor in the TSC, and the Radiation Protection Supervisor and Training Supervisor at the EOF.
- 2) Make off-site protective action recommendations based on Plant conditions to the Plant General Manager.
- 3) During a shift to the alternate EOF, or before the EOF is activated, make off-site protective action recommendations based on projected off-site doses to the Plant General Manager.
- 4) Communicate as required with the EOF, CSC, NRC, ODOE, and Westinghouse personnel.
- 5) Communicates with and supervises the Shift Technical Advisor in the Control Room.
- 6) During long-term and recovery operations:
  - a) Supervise and direct the actions of the Procedure Support Supervisor and the Data Facility Supervisor.
  - b) Direct revision of existing and preparation of new Plant procedures in support of Plant operations.
  - c) Evaluate plans and procedures in support of Plant operations.
  - d) Provide a central facility for the collection, retention, retrieval and transmittal of Plant and local environmental parameters.

d. Maintenance Supervisor.

Authority:

The Maintenance Supervisor reports to the Manager, Operations and Maintenance in the TSC. The Maintenance Supervisor has the

authority to direct maintenance personnel at the EOF as required to augment the Maintenance Emergency Team in the OSC. He is responsible to independently assess the efforts of the Maintenance Emergency Team in the OSC and is the communication link between the OSC and TSC. In the absence of the Maintenance Supervisor, this position is assigned to a Duty Supervisor who is on call 24 hours/day. The Duty Supervisor is either the Control and Electrical Maintenance Supervisor, the Mechanical Maintenance Supervisor, the I&C Supervisor, or the Maintenance Planner/Scheduler.

Responsibilities:

The Maintenance Supervisor is responsible for recommending maintenance actions to maintain the plant in a safe condition or support the establishment of a safe shutdown condition. In the absence of the Manager, Operations and Maintenance, he directs all maintenance actions required to support the establishment of a safe shutdown condition.

Duties:

The Maintenance Supervisor evaluates the plant conditions and recommends required maintenance actions to the Manager, Operations and Maintenance. The Maintenance Supervisor directs maintenance personnel at the EOF as required to augment the Maintenance Emergency Team in the OSC.

e. Chemistry Supervisor.

Authority:

The Chemistry Supervisor reports to the Manager, Technical Services.

Responsibilities:

The Chemistry Supervisor is responsible for advising the Manager, Technical Services on actions involving plant chemistry to maintain the plant in a safe shutdown condition or to support establishment of a safe shutdown condition. He is also responsible for advising on effluent releases associated with planned plant evolutions, and for communicating Plant effluent and meteorological data to the EOF Dose Assessment Area.

Duties:

The Chemistry Supervisor evaluates plant conditions and recommends required sampling and analysis activities to the Manager, Technical Services. He provides technical guidance to the Manager, Technical

Services on plant chemistry matters and on effluent releases associated with planned plant evolutions. He also records Plant effluent and meteorological data on Table 7-2, Pages 3 and 4 and communicates the data to personnel in the EOF Dose Assessment Area. Table 7-3 describes the effluent release data to be obtained from the Control Room and transmitted to the EOF. At least one measurement of effluent noble gas concentration, effluent iodine concentration and release flow rate shall be transmitted, if available. Table 7-2 describes the meteorological data to be transmitted to the EOF.

f. Engineering Supervisor.

Authority:

The Engineering Supervisor reports to the Manager, Technical Services. He has the authority to supervise and direct the activities of the Engineering Emergency Team at the TSC.

Responsibilities:

The Engineering Supervisor is responsible for evaluating the safety in the plant and directing the Engineering Emergency Team in the interpretation and communication of available data and any off-site dose assessments performed in the TSC. The Engineering supervisor is responsible for determining the design requirements of emergency plant modifications.

Duties:

The Engineering Supervisor directs the Engineering Emergency Team in assessing plant conditions. He assists the Manager, Technical Services in communications and interactions with the EOF, CSC, ODOE, NRC, Westinghouse and NOTEPAD. He also advises the Manager, Technical Services on matters involving plant safety.

g. Radiation Protection Supervisor.

Authority

The Radiation Protection Supervisor reports to the Manager, Technical Services. He is initially assigned to the EOF as Dose Assessment Director, but will report to the TSC after being relieved at the EOF by a member of the headquarters Radiological Engineering Branch.

