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# Emergency Plan

**Title: Millstone Power Station Emergency Plan**

**Revision Number:**

57

**Effective Date:**

8/7/18

**Revision Summary:**

- Appendix I, U3 EAL, GU1, item 2, changed to 'within 15 minutes of notification' (CA3144705)

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# 1. Concept of Emergency Operations

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## 1.1 Description of the Millstone Emergency Planning Zones

The Millstone Power Station is located on Long Island Sound within the Town of Waterford, Connecticut. Millstone has three nuclear power plants: Unit 1, a boiling water reactor, which is permanently shutdown and defueled<sup>1</sup> and being decommissioned; and Units 2 and 3 which are pressurized water reactors. Millstone also has an Independent Spent Fuel Storage Installation (ISFSI), which is located east of the facility within the Protected Area. Millstone has an approximate 10-mile Emergency Planning Zone (EPZ) for the plume exposure pathway and an approximate 50-mile planning zone for the Ingestion Exposure Pathway (IPZ). Millstone Station occupies approximately 500 acres and is located 3.2 miles west-southwest of New London and 40 miles southeast of Hartford.

Local communities within the Millstone plume exposure pathway EPZ include East Lyme, Fishers Island (NY), Groton City, Groton Town, Ledyard, Lyme, Montville, New London, Old Lyme, and Waterford. The Plum Island Animal Disease Center, while physically located within 10 miles of Millstone, is a non-residential federal facility. There are two states within the plume exposure pathway EPZ, Connecticut and New York. The states within the IPZ are Connecticut, Rhode Island, and New York (see Appendix C). Although a small portion of Massachusetts is within the 50-mile radius of Millstone, this area has intentionally been omitted from the Emergency Plan due to the distance from the site and the insignificant amount of land area involved. The Federal Emergency Management Agency (FEMA) has agreed that Massachusetts shall be excluded from the Millstone approximate 50-mile IPZ.

The Millstone Plume EPZ is primarily a residential area, with some urban sections. Peak population totals, including year round residents, seasonal residents, and transients are approximately 205,600 (based on 2010 census data). Appendix J provides a population distribution within the approximate 10-mile EPZ.

The Millstone approximate 10-mile EPZ contains three major industrial facilities: Dow Chemical Corporation (Ledyard), Pfizer Corporation and Electric Boat Division of General Dynamics Corporation (Groton); an air transportation facility (Groton/New London Airport); four military installations: U.S. Naval Submarine Base (Groton), U.S. Coast Guard Academy (New London), Connecticut National Guard Camp and Stone's Ranch Military Reservation (East Lyme); and the State of Connecticut maintained York Correctional Institute (East Lyme).

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<sup>1</sup> In accordance with 10CFR50.82(a)(1)(i) and 10CFR50.82(a)(1)(ii), Millstone Unit 1 submitted certification to the NRC that as of July 1, 1998, power operations had permanently ceased and fuel had been permanently removed from the reactor vessel.

## 1.2 Interrelationships of State/Local/Licensee Emergency Plans

The objective of the Millstone Power Station Emergency Plan is to delineate assessment and protective actions to be taken to minimize the consequences of an incident to the health and safety of the public. Separate plans exist for the licensee, state and local communities within the plume exposure pathway EPZ and the host communities (Table 1-1) to which populations will evacuate. The plans encompass emergency preparedness actions taken by the licensee, the State (all applicable agencies) and the affected local communities. These plans are linked together by a broad overall concept of operations through mutual planning and common notification and assessment procedures. Various federal agencies including the Nuclear Regulatory Commission (NRC), Federal Emergency Management Agency (FEMA), Department of Energy (DOE), and Environmental Protection Agency (EPA) also respond to an emergency in accordance with established federal plans. The licensee will maintain contact with the NRC, the Connecticut Department of Energy and Environmental Protection (DEEP), and the Connecticut Division of Emergency Management and Homeland Security (DEMHS). The DEMHS is responsible for coordinating emergency activities with state and federal agencies and notification of adjoining state governments.

Figure 1-1 illustrates general responsibilities of state, local and licensee emergency organizations. Implementing procedures have been developed to ensure planning effectiveness.

The licensee, state, and local emergency plans include responsibilities and functions and identify resources for each organization. Local radiological emergency response procedures are reviewed and approved by appropriate government officials. State and local emergency preparedness programs include training and periodic drills or exercises.

## 1.3 Actions

Figure 1-1 outlines responsibilities and actions of the licensee, state, and local communities. Figure 1-2 outlines actions and responsibilities of state and local agencies. Figure 1-3 outlines actions and responsibilities associated with each emergency response facility. The actions escalate through each successive emergency classification.

The licensee response to an incident includes: assessment of plant conditions, incident classification, notification of state and local officials, mitigation of plant system degradation, and assessment of accident consequences. The licensee will classify the incident in accordance with federal guidelines and the State of Connecticut Nuclear Incident Classification Scheme. The licensee will notify designated Connecticut and New York state and local officials and licensee personnel, as appropriate, within 15 minutes of an incident classification. In Connecticut, the state agencies notified are the DEMHS, the State Police and the DEEP, as well as officials in the local EPZ communities. In New York, this notification is provided to Suffolk County and Fishers Island, while a courtesy notification is provided to the State of New York. NRC notification by the licensee is completed via telephone.

After initial classification, the licensee ensures that plant conditions are evaluated and updated information or event reclassification is completed as necessary.

#### 1.4 Assistance

State agencies will mobilize resources as necessary to support local communities in protective action implementation. The Director of DEMHS is authorized to request assistance from federal agencies as necessary.

The licensee emergency response facilities provide office space for federal agency responders.

#### 1.5 Public Notification

Public protective actions will be implemented by use of the Public Alerting System and the Emergency Alert System (EAS). The Public Alerting System consists of electronic sirens at various locations within the Plume EPZ. Procedures for providing prompt notification and information to the public are contained within the State Radiological Emergency Response Plan (RERP). Local agencies will initiate responses to implement and support the protective actions. In the event evacuation is necessary, reception centers that are greater than 15 miles from the station have been designated (Table 1-1).

#### 1.6 Public Information Program

A public information program has been developed to inform EPZ populations of actions to be taken during an emergency. This program, as described in Section 8.0, has been developed for the media and general population and provides general radiological and emergency response information.

**Table 1-1**

**Off-Site Host Community and Reception Centers**

| <b><u>Local Community</u></b> | <b><u>Host Community-Reception Facility</u></b>                       |
|-------------------------------|---|
| East Lyme                     | New Haven - Southern Connecticut State University<br>Moore Fieldhouse |
| Fishers Island, New York      | Windham - Windham High School   |
| Groton, City of               | Norwich - Norwich Technical High School                               |
| Groton, Town                  | Norwich - Norwich Technical High School                               |
| Ledyard                       | Storrs - University of Connecticut Fieldhouse                         |
| Lyme                          | New Haven - Southern Connecticut State University<br>Moore Fieldhouse |
| Montville                     | East Hartford - East Hartford High School                             |
| New London                    | Windham - Windham High School   |
| Old Lyme                      | New Haven - Southern Connecticut State University<br>Moore Fieldhouse |
| Waterford                     | East Hartford - East Hartford High School                             |



## Figure 1-1

### **Emergency Response Organizations Responsibilities**

#### **A. Licensee Responsibilities**

1. Classification of event.
2. Activation of on-site TSC, OSC and EOF within 60 minutes of ALERT or higher level incident notification
3. Notification of licensee, State of Connecticut, State of New York (Suffolk County) and EPZ communities.
4. On-site mitigation actions.
5. On-site corrective actions.
6. Protective Action recommendations to the State of Connecticut, as required.
7. Off-site radiological monitoring.
8. Assist State of Connecticut environmental sampling program.

#### **B. State of Connecticut Responsibilities**

1. Activation of State EOC and Joint Media Center at SITE AREA EMERGENCY or higher level incident notification (standby at ALERT).
2. Notification of host communities.
3. Notification of Rhode Island and New York (50-mile EPZ states).
4. Protective action decision making after declaration of State of Emergency by the Governor.
5. Activation of Emergency Alert System (standby at ALERT, activate at SITE AREA EMERGENCY or higher level incident notification).
6. Off-site radiological monitoring team deployment and environmental sample collection.
7. Implementation of the Traffic Management Plan for affected areas, as required.

#### **C. 10-Mile EPZ Communities**

1. Activation of EOCs at SITE AREA EMERGENCY and higher level incident notification (standby at ALERT).
2. Protective action decision making prior to declaration of State of Emergency by Governor.
3. Activation of the Public Alert System (sirens) at SITE AREA EMERGENCY and higher level incident notification in coordination with Emergency Alert System activation.
4. Implementation of protective actions.

#### **D. Host Communities**

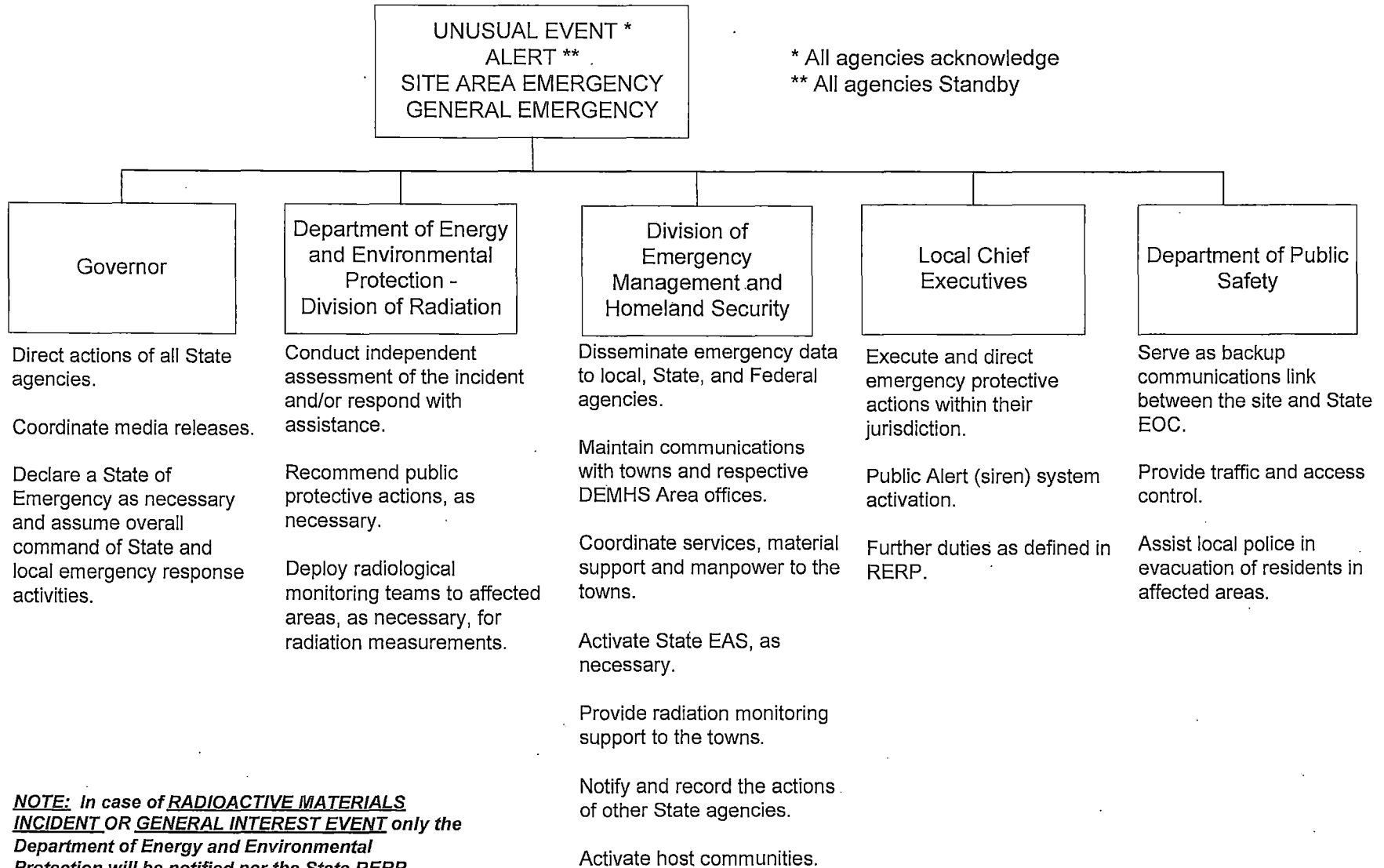
1. Standby at SITE AREA EMERGENCY (as directed)
2. At the direction of the State DEMHS, activate reception center and shelter areas at GENERAL EMERGENCY incident.