Responsibilities and Duties

The responsibilities and duties of the Radiation Protection Supervisor are described in Procedure EP-8.8.

h. Engineering Emergency Team.

Authority:

The Engineering Emergency Team will consist of designated plant staff engineers. The team reports to the Engineering Supervisor.

Responsibilities:

The Engineering Emergency Team's responsibility is to evaluate the safety of the plant and assist in the interpretation and communication of available data as directed by the Engineering Supervisor. The team is also responsible for providing an interim offsite dose assessment capability until the EOF is prepared to assume dose assessment responsibilities, or during the period when the EOF is being relocated to the alternate EOF.

Duties:

The Engineering Emergency Team collects data and analyzes such data as may be necessary to assess plant conditions. Table 7-2 is used to record important Plant status data. The team develops design changes required to place the plant in a safe shutdown condition or to minimize effluent releases. As directed by the Engineering Supervisor, the team also assists the Manager, Technical Services in communications and interactions with the EOF, CSC, ODOE, NRC, Westinghouse and NOTEPAD. The team also performs interim offsite dose assessments until the EOF is prepared to assume dose assessment responsibilities. Procedure EP-29 is used for TSC dose assessments using the computer terminal.

i. Oregon Department of Energy (ODOE) Representative.

Authority:

The ODOE representative in the TSC has authority to obtain emergency- and Plant-related information from the staff of the TSC. He communicates with the Manager, Technical Services and NRC representatives. He makes recommendations, but is not authorized to direct any activities at the plant.

Responsibilities:

The ODOE representative is responsible for assessing the status of the plant and for communicating this information to the Oregon EOC.

Duties:

The ODOE representative monitors the activities being performed in the TSC and in the . t.

j. NRC Representatives.

Authority:

The NRC representatives in the TSC have authority to obtain emergency- and Plant-related information from the staff of the TSC. They communicate any recommendations or orders to the Manager Technical Services.

Responsibilities:

The NRC representatives are responsible for assessing the status of the plant and for communicating this information to the NRC Incident Response Center in Bethesda, Maryland. They provide feedback, in the form of recommendations and orders, from the NRC Incident Response Center to the TSC.

Duties:

- 1) The NRC representatives monitor the activities being performed in the TSC and in the plant.
- 2) The senior NRC representative serves as a member of the Emergency Response Manager's Support Group (see EP-24).

k. Westinghouse Manager of Site Services.

Authority

The Westinghouse Manager of Site Services reports to the Manager, Technical Services. Upon establishment of the Response Center, he will report to the Technical Support Director (see EP-24).

Responsibilities

The Westinghouse Manager of Site Services is responsible for notifying and communicating with the offsite Westinghouse Emergency Response Organization.

Duties

The Westinghouse Manager of Site Services notifies and communicates with the Westinghouse Emergency Response Organization. He advises the Manager, Technical Services on NSSS-related problems and will supervise onsite Westinghouse personnel.

D. ACTIVATION OF THE TECHNICAL SUPPORT CENTER DURING OFF-HOURS

Manning of the TSC during off-hours involves augmentation of the onsite Emergency Organization with on-call and dayshift duty personnel. This

portion of the procedure describes TSC activation and manning requirements for the time period of up to eight hours after the declaration of the emergency. It is expected that essentially the entire normal plant organization can be assembled within eight hours, at which time, the TSC will be staffed as per the requirements in paragraph C.(2).

1. Time Criteria for Activation of the TSC

During off-hours, the TSC will be activated by duty personnel within 60 minutes of the declaration of an Alert, Site Area Emergency or General Emergency.

2. Personnel Responsible for Activating the TSC

a. One of the following personnel will activate the TSC, and assume the role of Emergency Coordinator from the Shift Supervisor:

- 1) Duty Plant General Manager.
- 2) Duty Manager, Technical Services.
- 3) Duty Maintenance Supervisor.

b. The gross frisker will be set up at the TSC entrance as soon as possible by a member of the arriving TSC staff, as directed by the Emergency Coordinator. Following the setting up of the gross frisker, entry to the TSC will be as during dayshift hours (see C.2.c above).

3. Immediate Responsibilities of the TSC Upon Activation

As described in Paragraph B., besides its principle purpose of supporting the reactor operation and control functions of the Control Room, the TSC assumes immediate responsibility for offsite dose assessment and communications capabilities, until the EOF has been prepared. The responsibility for dose assessment is a major factor in the requirements for specific personnel manning of the TSC, during off-hours.