#### **E. 50-mile IPZ States**

1. Activate EOCs at SITE AREA EMERGENCY (Standby at ALERT) level.
2. Monitor food pathways.
3. Implement ingestion pathway protective actions.

**Figure 1-2**

**Responsibilities of State and Local Agencies for the Various Incident Classifications**



\* All agencies acknowledge  
 \*\* All agencies Standby

**NOTE:** In case of **RADIOACTIVE MATERIALS INCIDENT OR GENERAL INTEREST EVENT** only the Department of Energy and Environmental Protection will be notified per the State RERP.

### Figure 1-3

## **Licensee Emergency Response Facility Responsibilities (ALERT or higher event classifications)**

### Control Room

- Initial incident classification<sup>2</sup>
- Implement mitigation actions
- Implement corrective actions
- Declare incident classification changes, as necessary
- Perform notifications, develop and transmit incident reports<sup>2</sup>
- On-Shift Dose assessment
- Initial NRC notification (may be done from EOF)

### Emergency Operations Facility (EOF)

- Overall Command and Control
- Declare incident classification changes (Director of Station Emergency Operations)
- Communications with NRC, SEOC, DEEP, and local communities
- Notify state and local officials (notifications and incident reports)
- Provide protective action recommendations (PARs) to State DEEP
- Direct off-site radiological monitoring teams and dose assessment activities
- 

### Co-located Technical Support Center/Operational Support Center (TSC/OSC)

- Provide engineering and accident management support to Control Room and emergency response staff
- Provide input on incident classification changes to Director of Station Emergency Operations
- Prioritize TSC/OSC assessment and repair activities in coordination with Control Room
- Direct on-site mitigation actions
- Direct on-site corrective actions
- Direct on-site protective actions

### Operational Support Center Assembly Area (OSC AA)

- Assemble and brief/debrief emergency teams
- Coordinate emergency team activities with the TSC/OSC and Control Room
- 

### State Emergency Operations Center (SEOC)

- Provides direct interface with state officials
- Provides representative to the Joint Media Center

### Innsbrook Corporate Support Center (ICSC)

- Provides technical support
- Drafts news releases and obtains executive approval of news releases
- Provides Corporate logistical assistance
- Activated upon declaration of an ALERT or higher at Millstone.

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<sup>2</sup> Incident classifications of UNUSUAL EVENT require classification, notification and completion of incident report only.

## 2. Applicability and Supporting Plans

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This Plan applies to the Millstone Station Emergency Response Organization in the event of an incident at the Millstone Power Station. This Plan is in agreement with the affected state and local community plans. The supporting plans and their sources are listed in Table 2-1.

**Table 2-1**  
**Supporting Plans and Sources**

| <b><u>Plan</u></b>  | <b><u>Source</u></b>  |
|---|---|
| 1. State of Connecticut Radiological Emergency Response Plan  | State of Connecticut Division of Emergency Management and Homeland Security, State Armory Hartford, Connecticut |
| 2. State Agency Procedures  | State of Connecticut Division of Emergency Management and Homeland Security, State Armory Hartford, Connecticut |
| 3. New York State Radiological Emergency Preparedness Plan  | New York State Disaster Preparedness Commission<br>Albany, New York   |
| 4. State of Rhode Island Ingestion Exposure Pathway Emergency Response Plan   | Rhode Island Emergency Management Agency Cranston, RI   |
| 5. Local Community Procedures: <ul style="list-style-type: none"><li>• Town of East Lyme</li><li>• City of Groton</li><li>• Town of Groton</li><li>• Hamlet of Fishers Island (NY)</li><li>• Town of Ledyard</li><li>• Town of Lyme</li><li>• Town of Montville</li><li>• City of New London</li><li>• Town of Old Lyme</li><li>• Town of Waterford</li></ul> | Local Community Emergency Management Agencies   |
| 6. Host Community Procedures: <ul style="list-style-type: none"><li>• Town of East Hartford</li><li>• UCONN / Storrs</li><li>• City of New Haven</li><li>• City of Norwich</li><li>• Town of Windham</li></ul>  | Local Host Community Emergency Management   |
| 7. Lawrence and Memorial Hospital Master Emergency Preparedness Manual, Section II, Part K, Radiation Accident Plan   | Lawrence and Memorial Hospital New London, Connecticut  |
| 8. Treatment and Decontamination of Radioactively Contaminated Patient(s) at Middlesex Hospital   | Middlesex Hospital Middletown, Connecticut  |
| 9. Manual of Protective Action Guides and Protective Actions for Nuclear Incidents  | EPA-400-R-92-001 U.S. Environmental Protection Agency   |

**3. Section Intentionally Left Blank (Reserved)**

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#### 4. Classification System

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An UNUSUAL EVENT, ALERT, SITE AREA EMERGENCY or GENERAL EMERGENCY is declared as required by the emergency assessment procedure. Each emergency classification has one or more corresponding state posture codes. Within each classification is a description of the conditions and parameter values which are applicable to classifying the incident. This classification approach is consistent with the NUMARC or NEI methods.

The State RERP requires that incidents be assigned a state posture code at the time of classification. The state plan also defines non-emergency "General Interest Events" and "Radioactive Materials Incidents," which require reporting. This scheme has been adopted by the state agencies and the local communities in the Millstone EPZ. Certain federal classifications and their corresponding posture codes include an associated public protection action recommendation. The station will report the incident classification and a state posture code during an event to local and state authorities.

The emergency classification description, posture codes, discussion, and corresponding licensee actions are also given in Table 4-1 (UNUSUAL EVENT), Table 4-2 (ALERT), Table 4-3 (SITE AREA EMERGENCY) and Table 4-4 (GENERAL EMERGENCY).

The nuclear incident classification description and associated posture code scheme is defined in the State RERP and described in emergency procedures.

Incident classifications are driven by unit specific Emergency Action Level (EAL) tables. Example EAL tables are provided in Appendix I. The emergency classification and action level scheme meet 10CFR50.47(b)(4) requirements.

Once indications are available to plant operators that an emergency action level has been exceeded, the event is promptly assessed and classified, and the corresponding emergency classification level is declared. This declaration occurs as soon as possible and within 15 minutes of when these indications become available.

An analysis of the potential radiological impact of an accident at Unit 1 in the permanently defueled condition has been conducted. Based on this analysis, any potential release is not expected to exceed the EPA PAG exposure levels beyond the exclusion area boundary. For this reason, only the UNUSUAL EVENT or ALERT classifications apply at this unit.

## Table 4-1

### **Unusual Event - Licensee Actions**

#### Class Description

NOTIFICATION OF UNUSUAL EVENT (State Posture Code: DELTA-TWO [if radiation release] or DELTA-ONE): Events are in process or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection. No releases of radioactive material requiring off-site response or monitoring are expected unless further degradation of safety systems occurs.

#### Actions

1. Assessment of conditions and initiation of actual corrective responses, as appropriate.
2. Notification of the Innsbrook Corporate Security Control Center.
3. Notification of the appropriate Connecticut and New York state agencies and local communities (responsible local officials) within the plume exposure EPZ.
4. Notification of the appropriate licensee personnel and NRC.
5. Augmentation of on-shift resources, as appropriate.
6. Periodic event status updates are provided to off-site authorities.
7. Reassessment of conditions and a revised event classification, as appropriate.
8. A close-out report is provided with verbal summary to off-site authorities, followed by a written summary to the NRC as required by 10 CFR 50.73, as appropriate.

## Table 4-2

### **Alert - Licensee Actions**

#### Class Description

ALERT (State Posture Code: CHARLIE-ONE): Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of intentional malicious dedicated efforts of a hostile act. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

#### Actions

1. Assessment of conditions and initiation of actual corrective responses, as necessary.
2. Notification of the Innsbrook Corporate Support Center (ICSC) via the Corporate Security Control Center.
3. Precautionary dismissal of nonessential station personnel.
4. Notification of the appropriate Connecticut and New York state agencies and local communities (responsible local officials) within the plume exposure EPZ.
5. Activation of the Station Emergency Response Organization (SERO) and appropriate emergency response facilities (ERFs)
6. Establish communications with the SEOC in Hartford, if activated.
7. Notification of the NRC.
8. Deployment of on-site and off-site radiological monitoring teams (RMTs).
9. Periodic event status updates are provided to off-site authorities.
10. Periodic meteorological data summaries and dose assessments are developed and provided to off-site authorities.
11. Reassessment of conditions and a revised event classification, as appropriate.
12. An event report by verbal summary is provided to off-site authorities followed by a written summary to the NRC as required by 10 CFR 50.73, as appropriate.



**Table 4-3**

**Site Area Emergency - Licensee Actions**

Class Description

SITE AREA EMERGENCY (State Posture Code: CHARLIE-TWO): Events are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or security events that result in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) prevents effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels except near the site boundary.

Actions

1. Assessment of conditions and initiation of corrective responses, as necessary.
2. Notification of the Innsbrook Corporate Support Center (ICSC) via the Corporate Security Control Center.
3. Evacuation of nonessential personnel at the station.
4. Implement accountability of station personnel, as required.
5. Notification of the appropriate Connecticut and New York state agencies and local communities (responsible local official) within the plume exposure EPZ.
6. Activation of the Station Emergency Response Organization (SERO) and ERFs.
7. Establish communications with the SEOC in Hartford, when activated.
8. Notification of the NRC.
9. Deployment of on-site and off-site RMTs.
10. Periodic event status updates are provided to off-site authorities.
11. Periodic meteorological data summaries and dose assessments are developed and provided to off-site authorities.
12. Reassessment of conditions and revised event classification, if appropriate.
13. An event report by verbal summary is provided to off-site authorities followed by a written summary to the NRC as required by 10 CFR 50.73, as appropriate.

**Table 4-4**

**General Emergency - Licensee Actions**

Class Description

GENERAL EMERGENCY (State Posture Code: ALPHA [significant radiation release] or BRAVO): Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or security events that result in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels off-site for more than the immediate site area.

Actions

1. Assessment of conditions and initiation of corrective responses, as necessary.
2. Notification of the Innsbrook Corporate Support Center (ICSC) via the Corporate Security Control Center.
3. Evacuation of nonessential personnel at the station.
4. Implement accountability of station personnel, as required.
5. Notification of the appropriate Connecticut and New York state agencies and local communities (responsible local official) within the plume exposure EPZ.
6. Activation of the Station Emergency Response Organization (SERO) and ERFs.
7. Establish communications with the SEOC in Hartford, when activated.
8. Notification of the NRC.
9. Deployment of on-site and off-site RMTs.
10. Periodic event status updates are provided to off-site authorities.
11. Periodic meteorological data summaries and dose assessments are developed and provided to off-site authorities.
12. Provide protective action recommendations to the SEOC.
13. An event report by verbal summary is provided to off-site authorities followed by a written summary to the NRC as required by 10 CFR 50.73, as appropriate.

## 5. Emergency Response Organization

This section describes the Station Emergency Response Organization (SERO). The SERO (Figure 5-1) replaces and prevails over the normal station organization. Information regarding the structure of the normal operating organization is presented in Section 1.0 of the "Dominion Nuclear Facility Quality Assurance Program Description" (DOM-QA-1) and is incorporated in this document by reference.

A detailed analysis of on-shift personnel assigned emergency plan implementation functions was performed under provisions of 10 CFR 50 Appendix E Part IV.A.9. This analysis determined the staff complement listed in the on-shift column of Table 5-1 can adequately perform required emergency response actions in a timely manner until augmenting SERO staff is required to arrive. This analysis considered a spectrum of events, including FSAR Condition IV events requiring augmented SERO response, a probable aircraft threat, a design basis threat, a fire requiring Control Room evacuation and remote shutdown, a station black out, etc. This staffing analysis is incorporated by reference as a part of this emergency plan.