4. Utilization of Onshift Personnel and the Augmented Off-Hours Shift Emergency Organization, for Manning the TSC.

As shown in Table 7-1, two off-duty Nuclear Plant Engineers are expected to augment the TSC manning for the purpose of immediate offsite dose assessment. They will perform dose assessments until the EOF is prepared to assume those responsibilities.



For the purpose of plant operation, personnel assignments will be augmented in accordance with Table 7-1. This manning will consist of the on-shift Shift Technical Advisor and an off-duty STA, who is expected to be onsite within 60 minutes. The on-shift STA will report to the Control Room. The relief (of off-duty) STA will report to the TSC initially and may be reassigned by the Manager, Technical Services.

E. TSC RADIATION PROTECTION

1. A member of the Radiation Protection Emergency Team (see EP-9) will be assigned to conduct periodic radiation surveys at the TSC and to perform decontaminations, if required. Surveys will consist of external beta-gamma dose rate readings, and air sampling for airborne radioiodine.
2. The Radiation Protection Supervisor will determine when the use of protective equipment stored in the TSC is required for personnel leaving the TSC to enter the Plant.
3. The criteria for evacuation of the TSC as follows:
  - a. Whole body dose rate exceeding 1.0 rem/hr; or
  - b. Airborne levels exceeding 100 MPC I-131 and persisting for greater than one (1) hour.
    - 1) NOTE: Potassium Iodide (KI) tablets are stored in the TSC. TSC staff personnel should self-administer KI at I-131 levels exceeding 100 MPC (see Procedure EP-14). If KI has been taken, the above I-131 limit (100 MPC) will be raised to 10,000 MPC.
  - c. Uninhabitability of the TSC for any other reason (e.g., earthquake, security break, etc.).
4. In the event that evacuation of the TSC is required, the TSC staff will evacuate to either the Control Room or the EOF as directed by the Emergency Coordinator.

F. LONG-TERM EMERGENCY ORGANIZATION

Modifications of the TSC emergency organization (for emergencies lasting beyond 12 hours) are described in Procedure EP-24.

TABLE 7-1

## STAFFING REQUIREMENTS FOR TROJAN NUCLEAR PLANT EMERGENCIES

Major Functional Areas	Major Tasks	Position Title or Expertise	Cabability for Additions	
			On Shift	60 Min.
Plant Operations and Assessment of Operational Aspects		Shift Supervisor	1	-
		Asst. Shift Supervisor	1[a]	-
		Control Operator	1	-
		Asst Control Operator	1	-
		Auxiliary Operator	3	-
Emergency Direction and Control (Emergency Coordinator)		Shift Supervisor	1	-
		Duty Plant General Manager	-	1
Notification/ Communication	Notify licensee, State, local, and Federal personnel and maintain communication	Security Watch Sup/ Security personnel	2	-
		Shift Supervisor [b]	1	-
		Duty Manager, Plant Services (EOF Director)	-	1
Radiological Accident Assessment and Support of Operational Accident Assessment	Emergency Operations Facility (EOF) Director	Duty Manager, Plant Services	-	1
		Offsite dose assessment	Assistant Control Operator [c]	1
		Engineering Emergency Team (TSC) [c]	-	2
		Duty Radiation Protection Supvr (EOF) [c]	-	1
	Offsite surveys	Field Team (C&RP Technicians)	-	2
	Onsite (out-of- Plant)/in-Plant surveys/Chemistry radiochemistry	C&RP Technicians	2	1

Major Functional Areas	Major Tasks	Position Title or Expertise	Cabability for Additions	
			On Shift	60 Min.
Plant System Engineering, Repair and Corrective Actions	Technical Support	Duty Manager, Technical Services	-	1
		Shift Technical Advisor	1	1
		Engineering Emergency Team	-	2
		Duty Maintenance Supervisor	-	1
		Operations personnel[d]	1	2
Protective Actions (In-Plant)	Radiation Protec- tion: a. Access control b. HP coverage for repair, corrective, actions, search and rescue, first aid, and firefighting c. Personnel monitoring d. Dosimetry	C&RP Technicians	2[e]	3[e]
Firefighting	-	Fire Brigade	5[f]	-
Rescue Operations and First Aid	-	C&RP Technicians	2[g]	1[g]
Site Access Control and Personnel Accountability	Security, firefighting communications, personnel accountability	Security personnel	All per Security Plan	
TOTAL:			13[h]	13[h]

[a] To be implemented by July, 1982.