Personnel are assigned to the SERO based on their normal job qualifications and other specialized training. Personnel assigned receive Emergency Plan training based on their specific emergency functions. The Nuclear Training Department maintains a Training Procedure Description that specifies required training for each SERO function.

The SERO consists of on-shift staff, minimum staffing, and full staffing. The minimum SERO staffing necessary to activate the ERFs consists of the on-shift and minimum staffing positions identified in Table 5-1. The DSEO has the discretion to relieve the CR-DSEO and authorize ERF activation with less than minimum staffing when the necessary functional areas are filled. The specified positions are in accordance with NUREG-0654, Planning Standard B, Table B-1. The SERO personnel identified as full staffing are additional personnel beyond the required minimum, used to enhance the emergency response. The full staffing emergency positions will report as soon as possible after acknowledging notification with a goal of filling these positions within 4 hours. The SERO is activated upon declaration of an ALERT, SITE AREA EMERGENCY or GENERAL EMERGENCY. The on-shift SERO personnel are then supplemented by minimum and full staffing, reporting as indicated on Table 5-1. Additional personnel resources, outside the SERO staff, may be activated, as needed.

The SERO is described in Table 5-1 and Figure 5-1. Table 5-1 illustrates the relationship between emergency and normal positions, describes major tasks, functional areas, emergency locations, and indicates the emergency position type (i.e. on-shift, minimum staffing, or full staffing). The normal on-shift staff complement applies to operating modes. During shutdown, refueling or permanently defueled condition, the on-shift staff may be reduced to the minimum shift staff composition delineated in the administrative controls section of the unit Technical Specifications.

Procedures detailing responsibilities for the various SERO staff positions are listed in Appendix D, as applicable.

This section also includes brief descriptions of the state, local and other organizations that would provide assistance upon request.

Appendix B contains copies of letters of agreement from these organizations.

The on-shift/on-site positions are part of the normal station organization, which includes:

- Shift Manager/Certified Fuel Handler (CFH)
- Shift Technical Advisor (Unit 2 and Unit 3)
- Work Control Senior Reactor Operator (SRO)
- Unit Supervisor (Unit 2 and Unit 3)
- Control Operators (Unit 2 and Unit 3)
- Plant Equipment Operators (Unit 2 and Unit 3)
- Health Physics Technicians (same as Radiation Protection Technicians)
- Chemistry Technician
- Security Shift Operations Supervisor and Security Personnel
- Station Duty Officer
- Fire Brigade
- First Aid Team

The minimum staffing management positions include the following:

- Director of Station Emergency Operations
- Assistant Director, Emergency Operations Facility
- Assistant Director, Technical Support (Unit 2, 3)
- Manager of Technical Support Center
- Manager of Radiological Consequence Assessment
- Manager of Radiological Dose Assessment
- Manager of Communications (Unit 2, 3)
- Manager of Operational Support Center (2 Positions)
- Millstone Emergency Offsite Representative
- Nuclear News Manager
- Manager of Resources
- Emergency Information Specialist
- Corporate Support Director

The Millstone SERO positions are described below:

## 5.1 On-Shift Positions

### 5.1.1 Shift Manager (SM)<sup>3</sup>

The Shift Manager initially assumes command of the SERO as the Control Room DSEO (CRDSEO) following UNUSUAL EVENT or higher classification. In this position, the Shift Manager has the authority and responsibilities of the DSEO. Due to the numerous responsibilities assigned the Shift Manager at the onset of an emergency, actions shall be prioritized as follows:

- (1) ensure safe operation of the plant,
- (2) ensure immediate notification requirements are met,
- (3) obtain operational and radiological assessment of the emergency, and
- (4) perform additional emergency actions as directed by procedures as time and conditions permit.

An SRO shall assume the responsibilities of the SM if the SM should become incapacitated or otherwise unable to fulfill the responsibilities of CRDSEO. If this is required, some delay in completing the prioritized actions is expected. However, assistance is available from the Station Duty Officer and the unit STA. After being relieved by another qualified DSEO, the Shift Manager becomes the Manager of Control Room Operations (MCRO). The following CRDSEO responsibilities cannot be delegated:

- Event classification<sup>4</sup>
- Initiation of station emergency response
- Authorization of mitigation and repair activities.
- Command and control of station emergency response.
- Approval of off-site Protective Action Recommendations.
- Approval of on-site evacuation.
- Authorization of emergency exposures.
- Authorization of off-site notifications.

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<sup>3</sup> For Unit 2, the SM is also a qualified Certified Fuel Handler (SM/CFH).

<sup>4</sup> The Unit 2 CR DSEO will also classify events specific to Unit 1.

For a Unit 1 event, the Unit 2 SM/CFH functions as the CRDSEO.

#### 5.1.2 Shift Technical Advisor (STA)

The STA is responsible for the analysis of operational data<sup>5</sup>.

#### 5.1.3 Manager Of Control Room Operations (MCRO)

The Manager of Control Room Operations responsibilities include control room operations, interface with ADTS concerning plant status and changing conditions and recommendations for classification changes and corrective actions. The MCRO is also responsible for determining entry conditions into the Severe Accident Management Control Room Initial Response Guidelines and implementation of the Severe Accident Management Guidelines as required.

For a Unit 1 event, the Unit 2 CRDSEO becomes the MCRO.

#### 5.1.4 Emergency Communicator (EC)

The Emergency Communicator is responsible for conducting emergency notifications and activating ERDS.

#### 5.1.5 On-shift Operators

For an operating unit, the on-shift Unit Supervisor (US), Control Operators (CO) and Plant Equipment Operators (PEO) perform plant related functions in accordance with unit and Station procedures, and as directed by the SM/MCRO. The PEOs provide basic on-shift mechanical and electrical maintenance functions, in addition to Radwaste-operations.<sup>6</sup>

#### 5.1.6 Health Physics Technicians (HP)

The Health Physics Technicians provide initial in-plant and on-site radiological support actions as RMT #1.

#### 5.1.7 Chemistry Technician

The Chemistry Technician provides on-shift dose assessment, chemistry support and is available to assist control room personnel in other actions as directed.

#### 5.1.8 Security Shift Operations Supervisor and Security Personnel

The Security Shift Operations Supervisor performs security related functions in accordance with unit and Station procedures, and as directed by the SM/MCRO. The Security Shift Operations Supervisor is assisted by security personnel in providing site access control and accountability.

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<sup>5</sup> This position is not required for a permanently defueled unit.

<sup>6</sup> For a permanently defueled unit, an on-shift Unit 2 operator (licensed or non-licensed) performs these functions.

### 5.1.9 Station Duty Officer (SDO)

The Station Duty Officer or available SRO notifies the NRC, assists with communications, precautionary dismissal, and evacuation or assembly of station personnel.

### 5.1.10 Fire Brigade

The Fire Brigade provides immediate response to a fire on-site.

### 5.1.11 First Aid Team

The First Aid Team provides emergency medical services for on-site personnel injuries.

## 5.2 Minimum Staffing Positions

### 5.2.1 Director of Station Emergency Operations (DSEO)

After relieving the CRDSEO, the EOF DSEO assumes overall command and control of the SERO and the licensee emergency response. The DSEO is responsible for classification, notification, release of information to off-site authorities, recommending protective actions to the State of Connecticut, and approval of personnel appointed to fill SERO vacancies during an emergency. The DSEO will ensure that additional SERO staff positions, as determined necessary to effectively respond to the specific emergency, will be staffed within 90 minutes of facility activation. The following DSEO responsibilities cannot be delegated:

- Command and control of station emergency response, including coordination of response by off-site agencies
- Event classification
- Approval of off-site Protective Action Recommendations
- Authorization of emergency exposures greater than 25 rem TEDE for lifesaving activities
- Authorization of off-site notifications
- Requests for federal assistance to support station response

### 5.2.2 Assistant Director, Technical Support (ADTS)

The ADTS reports to the DSEO. The ADTS is responsible for providing command and control of the SERO technical, operational, assessment and repair staff. The MCRO, MRCA, MOSC, MTSC, and MOS report to the ADTS.'

The ADTS primary responsibilities include:

- Ensuring actions are taken to mitigate degradation of plant systems
- Recommending changes in classification to the DSEO
- Approving accident management strategies and ensuring accident management plan is implemented
- Ordering station assembly, evacuation, or sheltering
- Approving on-site personal protective action decisions (PPADs)
- Approving emergency exposure upgrades to 25 Rem TEDE for on-site staff and technical, operational support and security personnel
- Approving the issue of Potassium Iodide (KI) to emergency personnel assigned to the ADTS, at the recommendation of the MRCA
- Evaluating conditions for directing entry into Severe Accident Management Guidelines

#### 5.2.3 Manager of Technical Support Center (MTSC)

The MTSC reports to the ADTS. The MTSC analyzes operating data and provides technical support to the ADTS, MCRO, and the MOSC. The TSC Engineering staff and Accident Management Team report to the MTSC and provide accident assessment functions. The MTSC is assisted by a mechanical engineer, reactor engineer, and an electrical engineer.

#### 5.2.4 Manager of Operational Support Center (MOSC)

The MOSC reports to the ADTS. The MOSC assembles, briefs, equips, deploys, and coordinates Emergency Assessment, Repair, and Search/Rescue Teams. The MOSC assumes control of the Operational Support Center. Personnel assigned to assist in performing these functions report to the MOSC. The MOSC is assisted by OSC assistants, maintenance specialists, and other staff.

#### 5.2.5 Assistant Director, Emergency Operations Facility (ADEOF)

The ADEOF reports to the DSEO in the EOF. The ADEOF is responsible for providing command and control of the offsite radiological assessment and radiological support activities. The MRDA, MOC, MOR, and EC report to the ADEOF. The ADEOF is also responsible for:

- Providing recommendations for classification changes based on offsite radiological conditions



- Approving Potassium Iodide (KI) issue to emergency personnel assigned to the ADEOF
- Developing, recommending and updating off-site PARs to the DSEO.
- Off-site radiological dose assessment
- Providing logistics support (personnel) from external response agencies
- Managing the collection and communication of event data for news releases
- Assuming responsibilities of DSEO, in the event the DSEO becomes incapacitated or otherwise unable to perform the assigned duties
- Approving emergency exposure upgrades up to 25 Rem TEDE for SERO personnel who perform actions off-site
- Authorizing contaminated personnel to leave the station

#### 5.2.6 Manager of Radiological Consequence Assessment (MRCA)

The MRCA reports to the ADTS. The MRCA coordinates health physics activities including on-site radiological assessment, personnel exposure control, recommendations on the issuance of KI to on-site SERO personnel, and radiation protection programs. Personnel assigned to assist in on-site radiological assessment functions include the Assistant Radiation Protection Supervisor (ARPS) and Radiological Communicators (RADCOM).

#### 5.2.7 Manager of Radiological Dose Assessment (MRDA)

The MRDA reports to the ADEOF. The MRDA coordinates off-site radiological monitoring, environmental sampling, and dose assessment, and provides recommendations for exposure upgrades and KI issuance to offsite SERO responders. The personnel assigned to assist in performing these functions are the Assistant Managers of Radiological Dose Assessment (AMRDAs), Radiological Assessment Engineers (RAEs), Field Team Data Coordinator (FTDC), and the Meteorological Assistant.

#### 5.2.8 Manager of Communications (MOC)

The MOC reports to the ADEOF. The MOC provides information concerning the operation and status of the plant and radiological conditions to the NRC Headquarters Emergency Operations Center, Bethesda, MD and the NRC Region 1 Emergency Response Center as requested.

#### 5.2.9 Radiological Monitoring Team (RMT #2-NAP and SAP)

HP Technicians serve as RMT # 2 and provide radiological surveys, HP coverage, and monitoring and decontamination activities associated with site evacuation. The RMT #2 reports to the MRCA.

#### 5.2.10 Radiological Monitoring Team (RMT #3-#4-#5)

RMTs # 3, #4, and #5 are each composed of a driver and monitor and provide offsite radiological surveys in the event of a release. The EOF RMTs will also collect environmental samples as directed by the MRDA. The offsite RMTs report to the MRDA.