- [b] Security Watch Supervisor and Security personnel perform initial notifications of State and County agencies; Shift Supervisor notifies NRC and maintains communications until Duty Manager, Plant Services arrives at EOF.
- [c] Assistant Control Operator performs dose assessments until the TSC is activated; Engineering Emergency Team performs dose assessments at TSC until EOF is activated; Duty Radiation Protection Supervisor performs dose assessments at the EOF.
- [d] On-shift Operations personnel will be trained to perform necessary emergency maintenance activities.
- [e] Duty performed by C&RP Technicians assigned to onsite surveys (Sheet 1). Licensed operators are also trained in radiation protection.
- [f] Fire Brigade consists of three operators and two Security personnel.
- [g] Duty performed by C&RP Technicians assigned to onsite surveys (Sheet 1).
- [h] Does not include Security personnel.

TABLE 7-2  
TSC EVENT DATA CHECK LIST

		TIME DATA TAKEN					
PARAMETER							
REACTOR COOLANT SYSTEM	TEMPERATURE						
	PRESSURE						
	A WIDE RANGE	TH/TC					
		Delta-T					
	B WIDE RANGE	TH/TC					
		Delta-T					
	C WIDE RANGE	TH/TC					
		Delta-T					
	D WIDE RANGE	TH/TC					
		Delta-T					
	INCORE T/C	Maximum					
		Minimum					
PRESSURIZER	LEVEL						
	TEMPERATURE						
	HEATERS ON/OFF						
SYSTEM MAKEUP	NORMAL MAKEUP						
	NORMAL LETDOWN						
	CCP (GPM)						
	SI (CPM)						
	RHR (GPM)						
	RWST LEVEL						
PUMP STATUS	RCP						
	CCP						
	SI						
	RHR						
MSIVs	OPEN/CLOSED						

		TIME DATA TAKEN					
PARAMETER							
PORs SAFETYS	PRESSURIZER						
	STEAM GENERATOR						
	A	Level					
		Pressure					
	B	Level					
		Pressure					
	C	Level					
		Pressure					
	D	Level					
		Pressure					
AUXILIARY FEEDWATER	TERRY TURBINE						
	DIESEL						
	CST LEVEL						
CONTAINMENT	PRESSURE						
	TEMPERATURE						
	HUMIDITY						
	RADIATION LEVEL						
	SUMP LEVEL						
	HYDROGEN CONC.						
PRT	PRESSURE						
	TEMPERATURE						
	LEVEL						

		TIME DATA TAKEN					
PARAMETER							
EFFLUENT RELEASE CONCENTRATIONS	PRM 1C (cpm)						
	PRM 1D (cpm)						
	PRM 1E (mR/hr)						
	PRM 2C (cpm)						
	PRM 2D (cpm)						
	PRM 6A (cpm)						
	PRM 6B (cpm)						
	PRM 6C (cpm)						
	PRM 9 (cpm)						
	PRM 10 (cpm)						
	PRM 13 (cpm)						
	PRM 16A (mR/hr)						
	PRM 16B (mR/hr)						
	PRM 16C (mR/hr)						
	PRM 16D (mR/hr)						
	PRM _____						
	PRM _____						
	ARM 6 (mR/hr)						
	ARM 15A (R/hr)						
	ARM 15B (R/hr)						
ARM 20 (mR/hr)							
ARM _____							
ARM _____							
RCS Concentrations		X	X	X	X	X	X
I-131 ( $\mu$ Ci/g)							
Xe-133 ( $\mu$ Ci/g)							
_____ ( $\mu$ Ci/g)							
_____ ( $\mu$ Ci/g)							
_____ ( $\mu$ Ci/g)							
_____ ( $\mu$ Ci/g)							
_____ ( $\mu$ Ci/g)							
_____ ( $\mu$ Ci/g)							
_____ ( $\mu$ Ci/g)							
Effluent Sample		X	X	X	X	X	X
I-131 ( $\mu$ Ci/g)							
Xe-133 ( $\mu$ Ci/g)							
_____ ( $\mu$ Ci/g)							
_____ ( $\mu$ Ci/g)							
_____ ( $\mu$ Ci/g)							
_____ ( $\mu$ Ci/g)							
_____ ( $\mu$ Ci/g)							
_____ ( $\mu$ Ci/g)							