#### 5.2.11 EOF HP Technician

The EOF HP Technician provides HP functions for the EOF and supervises operation of the EOF decontamination facility and count-room. The EOF HP Technician reports to the MRDA.

#### 5.2.12 EOF Emergency Communicator (EC)

The EC performs notifications of corporate, SERO, federal, state and local officials. The EOF EC reports to the ADEOF.

#### 5.2.13 OSC - Assistant Radiation Protection Supervisor (ARPS)

The ARPS reports to the MRCA. The ARPS provides radiological controls for the TSC/OSC and OSC Assembly Area. The ARPS also provides radiological support for emergency teams dispatched from the OSC AA.

#### 5.2.14 Emergency Information Specialist (EIS)

The EIS reports to the DSEO. The EIS assists the DSEO in documenting or logging activities and provides other administrative assistance to the DSEO as needed.

#### 5.2.15 Millstone Emergency Offsite Representative (MEOR)

The MEOR reports to the DSEO and acts as the company spokesperson at the SEOC and Joint Media Center, providing face-to-face communications with state officials and representing the licensee at news conferences. The MEOR may also provide background information concerning licensee PARs provided to the State DEEP and supports the Corporate Executive Spokesperson if one is present.

#### 5.2.16 Nuclear News Manager (NNM)

The NNM reports to the MEOR and supervises Millstone public information activities at the Joint Media Center. The NNM may issue news releases if the Corporate External Affairs Manager is not available.

#### 5.2.17 Manager of Resources (MOR)

The MOR reports to the ADEOF. The MOR fills SERO vacancies and provides 24 hour/day planning for manpower, transportation, food, quarters, equipment and supplies at the site. He/she serves as the coordinator for corporate support.

#### 5.2.18 Technical Support Center-Reactor Engineer (TSCRE)

The TSCRE reports to the MTSC and provides expertise in reactivity transients, reactivity management and shutdown margin calculations. The TSCRE assists the AMT with thermal hydraulic calculations as necessary.

#### 5.2.19 Technical Information Coordinator (TIC)

The TIC reports to the DSEO and is responsible for collecting and entering information and key plant parameter data onto the Critical Parameters status board. The TIC obtains this set of key plant parameters from the Off-Site Facilities Information System (OFIS). This system provides information to the EOF, TSC and the SEOC.

#### 5.2.20 Technical Support Center - Electrical Engineer (TSCEE)

TSCEE reports to the MTSC. The TSCEE is responsible for providing the MTSC with electrical engineering and general support.

#### 5.2.21 Technical Support Center - Mechanical Engineer (TSCME)

TSCME reports to the MTSC. The TSCME is responsible for providing the MTSC with mechanical engineering and general support.

#### 5.2.22 Mechanic, Electrician, I&C Technician, COEL

The mechanic, electrician, and I&C Technician report to the Manager, OSC and are responsible for assessment, repair, and corrective actions.

#### 5.2.23 Corporate Support Director (CSD)

The Corporate Support Director provides direction to the Innsbrook Corporate Support Center (ICSC) staff. The Corporate Support Director is also responsible for monitoring and participating in the corporate conference network, authorizing augmentation of additional corporate resources, and approving releases of information to the public.

### 5.3 Full Staffing Positions

#### 5.3.1 Control Room Data Coordinator (CRDC)

The CRDC reports to the MCRO and is responsible for communicating plant data and control room activities to the TSC and EOF.

#### 5.3.2 Technical Assistant (TA)

The TA reports to the MEOR and provides the MEOR with technical information as required.

### 5.3.3 Meteorological Assistant

The Meteorological Assistant reports to the MRDA and provides meteorological data interpretation, calculations and long term meteorological information to support dose assessment activities.

### 5.3.4 Technical Support Center- Shift Manager (TSCSM)

The SRO assigned to the Technical Support Center assists with communications with the control room and provides technical expertise in accident assessment activities. The TSCSM monitors Emergency Operating Procedure (EOP) progress and assists the ADTS in monitoring plant conditions for possible classification changes.

### 5.3.5 Operational Support Center (OSC) Assistant

The OSC Assistant reports to the Manager, OSC, and provides operational support by coordinating on-site activities and personnel.

### 5.3.6 CBETS Operator

The CBETS Operator provides computer based exposure tracking information and assists the MRCA with the administrative activities for exposure upgrades and KI issuance. The CBETS Operator reports to the MRCA.

### 5.3.7 Radiological Assessment Engineer (RAE) {two positions}

The RAE reports to the MRDA and assists the radiological assessment team in dose calculations.

### 5.3.8 Radiological Communicators {two positions} (RADCOM)

The RADCOMs report to the MRCA and provide communications for on-site radiological activities. One RADCOM is located in the TSC/OSC and the other is in the EOF.

### 5.3.9 Assistant Manager, Radiological Dose Assessment (AMRDA) {two positions}

The AMRDAs report to the MRDA and assist in performance of radiological monitoring, environmental sampling, and dose assessment.

### 5.3.10 Field Team Data Coordinator (FTDC)

The FTDC reports to the MRDA and provides communications and information from field teams to the EOF. The FTDC also briefs and deploys field monitoring and environmental sampling teams.

#### 5.3.11 Manager of Security (MOS)

The Manager of Security reports to the ADTS and is responsible for maintaining accountability and site security.

#### 5.3.12 Accident Management Team (AMT)

An Accident Management Team consisting of an AMT-Leader and an AMT Thermal-Hydraulic Engineer report to the MTSC and assist the Technical Support Center in developing accident response strategies. The AMT is also responsible for evaluating conditions and implementing Severe Accident Management Guidelines. During severe accident management implementation, the AMT reports to the ADTS.

#### 5.3.13 Regulatory Liaison (RL)

The RL reports to the ADEOF and is responsible for accommodating the NRC Site Team dispatched to the station, arranging site access for the NRC Team, providing adequate dosimetry, and responding to questions and comments.

#### 5.3.14 Media Center Liaison (MCL)

The MCL reports to the NNM and is responsible for assisting with media response.

#### 5.3.15 Technical Briefer (TB)

The TB reports to the Media Center Liaison and is responsible for providing technical, plant specific information to the media between official news briefings.

#### 5.3.16 Radiological Briefer (RB)

The RB reports to the Media Center Liaison and is responsible for providing technical radiological information to the media between official news briefings.

#### 5.3.17 Offsite Monitoring Facility (OMF) Staff

The OMF is co-located with the EOF in Norwich. If activated, the EOF team reports to the MRDA through the FTDC. This is a call in position. If needed, the EOF team sets up and operates the OMF to monitor and decontaminate station personnel and monitor station personnel vehicles.

#### 5.3.18 Station Emergency Preparedness Representative (SEPR)

The SEPR reports to the ADEOF and is responsible for assisting the EOF staff in activating and operating the facility.

### 5.3.19 Station Emergency Planning Liaison (SEPL)

The SEPL reports to the MEOR and is responsible for providing support to SERO and state personnel in the SEOC.

## 5.4 Corporate Support

### 5.4.1 Corporate Support Coordinator (CSC)

- Maintains an Events Log
- Notifies Corporate Risk Management of the event
- Serves as the central point-of-contact for requests for corporate logistical assist
- Interfaces with the Manager of Resources

### 5.4.2 Corporate Plant Information Coordinator (CPIC)

- Monitors the Operations Network and OFIS
- Provides the Innsbrook Corporate Support Center (ICSC) with technical perspective
- Interfaces with the Technical Information Coordinator

### 5.4.3 Corporate External Affairs Manager (CEAM)

- Develops news releases if needed for an Unusual Event or higher incident classification for purposes of public information releases
- Drafts news released based on input from the Corporate Conference Network data from Millstone, the EIS, and the NNM
- Through the NNM, coordinates releases of GE news releases with State of Connecticut news releases
- Distributes news releases to the media

### 5.4.4 Corporate Emergency Plan Specialist (CEPS)

- Provides assistance with facility operations and interpretation of the Millstone Emergency Plan

#### 5.4.5 Corporate Executive Spokesperson (CES)

- Assumes responsibility as spokesperson from the MEOR. If it is determined that a CES is necessary, the CES will be assigned to the State Emergency Operations Center/Joint Media Center at the Hartford State Armory.

### 5.5 Other Organizations Providing Assistance

#### 5.5.1 State / Local Assistance

During an emergency, assistance from state or local agencies may be required. The State RERP defines responsibilities of the state and local agencies. Details of provided assistance are contained in Letters of Agreement (Appendix B) with the agencies and the State RERP. [Response agencies will use the Incident Command Systems (ICS), the Connecticut State Response Framework, and the Connecticut Radiological Emergency Response Plan as appropriate in managing large scale incidents. For an event such as a security or Hostile Action, the Waterford Police Department and the State of Connecticut will assist as appropriate and coordinate the response with other local, state, and federal agencies.] These letters are updated annually or as necessary to reaffirm agreed-upon assistance and to verify appropriate communications channels.

#### 5.5.2 Private Agency Assistance

Assistance of private agencies may also be required during an accident. Details of the type of services expected are contained in letters of agreement. The letters are updated annually or as necessary to reaffirm agreed-upon assistance and to verify appropriate communications channels. Appendix B contains a listing of operational letters of agreement.

#### 5.5.3 Federal Assistance

Request for off-site federal assistance will be made through the State DEMHS. The federal agencies contacted can inform the State DEMHS of their response times.

The licensee does not anticipate need for additional federal support in responding to an accident.

The licensee maintains work centers for both FEMA and the NRC at the Station EOF. Work space is also maintained for NRC personnel in the TSC. Dedicated federal telephone communications and access to licensee communications equipment are provided in this area.

**Table 5-1  
Station Emergency Response Organization**

| Major Functional Area  | Major Tasks  | Normal Position/Title <sup>(n)</sup>                               | Emergency Position/Title                                | Emergency Location                        | On-Shift            | Minimum Staffing <sup>**</sup> |                  | Full Staffing <sup>(b)</sup> | Training Summary<br>(Refer to App K) | Rad Worker | Resp Qual |
|--|--|--|---|---|---------------------|--------------------------------|------------------|------------------------------|--------------------------------------|------------|-----------|
|  |  |  |   |   |                     | 30-60 Minutes                  | 60 Minutes       |                              |                                      |            |           |
| Unit Operations and assess. of operational aspects, assessment of off-normal operational aspects | Responsible for safe operation of the unit including the implementation of normal & emergency operating procedures | Shift Manager (SM)/CFH   | Manager of Control Room Operations <sup>(q)</sup>       | Affected Unit CR                          | 1 <sup>(d, i)</sup> |                                |                  |                              | 1, 4, 6, 9, 14                       | YES        | YES       |
|  |  | Shift Technical Advisor, Security Supervision                      | Station Duty Officer                                    | Affected Unit CR                          | 1 <sup>(a)</sup>    |                                |                  |                              | 1,4                                  | YES        | YES       |
|  |  | Shift Technical Advisor (STA)                                      | Shift Technical Advisor                                 | Affected Unit CR                          | 1 <sup>(a, i)</sup> |                                |                  |                              | 1,4                                  | YES        | YES       |
|  |  | Unit Supervisor (US)   | US  | Affected Unit CR                          | 1 <sup>(i)</sup>    |                                |                  |                              | 1, 4, 6, 9, 14                       | YES        | YES       |
|  |  | Control Operator (CO)  | CO  | Affected Unit CR                          | 2 <sup>(i)</sup>    |                                |                  |                              | 1                                    | YES        | YES       |
|  |  | Plant Equipment Operator (PEO) (Unit 2,3)                          | PEO   | Affected Unit CR                          | 2 <sup>(i)</sup>    |                                |                  |                              | 1                                    | YES        | YES       |
|  |  | Unit 2 Operator (Unit 1 responder and Unit 2 Appendix R responder) | PEO   | Unit 2 CR                                 | 1 <sup>(i)</sup>    |                                |                  |                              | 1                                    | YES        | YES       |
| Emergency Direction and Control, Support of Operational Accident Assessment                      | Assume command and control of Station Emergency Operations. Event classifications, notifications and PARs.         | Manager, Nuclear Operations, Shift Managers/CFH                    | Director of Station Emergency Operations <sup>(q)</sup> | Affected Unit Control Room <sup>(m)</sup> | 1 <sup>(m)</sup>    |                                |                  |                              | 1, 4, 6, 9, 14                       | YES        | YES       |
|  |  | Directors, Managers  |   | EOF                                       |                     |                                | 1                |                              |                                      |            |           |
| Communications   | Management liaison to the SEOC. Coordinates station emergency response actions with that of the State.             | Directors, Managers, Nuclear Specialist                            | Millstone Emergency Offsite Representative              | SEOC/Joint Media Center                   |                     |                                | 1 <sup>(o)</sup> |                              | 1, 4, 9, 14                          |            |           |
|  | Provide information to the Chief Technical Spokesperson  | Licensing, Engineers/Process Leadership, Maintenance               | Technical Assistant                                     | SEOC/Joint Media Center                   |                     |                                |                  | 1                            | 1, 2, 9                              |            |           |