		TIME DATA TAKEN					
PARAMETER							
METEORO- LOGICAL DATA	Wind Speed (MPH)						
	Wind Direction: From						
	Toward:						
	Stability: $\Delta T$ ( $^{\circ}C$ ) $\sigma$ ( $^{\circ}$ )						
Precipitation (Yes or No)							
EFFLUENT FLOW RATE	Purge/H-Vent (FR-3180) (cfm)						
	Main Steam Lines (lb/hr)	X	X	X	X	X	X
	FI-512 or 513						
	FI-522 or 523						
	FI-532 or 533						
FI-542 or 543							
S/G A PORV (Yes/No) Safety (Number)							
S/G B PORV (Yes/No) Safety (Number)							
S/G C PORV (Yes/No) Safety (Number)							
S/G D PORV (Yes/No) Safety (Number)							
Other (List)							



## GASEOUS EFFLUENT RELEASE MEASUREMENT METHODS

Release Point	Effluent Noble Gas Concentration ( $\mu\text{Ci/cc}$ )			Effluent Iodine Concentration ( $\mu\text{Ci/cc}$ )			Release Flow (cfm)	
	Primary	1st Backup	2nd Backup	Primary	1st Backup	2nd Backup	Primary	Backup
1. Plant Vent	PRM-2C, -2D	Grab Sample of Effluent	-	Grab Sample of Effluent	-	-	Table 29-4[f]	-
2. Containment Purge or Hydrogen Vent System	PRM-1C, -1D, or -1E	Grab Sample of Containment Atmosphere	-	Grab Sample of Effluent [a]	Grab Sample of Containment Atmosphere [a]	ARM-15A, -15B	FR-3180 (Panel C-06)	Table 29-4[f]
3. Containment Leakage (Unmonitored)	Grab Sample of Containment Atmosphere [a]	ARM-15A or -15B	Doserate Outside Containment (Contact)	Grab Sample of Containment Atmosphere [a]	ARM-15A or -15B + CSS Status	Doserate Outside Containment + CSS Status	Containment Pressure [c] (Isolated Containment Only)	-
4. Air Ejector (Only if Offsite Power is Available)	PRM-6A, -6B, or -6C	Grab Sample of Effluent [a]	PRM-16 Reading [b][f] + Table 29-3	0.0	0.0	0.0	Table 29-4[f]	-
5. Steam Generator PORV or Safety Valves	PRM-16A, -16B, -16C, or -16D	Grab Sample of Steam [a]	RCS Sample [b]	Grab Sample of Steam [a]	RCS Sample [b] + PRM-16 Reading	RCS Sample [b]	Table 29-4[f]	-
6. Turbine Auxiliary Feedwater Pump (While Operating)	PRM-16A, -16B, -16C, or -16D	Grab Sample of Steam [a]	RCS Sample [b]	Grab Sample of Steam [a]	RCS Sample [b] + PRM-16 Reading	RCS Sample [b]	Table 29-4[f]	-
7. Main Steam Line Break	PRM-16A, -16B, -16C, or -16D	Grab Sample of Steam (Unaffected Loop)	-	Grab Sample of Steam (Unaffected Loop)	-	-	(FI- (512 or 513)[d][e] + (522 or 523) + (532 or 533) + (542 or 543)] *0.45	Table 29-4[f]

[a] For fast initial calculations, use backup method(s).