**Table 5-1  
Station Emergency Response Organization**

| Major Functional Area                              | Major Tasks   | Normal Position/Title <sup>(n)</sup>      | Emergency Position/Title                            | Emergency Location      | On-Shift         | Minimum Staffing <sup>**</sup> |                     | Full Staffing <sup>(b)</sup> | Training Summary (Refer to App K) | Rad Worker | Resp Qual |
|--|---|---|---|-------------------------|------------------|--------------------------------|---------------------|------------------------------|-----------------------------------|------------|-----------|
|  |   |   |   |                         |                  | 30-60 Minutes                  | 60 Minutes          |                              |                                   |            |           |
| Public Information                                 | Supervise public information activities. Disseminate information received from EOF, armory, and Corporate staff to appropriate corporate and government officials. Coordinate with ICSC.<br><br>Develop and distribute news releases if the Corporate External Affairs Manager is not available.<br><br>Approve news releases.<br>Support coordination with CT Public Information Staff.<br>Support public information effort with technical information.<br>Support public information effort with radiological information. | Various                                   | Nuclear News Manager                                | SEOC/Joint Media Center |                  |                                | 1 <sup>(h)(o)</sup> |                              | 1, 4, 9                           |            |           |
|  |   | Senior Executive                          | Corporate Support Director                          | ICSC                    |                  |                                | 1 <sup>(h)</sup>    |                              | 1, 4, 9                           |            |           |
|  |   | Various                                   | Media Center Liaison                                | SEOC/Joint Media Center |                  |                                | 1                   |                              | 1, 4, 9                           |            |           |
|  |   | Various                                   | Technical Briefer                                   | SEOC/Joint Media Center |                  |                                | 1                   |                              | 1, 4, 9                           |            |           |
| Various  | Radiological Briefer  | SEOC/Joint Media Center                   |   |                         | 1                |                                |                     | 1, 4, 9                      |                                   |            |           |
| Radiological Calculations and Event Communications | Assume command and control of internal/external communications, radiological assessment, and management of the event. Ensures off-site radiological assessments are provided to the State DEEP. Recommends PARs to the DSEO.  | Managers, Supervisors                     | Assistant Director<br>Emergency Operations Facility | EOF                     |                  |                                | 1                   |                              | 1, 4, 7, 9, 14                    |            |           |
| Decontamination and Radiation Controls             | Provide HP controls for the EOF, supervise Decon Facility   | HP Tech                                   | EOF HP Tech   | EOF                     |                  |                                | 1                   |                              | 1                                 | YES        | YES       |
| Notification and Communications                    | Notify licensee, corporate, federal, state and local officials.<br><br>Communicate with CR.<br>Activate ERDS  | Work Control SRO                          | Emergency Communicator                              | Unit CR                 | 1 <sup>(e)</sup> |                                |                     |                              | 1, 3, 4, 9                        | YES        | YES       |
|  |   | STA/Security Supervision/Work Control SRO | SDO   | Unit CR                 |                  | 1                              |                     |                              | 1, 4, 9                           | YES        | YES       |
|  |   | Work Control SRO                          | Emergency Communicator                              | EOF                     |                  |                                | 1                   |                              | 1, 3, 4, 9                        | YES        | YES       |
|  |   | SRO                                       | TSC-Shift Manager/CFH                               | TSC/OSC                 |                  |                                |                     | 1 <sup>(g)</sup>             | 1, 4                              | YES        | YES       |
| Work Control SRO                                   | Emergency Communicator  | Unit CR                                   |   |                         |                  |                                |                     | 1,3,4,9                      | YES                               | YES        |           |
| Notification and Communications (Technical)        | Coordinate technical data communication between EOF, CR, TSC/OSC, and government agencies.  | Operator Training Staff                   | Manager of Communications                           | EOF                     |                  |                                | 1 <sup>(g)</sup>    | 1                            | 1, 2, 4, 9                        |            |           |
| Technical Information Communications               | Obtain plant data for Emergency Response Facilities and Technical Assistant at SEOC as required.  | Unit Personnel, Operator Training Staff   | Technical Information Coordinator                   | EOF                     |                  |                                | 1 <sup>(g)</sup>    | 1                            | 1, 2, 4, 6 or 7, 9                |            |           |

**Table 5-1  
Station Emergency Response Organization**

| Major Functional Area                        | Major Tasks   | Normal Position/Title <sup>(n)</sup>   | Emergency Position/Title                          | Emergency Location | On-Shift            | Minimum Staffing <sup>* *</sup> |            | Full Staffing <sup>(b)</sup> | Training Summary<br>(Refer to App K) | Rad Worker | Resp Qual |
|--|---|--|---|--------------------|---------------------|---------------------------------|------------|------------------------------|--------------------------------------|------------|-----------|
|  |   |  |   |                    |                     | 30-60 Minutes                   | 60 Minutes |                              |                                      |            |           |
| Administrative Support                       | Provide administrative support to the DSEO.<br><br>Maintain log for the DSEO.<br><br>Facilitate information exchange with other emergency facilities. | Various  | Emergency Information Specialist                  | EOF                |                     |                                 | 1          |                              | 1, 4, 9                              |            |           |
| Technical Data Communications                | Ensure needs for plant data and information are met.  | Operator Training Staff  | Control Room Data Coordinator                     | Affected Unit CR   |                     |                                 |            | 2 <sup>(g)</sup>             | 1, 2, 4, 9                           | YES        |           |
| On-Site Radiological Accident Assessment     | Direct On-site RMTs, sampling program and radiation protection program. Perform dose assessment calculations.   | Radiological Protection and Waste Services<br>HP Ops Support<br>HP Ops<br>HP Supervisors | Manager of Radiological Consequence Assessment    | TSC/OSC            |                     |                                 | 1          | 1                            | 1, 4, 9                              | YES        |           |
| Radiological Surveys                         | HP coverage and station surveys for repair, corrective actions, Search and Rescue, and fire-fighting. Personnel monitoring, and dosimetry issue.      | HP Technician  | RMT #1  | Affected Unit CR   | 1 <sup>(d)</sup>    | 1                               |            |                              | 1, 4                                 | YES        | YES       |
| Radiological Protection                      | Radio Chemistry Assessments / Initial Dose Assessment   | Chemistry Technicians  | Chemistry Technicians                             | CR, OSC AA         | 2 <sup>(d, f)</sup> |                                 |            |                              | 1, 15                                | YES        | YES       |
|  | Access control  | HP Technician  | RMT #2 (A,B,C,D)                                  | NAP/SAP            |                     | 4                               |            |                              | 1, 4                                 | YES        | YES       |
| Off-site Radiological Dose Assessment        | Coordinate off-site sampling program, dose assessment and core damage assessment  | Engineers/Manager-Chemistry Supervisors  | Manager of Radiological Dose Assessment           | EOF                |                     |                                 | 1          |                              | 1, 4, 5, 7, 9, 11, 12, 13, 14        |            |           |
|  | Dose Calculations   | Engineers/Analysts/Specialists   | Radiological Assessment Engineer                  | EOF                |                     |                                 |            | 2                            | 1, 4, 5, 9, 11, 12, 13               |            |           |
|  | Dose Assessment, Radiological Calculations  | Chemistry Supervisors, Chemistry Training<br><br>Engineers/Analysts/Specialists          | Assistant Manager of Radiological Dose Assessment | EOF                |                     |                                 |            | 2                            | 1, 4, 5, 7, 9, 11, 12, 13, 14        |            |           |
| Radiological Control Within the OSC AA       | Provide radiological controls within the TSC/OSC, OSC AA and provides radiological support for emergency teams dispatched from the OSC AA             | HP   | Assistant Radiological Protection Supervisor      | OSC AA             |                     |                                 | 1          |                              | 1, 4                                 | YES        |           |
| Radiological Radio Communications            | Deploy RMTs, collect data.  | Site Services, HP Services   | Field Team Data Coordinator                       | EOF                |                     |                                 |            | 1                            | 1, 4, 5, 9                           |            |           |
| Radiological Surveys                         | Off-site Surveys  | HP/Various   | RMT #3-4-5 and Drivers                            | EOF                |                     | 2                               | 4          |                              | 1, 4                                 | YES        | YES       |
| Meteorological Services                      | Provide meteorological data interpretation, calculations, long term meteorological information  | Environmental Specialists  | Meteorological Assistant                          | EOF                |                     |                                 |            | 1                            | 1, 4, 10                             |            |           |
| Environmental Services and/or Health Physics | Plume and Ingestion Pathway Sampling  | Environmental/HP Personnel and/or HP REMP Tech   | RMT #3-4-5 and Drivers                            | EOF                |                     |                                 |            | 2 <sup>(h)</sup>             |                                      | YES        |           |

**Table 5-1  
Station Emergency Response Organization**

| Major Functional Area  | Major Tasks  | Normal Position/Title <sup>(n)</sup>  | Emergency Position/Title                        | Emergency Location | On-Shift | Minimum Staffing <sup>* * *</sup> |                  | Full Staffing <sup>(b)</sup> | Training Summary<br>(Refer to App K) | Rad Worker | Resp Qual |  |
|--|--|---|---|--------------------|----------|-----------------------------------|------------------|------------------------------|--------------------------------------|------------|-----------|--|
|  |  |   |   |                    |          | 30-60 Minutes                     | 60 Minutes       |                              |                                      |            |           |  |
| Contingency Offsite Contamination Monitoring for Station Staff | Set up and operate Offsite Monitoring Facility   | Radioactive Material Technician   | OMF Staff                                       | EOF                |          |                                   |                  | 6 <sup>(p)</sup>             | 4                                    | YES        |           |  |
| Accident Assessment Management and Consequence Mitigation      | Assume command and control of the station operating, technical assessment and repair staff. Recommends changes to classifications  | Manager-Operations, Supervisor Nuclear Shift Operations, Supervisor-Operator Training | Assistant Director, Technical Support           | TSC/OSC            |          |                                   | 1 <sup>(g)</sup> | 1                            | 1, 4, 6, 8, 9                        | YES        |           |  |
| Unit System Engineering  | Responsible for analysis of operations data, development of procedures, recommend repair, and corrective actions   | Manager-Engineering/ Supervisors, Engineers   | Manager of Technical Support Center             | TSC/OSC            |          |                                   | 1                | 1                            | 1, 4, 7, 9                           | YES        |           |  |
|  |  | Assist Manager of Technical Support   | Mechanical Engineer                             | TSC-ME             | TSC/OSC  |                                   | 1                | 1                            | 1, 2, 4                              | YES        |           |  |
|  |  |   | Electrical Engineer                             | TSC-EE             | TSC/OSC  |                                   |                  | 1                            | 1                                    | 1, 2, 4    | YES       |  |
|  |  |   | Reactor Engineer                                | TSC-RE             | TSC/OSC  |                                   |                  | 1                            | 1                                    | 1, 2, 4    | YES       |  |
|  |  | Nuclear Instrument Technician   | Control Operations Electrical (COEL) Specialist | OSC AA             |          |                                   | 1                | 1                            | 1                                    | YES        |           |  |
| Plant System Engineer Repair and Corrective Action             | Assist Manager of Technical Support. Provide accident analysis   | Safety Analysis, Nuclear Fuel Engineering   | Accident Management Team- Leader                | TSC/OSC            |          |                                   |                  | 1                            | 1, 2, 4, 8                           | YES        |           |  |
|  |  | Safety Analysis, Nuclear Fuel Engineering   | AMT-Thermal-Hydraulic Engineer (T-H)            | TSC/OSC            |          |                                   |                  | 1                            | 1, 2, 4                              | YES        |           |  |
| Repair and Corrective Actions                                  | Evaluation, repair, and corrective actions   | Manager-Maintenance Supervisor  | Manager of Operational Support Center           | TSC/OSC, OSC AA    |          |                                   | 1                | 1                            | 1, 4, 9                              | YES        |           |  |
|  |  |   | Mechanic  | Mechanic           | OSC AA   |                                   | 1                | 1                            | 1                                    | YES        | YES       |  |
|  |  |   | Electrician                                     | Electrician        | OSC AA   |                                   | 1                | 1                            | 1                                    | YES        | YES       |  |
|  |  |   | I&C Technician                                  | I&C Technician     | OSC AA   |                                   | 1                | 1                            | 1                                    | YES        | YES       |  |
| Operational Support  | Coordinate on-site activities and personnel  | Supervisor-Maintenance  | OSC Assistant                                   | TSC/OSC, OSC AA    |          |                                   |                  | 2                            | 1, 4, 9                              | YES        |           |  |
|  |  | Supervisor-Maintenance  | OSC Assistant                                   | TSC/OSC, OSC AA    |          |                                   |                  | 2                            | 1, 4, 9                              | YES        |           |  |
| Resource Acquisition & Personnel Dispatching                   | Coordinates requests for assistance, organizes station personnel for relief shift work, account SERO personnel. Coordinate acquisition of personnel and equipment from corporate or outside sources. | Various   | Manager of Resources                            | EOF                |          |                                   | 1                |                              | 1, 4, 9                              |            |           |  |
| Information Resources  | Maintain computer availability   | IT Personnel  | None  | Millstone Station  |          |                                   |                  | (j)                          |                                      |            |           |  |