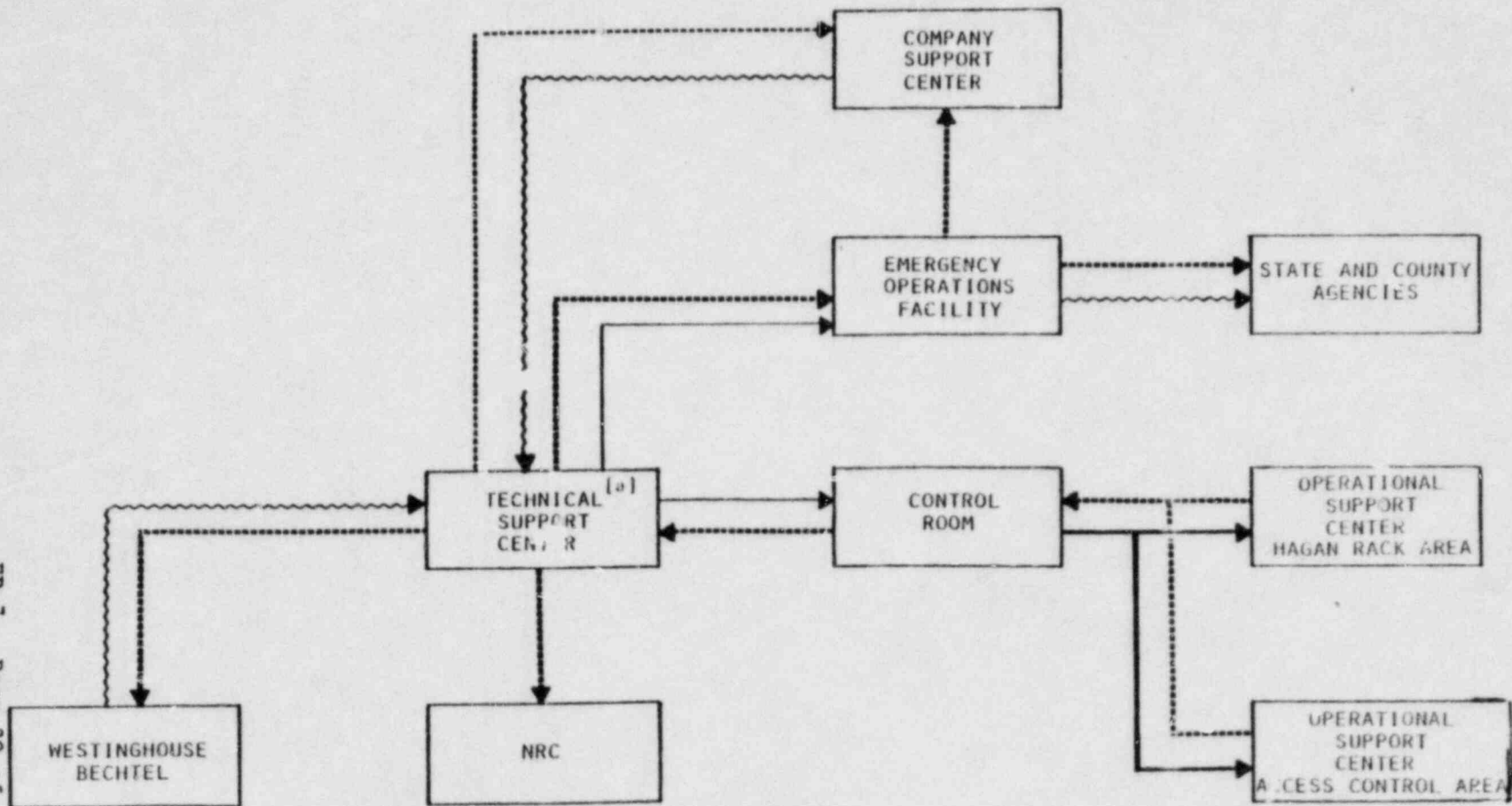
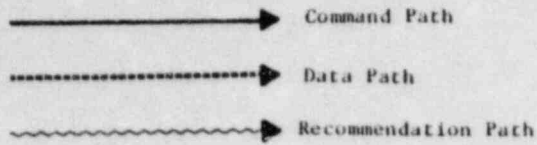
[b] See Table 29-3. For initial calculations, use most recent pre-accident sample results.

[c] Indicator on Panel C-19 in Control Room. For non-isolated Containment use field team data.

[d] Take one reading per steamline (there are two indicators per line), add together and multiply by 0.45 ( $\frac{1\text{b}}{\text{hr}}$  to cfm conversion).

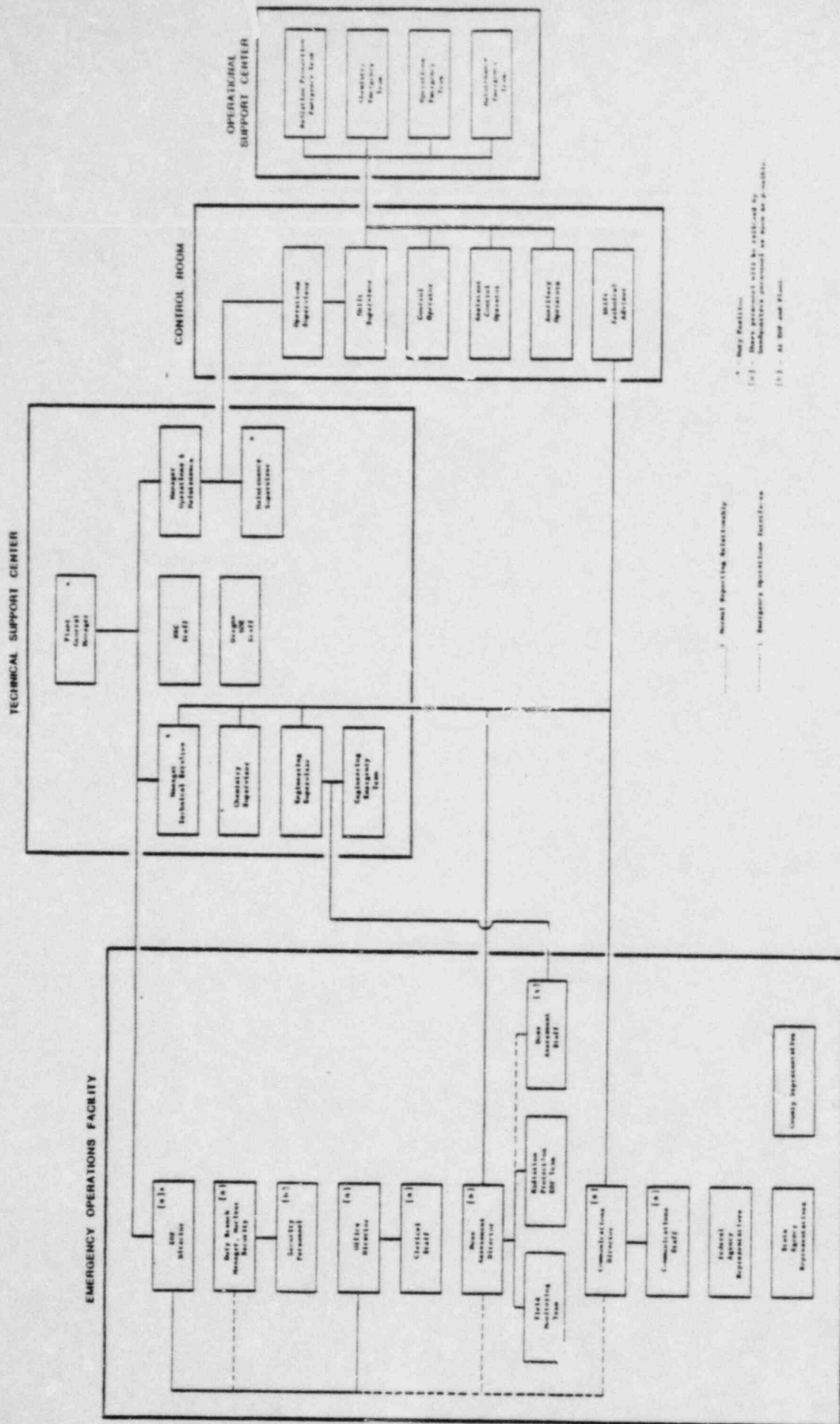
[e] Use only if steam is being released to the atmosphere through Main Steam Line PORV or relief valves. If release is only through ruptured line to atmosphere, use Table 29-4.

[f] Refer to tables in Procedure EP-29.



(a) EOF PERFORMS COMMAND FUNCTION UPON ASSUMPTION OF THE EMERGENCY COORDINATOR RESPONSIBILITIES BY THE EMERGENCY RESPONSE MANAGER.