**Table 5-1  
Station Emergency Response Organization**

| Major Functional Area                            | Major Tasks  | Normal Position/Title <sup>(n)</sup>                | Emergency Position/Title                      | Emergency Location      | On-Shift                                       | Minimum Staffing <sup>*</sup> |                    | Full Staffing <sup>(b)</sup> | Training Summary<br>(Refer to App K) | Rad Worker | Resp Qual |
|--|--|---|---|-------------------------|--|-------------------------------|--------------------|------------------------------|--------------------------------------|------------|-----------|
|  |  |   |   |                         |  | 30-60 Minutes                 | 60 Minutes         |                              |                                      |            |           |
| Firefighting                                     | Firefighting and communicate and strategize with Control Room  | Fire Brigade  | Fire Brigade                                  | As Required             | Per TRM <sup>(a)</sup> and FPER <sup>(a)</sup> |                               | Local Comm Support |                              | 1                                    | YES        | YES       |
| Search and Rescue Operations                     | Search and rescue operations   | Security Personnel / Station Personnel, as required | Security Personnel / Station Personnel        | As Required             | Per Sec. Plan                                  |                               |                    |                              | 1                                    | YES        | YES       |
| External Response Logistics                      | Provide logistics support for external response personnel. Liaison with NRC Site Response team.  | Licensing, Engineering                              | Regulatory Liaison                            | EOF                     |  |                               |                    | 1                            | 1, 4                                 |            |           |
| Backup SERO Notifications                        | Communications with ADTS/DSEO. Backup SERO Notification System   | Security Personnel                                  | Security Person                               | CAS/SAS                 | 1  |                               |                    |                              | 1                                    | YES        | YES       |
| Communications                                   | HP Communications  | HP Staff  | RAD Communicator                              | EOF, TSC/OSC            |  |                               |                    | 2                            | 1, 4                                 | YES        |           |
| Exposure Control                                 | Exposure Monitoring  | HP Staff  | CBETS Operator                                | OSC AA                  |  |                               |                    | 1                            | 1, 4                                 | YES        |           |
| First Aid  | Emergency Medical Services   | First Aid Team                                      | First Aid Team                                | As required             | 2 (a)  |                               | Local Comm Support |                              | 1                                    | YES        |           |
| Site Access Control and Personnel Accountability | Establish EOF security. Directs Security Personnel in support of emergency operations (firefighting communications, personnel accountability) assist in personnel accountability | Security Personnel                                  | Manager of Security                           | TSC/OSC                 |  |                               |                    | 1                            | 1, 4, 7, 9                           | YES        |           |
|  | Establish station security. Support emergency operations and perform personnel accountability  | Security Personnel                                  | Security Personnel                            |                         | Per Security Plan                              |                               |                    |                              | 1                                    | YES        | YES       |
|  | Supervise on-site security operations  | Security Shift Operations Supervisor                | Security Shift Operations Supervisor          |                         | 1 <sup>(a)</sup>                               |                               |                    |                              | 1, 7                                 | YES        |           |
| Support  | Provide support to SEOC staff  | EP /Various   | State Emergency Planning Liaison              | SEOC/Joint Media Center |  |                               |                    | 1                            | 1,4,9                                |            |           |
|  | Provide support to EOF staff   | EP Staff  | Station Emergency Preparedness Representative | EOF                     |  |                               |                    | 1                            | 1,4,9                                |            |           |
|  |  |   |   | Totals Unit 1           | 10 <sup>(k, l)</sup>                           | 11                            | 30 <sup>(e)</sup>  | 38                           |                                      |            |           |
|  |  |   |   | Unit 2/Unit 3           | 15 <sup>(k, l)</sup>                           | 11                            | 30 <sup>(e)</sup>  | 38                           |                                      |            |           |

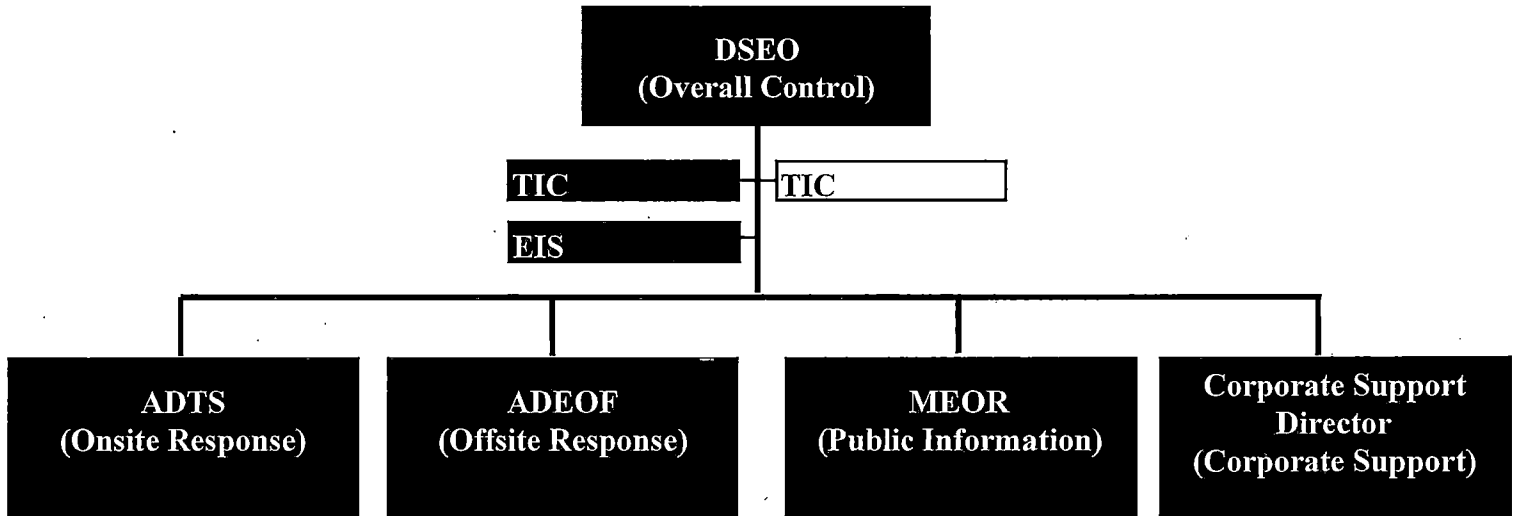
**Table 5-1 Notes:**

- a May be provided by shift personnel not assigned an Emergency Position (exception is First Aid Team).
- b Full staffing are beyond minimum required for facility activation which constitute a fully augmented SERO. Personnel respond as soon as possible upon notification with a goal of filling these positions within 4 hours.
- c Station position (Counted as affected unit resource).
- d One for Unit 1/Unit 2; one for Unit 3; (for Chemistry and Health Physics, two each per site)
- e Assigned, affected unit resources, additional SERO staff will respond from non-affected units.
- f Overall station resource (accounts for additional personnel from the unaffected units).
- g One needed for Unit 2 and one needed for Unit 3 (only 1 required for minimum staffing for activation).
- h Carries out independent responses at time of incident notification.
- i Only one senior reactor operator, reactor operator and non-licensed operator are required on shift under non-operating conditions (shutdown and refueling). For a permanently defueled condition, only one certified fuel handler and one equipment operator are required on shift.
- j Call-in specialized resource- (Non-SERO personnel).
- k Total does not include Security staff or Fire Brigade personnel on-shift.
- l On-Shift total reflects Shift Manager / Affected Unit Control Room DSEO as one position.
- m For a Unit 1 event the Unit 2 SM/CFH becomes the CRDSEO; after transferring responsibilities to the ADTS and EOF DSEO, the Unit 2 CRDSEO becomes the MCRO.-
- n Higher level organization personnel may be used to fill these roles as necessary.
- o A 90-minute goal has been established for the Millstone Emergency Offsite Representative and Nuclear News Manager who report to the CT SEOC.
- p. Position will be staffed as needed by called in personnel and only as required. Staff may be augmented by any available HP Technicians, ARPSSs, and/or CBETS operators.
- q. The Shift Manager (SM) becomes the Control Room Director of Station Emergency Operations (CR DSEO) until relieved by the EOF DSEO. The SM then becomes the Manager of Control Room Operations.
  - A 30 to 60-minute goal has been established for the identified individuals. It is expected that some of these individuals will report within about 30 minutes, with the remainder arriving at various times during the next 30-minute interval.
- \* Indicated Staff response times are from the time of notification to report to emergency assignments.

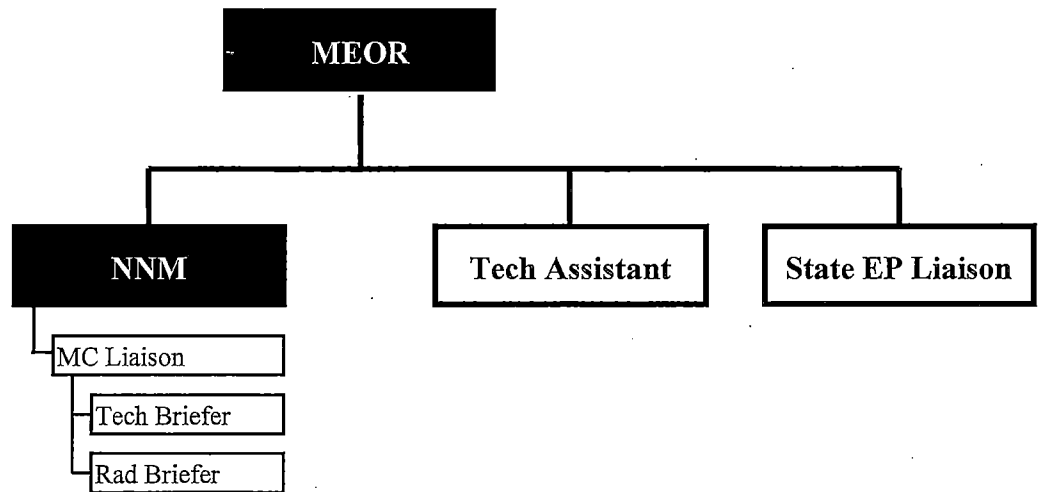
**Figure 5-1**



**Organization of Station Emergency Management Personnel  
(Page 1 of 3)**

**Senior SERO Management Structure**



**Public Information SERO Structure**



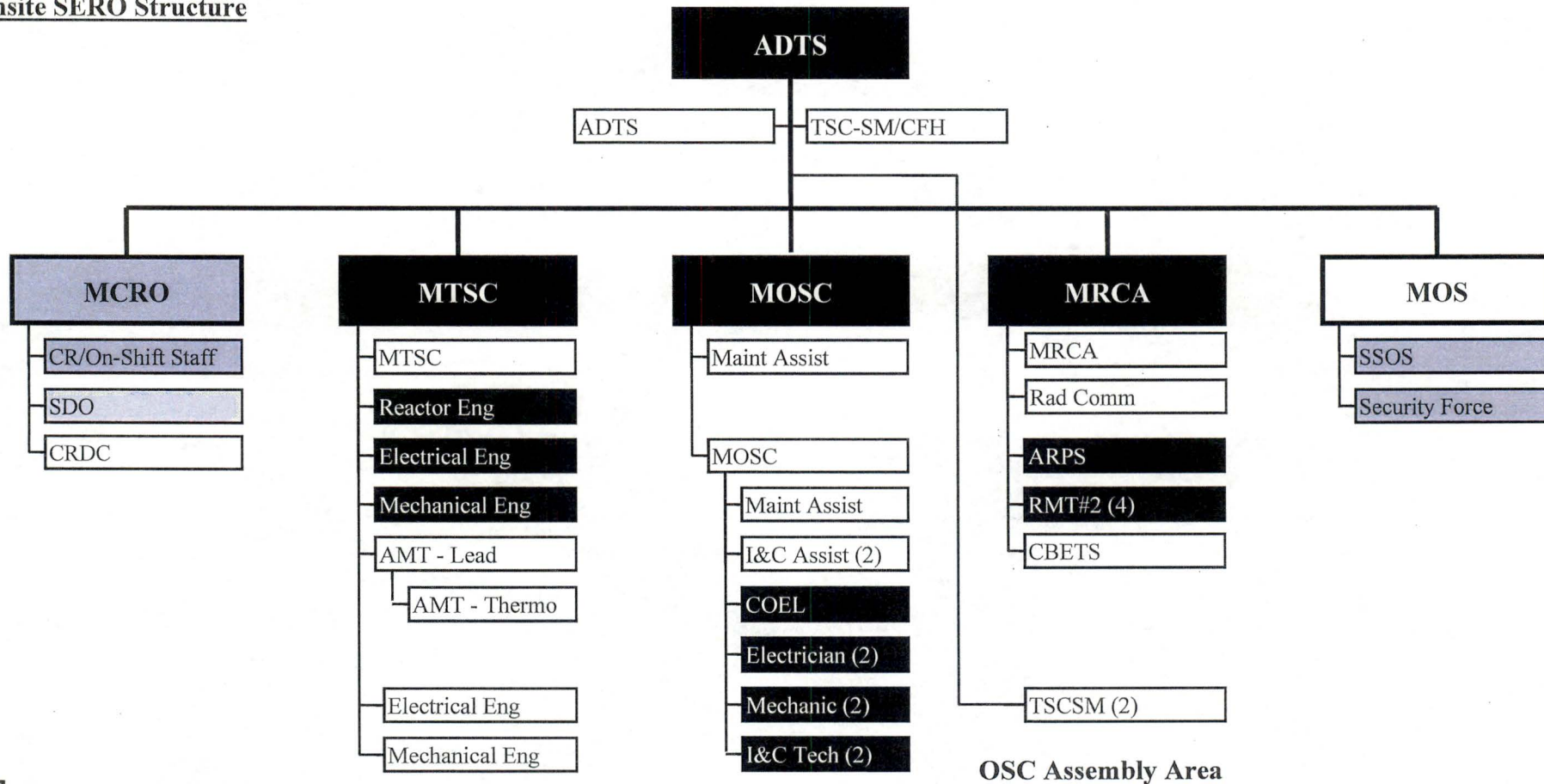
-  Indicates positions necessary for facility activation.
-  Indicates fully augmented organization positions.

**Figure 5-1**

**Organization of Station Emergency Management Personnel**

(Page 2 of 3)

Onsite SERO Structure



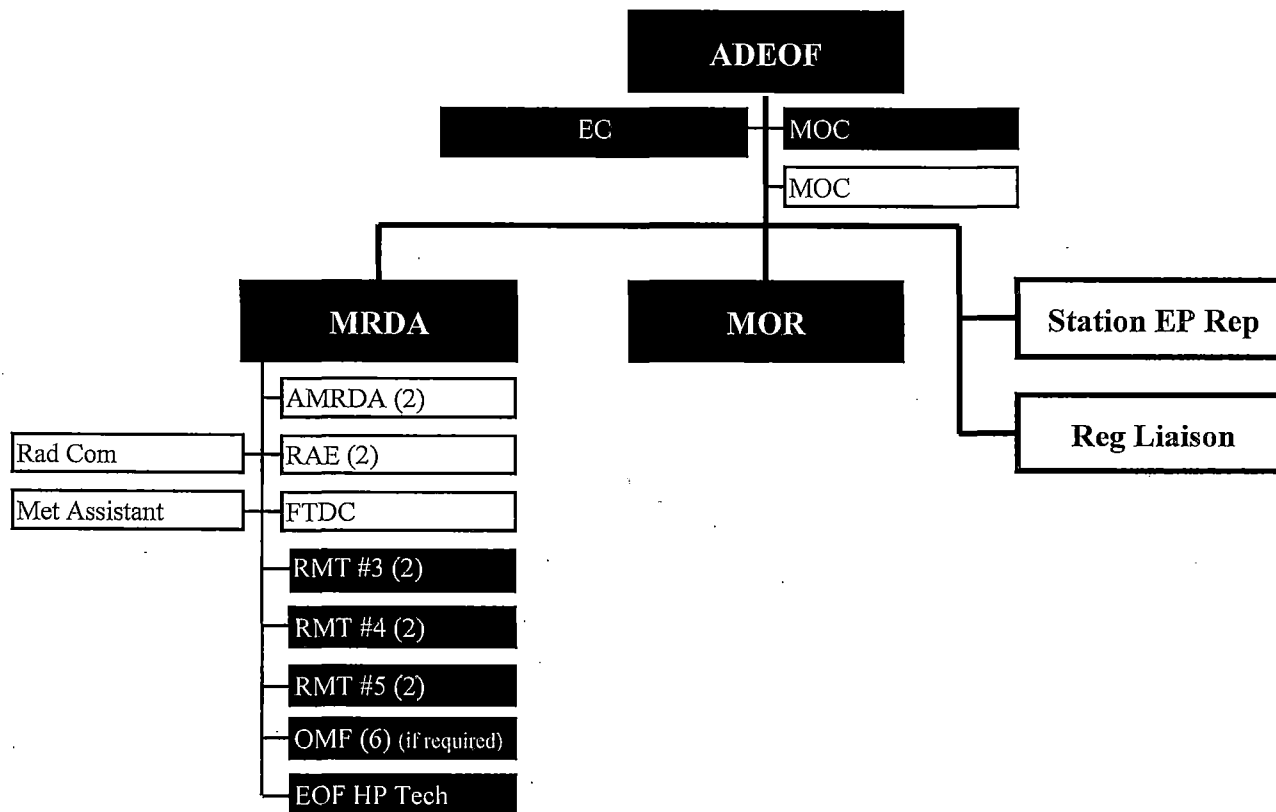
- Indicates on shift positions.
- Indicates positions necessary for facility activation.
- Indicates fully augmented organization positions.

**Figure 5-1**

**Organization and Location of Station Emergency Management Personnel**

(Page 3 of 3)

**Offsite SERO Structure**



■ Indicates positions necessary for facility activation.

□ Indicates fully augmented organization positions.



## 6. Emergency Measures

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Emergency measures begin with the identification and classification of an emergency and the activation of the appropriate emergency organizations. Emergency measures include assessment actions, corrective actions, and recommendation of protective actions. The Emergency Action Levels (EALs) have predetermined values or conditions which, when met or exceeded, require declaration of an emergency classification, notification of the licensee emergency response organization, state and local officials, and corrective and/or protective actions. A general outline is presented as follows:

### 6.1 Notification and Activation of Emergency Organizations

The authority and responsibility for initially classifying and declaring emergencies, initiating notification to emergency organization personnel, state and local officials and the NRC and initiating immediate actions necessary to limit the consequences of the emergency reside with the Shift Manager (SM), who is on site 24 hours a day.

The SM initially assumes command and control of the SERO as the Control Room Director of Station Emergency Operations (CRDSEO). The SM will function as CRDSEO until relieved by the EOF DSEO, a shift relief occurs, or the event is terminated. After relief by the EOF DSEO, the SM assumes responsibility as Manager of Control Room Operations (MCRO).

The CRDSEO /DSEO is responsible for ensuring that timely and appropriate notifications are made.

SERO responsibilities may be transferred during a normal shift rotation when a qualified relief reports on site and is fully briefed on current and past conditions.

For emergencies that are not unit-specific, the Unit 3 Shift Manager assumes the position of DSEO until relieved, or the event is terminated.

The SERO is activated by a combination of public address (PA) system announcement, Station emergency alarm actuation and electronic message. The PA announcement can include the incident location, emergency classification and personnel information. Initially, the emergency organization consists of normal on-shift personnel. Notification of the emergency organization and state and local officials is by the Emergency Notification and Response System (ENRS) which is initiated by Control Room personnel. If a failure of either system should occur, notifications will be made using commercial telephone lines and/or satellite phones. The Connecticut State Police will assist with backup notifications to state and local officials, as necessary.

Following the declaration of a "State of Emergency" by the Governor, DEMHS may direct the DSEO to discontinue use of the ENRS for further state and local notifications and directly communicate with the SEOC for classification changes or event updates. The State will then assume responsibilities for notification of the local town EOCs. The SEOC will coordinate activation of the Public Alerting System sirens with the local governments, as needed. The ENRS consists of computer based systems. When activated, messages are sent to phones and/or electronic devices. The ENRS is used for notification of emergency events and decreases the time necessary to notify off-site officials. The ENRS message satisfies the requirement to notify state and local officials of the emergency classification level within 15 minutes after declaration of an emergency. State and local officials acknowledge the notification. The ENRS records the time the call was completed and provides more detailed incident information. A goal of 15 minutes has been established for completing the initial SERO notification sequence.

Electronic messages include the following information:

- Station and unit identification
- Event classification (including State Posture Code)

Incident report forms are sent to State and local officials by electronic means with the following additional information:

- Date and time of event classification
- Name and Title of communicator
- Verbal summary of incident details (major and minor EAL headings)
- Current release information
- Meteorological conditions (if available)
- Classification change, update, termination

Message updates which are provided as plant status and conditions change include forecast meteorological conditions, plant status, any offsite services requested, and whether or not access to the site has been restricted.

Details concerning release type, quantities and actual or projected dose rates will be developed, as appropriate, and provided to responsible officials, when requested.

The ENRS provides initial event notification to the emergency organizations. When emergency facilities are activated, various communications systems are used. These systems allow transmission of detailed technical information of the event in progress as well as direct voice communications between facilities and decision makers. Detailed radiological information will be relayed to the DEEP at the SEOC for analysis and decision making.

A representative from the State DEEP responds to the EOF and provides a liaison with the EOF and SEOC staff.

The Millstone Emergency Offsite Representative, Technical Assistant, and Nuclear News Manager respond to the State EOC. They are supported by the Media Center Liaison, Technical Briefer, Radiological Briefer, and State EP Liaison.

Work space and communications for federal agencies and the Town of Waterford are located in the EOF. The TSC provides a work area and limited communications for the NRC.

The SEOC in Hartford uses various communication systems to provide information to the DEMHS Region Coordinators and the local community EOCs. The systems are used to transmit technical, radiological, administrative and resource data between the local community EOCs and the SEOC. Radio, telephone, and FAX devices are used to provide continuous contact with the affected areas. The SEOC coordinates the Public Alerting System siren activation to immediately precede Emergency Alert System (EAS) broadcast messages.