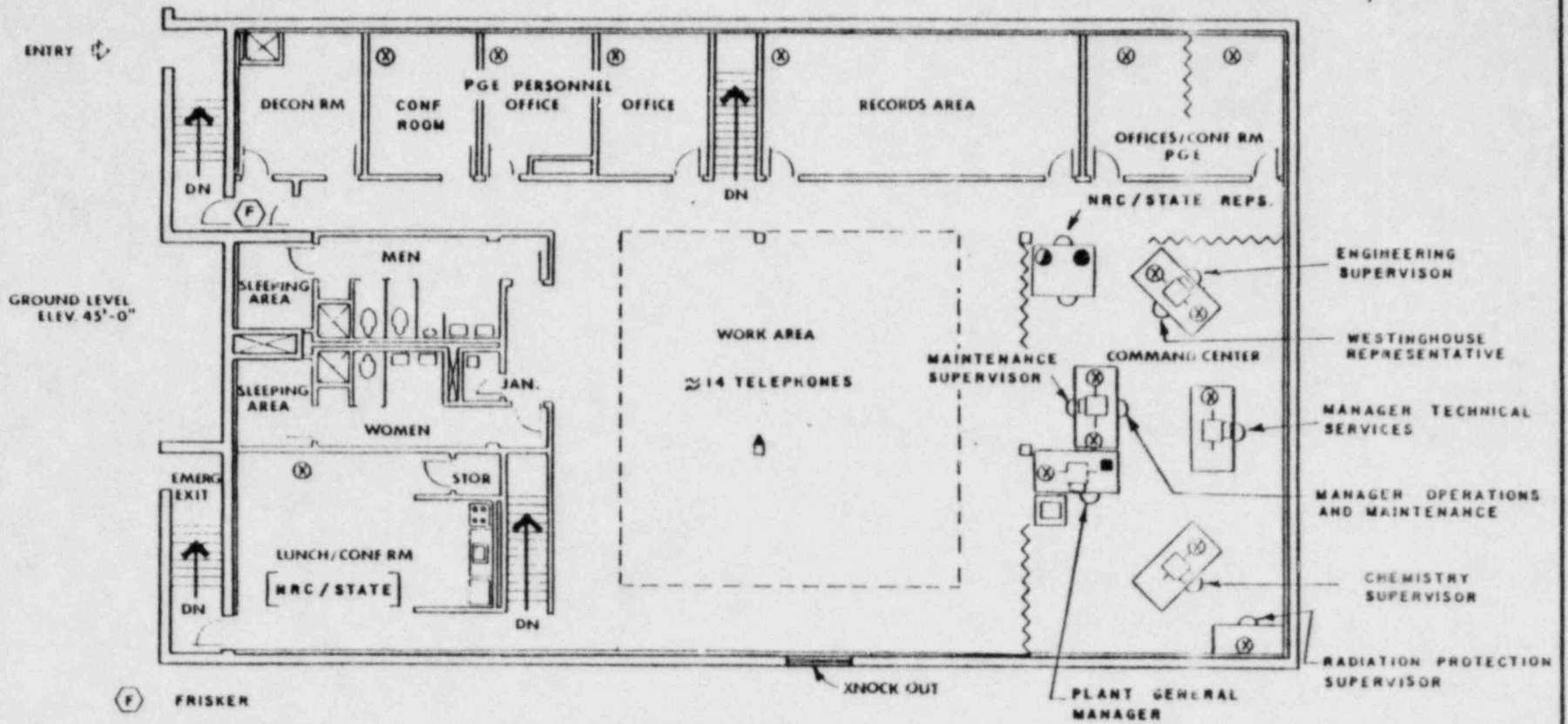
Figure 7-1 Plant and Company Emergency Facilities



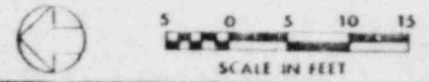
\* Key Position  
 (x) - Shift personnel will be utilized by headquarters personnel as soon as possible.  
 (y) - At BOP and Plant

- Normal Reporting Relationship  
 - Emergency Operations Facility

Figure 7-2 Initial Onsite Emergency Organization



**FIRST FLOOR - PLAN**  
(ELEV. 50'-0")



**TROJAN NUCLEAR PLANT**  
**PORTLAND GENERAL ELECTRIC**  
**TECHNICAL SUPPORT CENTER**  
**FIGURE 7-3**

- (F) FRISKER
- (X) COMMERCIAL TELEPHONE
- SS / ARD TELEPHONES (2)
- ENS / HPM TELEPHONES (2)
- BLUE BAND RADIO CONTROL
- DATA SYSTEM CRT
- ▲ EXECUTONE