The primary notification (electronic and dedicated telephone lines) contacts and the continuing lines of communication between on-site emergency response facilities and off-site emergency response centers are indicated in Figures 7-1a through 7-1c.

## 6.2 Assessment Actions

### 6.2.1 Initial Assessment

Event classification is based on EALs. The EAL tables provide an incident classification based on instrument readings available in the control room or other observations. The NRC incident classification and corresponding state posture codes are transmitted to state and local officials via the ENRS.

On-Shift dose calculations are conducted, when appropriate, and used to validate the incident classification and any PAR if applicable.

The Shift Technical Advisor (STA) provides independent assessment of emergency actions. When activated, the TSC assumes a more expanded role and responsibility beyond that of the STA.

Additional technical services and support are obtained as necessary from a combination of station personnel, corporate personnel, and off-site assistance companies/agencies. The State DEEP does an independent assessment of plant conditions and off-site dose assessment.

### 6.2.2 Protective Action Recommendations (PARs)

The State RERP includes procedures for use by state and local community officials for public protective actions in the plume exposure pathway. Public PARs requiring evacuation are to be initiated only for GENERAL EMERGENCY events.

PARs beyond those associated with the event classification are developed using dose assessment or plant conditions in accordance with "NUREG-0654, Supplement 3" guidance for severe reactor accidents. The licensee will provide a PAR to state and local authorities.

If PARs are warranted from the Control Room before activation of the station response organization, the appropriate PARs will be transmitted directly to the State DEEP. Following activation of the station response organizations, PARs are developed and issued directly to the SEOC. The provided PAR will be revised if changing conditions warrant.

When authorized, protective actions are implemented by state and local officials using the Public Alerting System sirens in conjunction with the EAS. Route alerting provides backup alert and notification capability. The Governor of Connecticut is responsible for public protective action decisions after a state of emergency is declared. Before a state of emergency declaration, local chief executives are authorized to take the public protective actions associated with the GENERAL EMERGENCY posture codes.

When emergency response facilities are activated, the State DEEP will collect and process information to independently verify and recommend changes, if necessary, to the licensee provided PARs.

### 6.2.3 Dose Assessment

Radiological assessments by the SERO include determination of radiation exposure rates by both analytic and direct measurement methods. Direct measurements are performed by RMTs deployed to field monitoring locations. The analytic methods use computerized dose calculation models. Projected dose estimates are calculated for different downwind directions and distances. The results may require reclassification of the emergency. Further assessments are performed as required and updates are provided to off-site authorities. On-site radiation protection activities are coordinated by the MRCA. Off-site RMT activities are coordinated by the FTDC under the direction of the MRDA. Field data and projected dose information are transmitted to the State DEEP, as necessary.

The emergency plan procedures contain methods for relating the various measured parameters to dose rates for the accident conditions.

Dose assessment is performed by licensee personnel assigned to the control room or EOF who perform the calculations. Information from dispatched field monitoring teams and plant conditions are then used to verify incident classification.

a. Use of Station Monitors

The station has an extensive system for monitoring radioactive materials released to the environment. As a general requirement, the various process monitors are capable of initiating appropriate alarms and/or actuating control equipment to provide containment of radioactive materials if pre-established limits are reached.

High range containment radiation monitors have been installed in the Unit 2 and Unit 3 containments to be used to determine containment atmosphere curie inventory. Procedures have been established for converting these monitor readings into potential dose assessment data.

For Unit 2 and Unit 3, high-range radiation monitors have been installed at the potential effluent points to determine effluent release rates if existing normal range stack monitors should go off-scale or become inoperative during an emergency. These high-range monitors cover the entire postulated range of releases and exceed the values specified for a GENERAL EMERGENCY. These systems allow for monitoring releases during emergency conditions. Procedures have been established for converting these monitor readings into release rates. RMT surveys are taken to verify release rates.

Unit 1 gaseous effluent releases are continuously monitored for radioactive gases by a Spent Fuel Pool Island (SFPI) radiation monitoring system. Gaseous effluent is sampled for radioactive particulates by a continuous sampling system which collects samples for periodic analysis.

The site has a permanent meteorological installation that records wind speed, direction, and temperature differences continuously in the Unit 2 and Unit 3 Control Rooms and at 15-minute intervals via a computer system.

b. Use of Emergency Action Levels (EALs)

Unit 2 and Unit 3 EALs contain effluent monitor radiation levels which correspond to predetermined dose assessments and appropriate emergency classification levels.

Unit 1 EALs contain effluent monitor release limits established in the Radiation Effluent Monitoring Manual.

c. Dose Estimates for Radioactive Releases

Upon determination of an emergency or potential emergency condition that is anticipated to have off-site consequences, off-site doses are estimated. The critical exposure pathways for short-term emergency actions are the external dose due to noble gases and the internal thyroid dose due to inhalation of radioactive iodine. In these cases, estimated release rates are combined with meteorological dispersion estimates in order to predict off-site doses. Station emergency plan procedures include a method to calculate the distances at which the Environmental Protection Agency protective action guide (PAG) limits may occur.

When the station EOF is activated and radiological dose assessment personnel have arrived, estimates of off-site doses based on more sophisticated techniques and by analysis of actual RMT data can be provided.

6.2.4 Release Rate and Dose Estimate Methodology

a. Noble Gas Release Rate Estimates

Gaseous effluent readings for Unit 2 and Unit 3 are obtained and converted to release rates by multiplying the readings by an appropriate factor. If the monitors are off-scale, the high-range radiation monitors are used to determine release rates. The high-range radiation monitor readings are converted to a release rate using a predetermined factor. Grab sample results, if available, may be more accurate than gross monitor readings. Release rates based on actual samples, if available, will be used in lieu of monitor based calculations.

If no release estimates based on fixed monitors are available, the release rate will be estimated using field monitoring results.

Unit 1 noble gas release estimates for accidental releases out the SFPI vent will use an area monitor and conversion factors to determine the quantity of Kr-85 being released.

b. Radioactive Iodine Release Rate Estimates

If radioactive iodine grab sample results are available, they may be used to calculate the total iodine release rate. If grab samples are not available, the total noble gas release rate is multiplied by a predetermined iodine-to-noble gas ratio (depending on the plant conditions) to obtain the iodine release rate.

c. Core Damage Estimates

Core damage estimations serve several roles within the Millstone Emergency Preparedness Program. For planning purposes, core damage considerations are used as the bases for several of the Emergency Action Level (EAL) initiating conditions and as the threshold for the declaration of a General Emergency (the definition of a General Emergency specifies conditions which involve 'substantial' core degradation or melting as one of the bases for classification). From an implementation perspective, core damage estimations provide a means of realistically differentiating between the four core states (no damage, clad damage, overheat, and melt) to:

- Evaluate the status of the fuel barriers and how their status relates to the risks and possible consequences of the accident.
- Determine the potential quality (type) and/or quantity (%) of source term available for release in support of projected offsite doses and protective action recommendations.
- Provide information which quantifies the severity of an accident in terms that can be readily understood and visualized.
- Support the determination of radiological protection actions that should be considered for long term recovery activities.

The assessment methodologies used by Millstone Station are intended to provide a rapid best estimate of core damage which, when evaluated together, help to develop an overall picture of the extent of core damage. The methods used to estimate the amount or type of core damage occurring under accident conditions include the following:

- Core Uncovery Time: An indirect method used to indicate the type of core damage (clad failure or fuel melt). Applicable for all types of accidents. Provides a relatively accurate estimate of the core state early in the event. Valid any time following an accident.
- Core Temperatures: An indirect method used to indicate the type of core damage. Applicable for all types of accidents. Does not provide numerical estimations but is useful as a yes/no indicator or as confirmation of other methods. Valid any time following an accident.
- Containment and Main Steam Line Radiation Levels: An indirect method used to determine the amount of core damage. Applicable to LOCA type accidents. Based upon an end-of-life source term and static nuclide ratio assumptions yielding a limited accuracy. Valid any time following an accident.

- Containment Hydrogen Concentration: An indirect method used to establish the type of core damage. Applicable to LOCA type accidents where all the hydrogen generated by the metal-water reaction is released into containment. Valid any time following an accident.
- Sample Analysis - Isotopic Ratio Comparison: A direct method used to establish the type of core damage. Compares expected isotopic ratios with a sample to determine a general core state. Applicable under all types of accidents. Valid any time following an accident.
- Sample Analysis - Presence of Abnormal Isotopes: A direct method used to indicate a degree of fuel melt by the presence of unusually high concentrations of the less volatile fission products. Applicable under all types of accidents. Valid any time following an accident.
- Sample Analysis - Concentration Evaluation: A direct method which yields the most accurate numerical estimations. Applicable for all types of accidents. Requires the sampled system(s) be in a steady state which usually prevents its use until the plant is in a stable condition.

d. Meteorological Data

Input to the meteorological section of the procedures includes effective release height, temperature differential, wind speed, and wind direction based on actual or projected readings.

Meteorological data, acquisition and flow are described in Section 7.13.

e. Total Effective Dose Equivalent (TEDE)

The calculated TEDE contributions will include plume external exposure, ground external exposure and inhalation exposure. TEDE doses are calculated for various downwind distances using computerized methods.

f. Committed Dose Equivalent (CDE)-Thyroid

The radioactive iodine release rate and meteorological data are used in computerized methods to obtain the projected maximum off-site CDE thyroid dose at various downwind distances.

g. Verification



When appropriate, dose rates are verified by on-site and off-site RMTs which have been deployed with portable emergency radiological instrumentation and communication equipment.

h. RMT Mobilization and Monitoring

- 1) Notification/Coordination Methods - When notified by the station public address system, the RMT members report to the EOF, Control Room, North Access Point (NAP), South Access Point (SAP), or other areas as assigned. The teams are then dispatched by the appropriate SERO managers.
- 2) Composition - Each of the off-site RMTs consists of two persons, at least one is a health physics technician. The on-site RMTs are health physics technicians.
- 3) Transportation - Three dedicated company vehicles are used for transporting off-site RMTs.
- 4) Monitoring and Equipment - A general list of radiological monitoring kit equipment is included in Appendix E. Complete inventories are provided in station procedures. The kits are provided with appropriate radiological monitoring equipment to measure radioiodine concentrations in air as low as  $10^{-7}$   $\mu\text{Ci/cc}$ .
- 5) Environmental Dosimeters of Legal Record (DLRs) and air particulate samples, air sample cartridges, goat milk, cow milk, soil, vegetation, and water are collected by Environmental Services (ES), Health Physics personnel, or HP REMP Tech.
- 6) Deployment Time- The off-site RMTs can be deployed in approximately one hour. The on-site RMTs can be deployed immediately after equipment checks.
- 7) RMT Communication- The RMTs report information via radio communications or telephone.

i. Off-site Monitoring by DEEP

The State DEEP dispatches off-site monitoring teams of state personnel.

j. Plume Monitoring Over Water

Millstone Environmental Lab vessels may be used to provide transportation for plume monitoring over water. RMT personnel will be assigned to perform over water monitoring as necessary.

6.2.5 Secondary Dose Assessment

Long-term off-site radiological dose assessment (secondary assessment) is provided by the State DEEP. The State DEEP is assisted, as necessary, by Millstone and other agencies. After the assessment has been completed, the State DEEP recommends protective actions to the Governor for approval.

### 6.3 Corrective Actions

Corrective actions are implemented by the use of detailed station procedures. These procedures prioritize actions to prevent or mitigate the consequences of an accident.

The instrumentation, control systems monitors, and radiation monitoring systems provide indications of the safe and orderly operation of the unit. These systems provide the operator with the information and controls needed to start up, operate at power, and shut down the plant. They further provide the means to cope with an abnormal operating condition should it occur. Control of plant systems and information displays are centralized in the control room. This instrumentation provides the basis for initiation of corrective actions.

The following additional corrective actions are implemented during emergency situations as necessary.

#### 6.3.1 Fire Fighting

Procedures for responding to fire emergency situations are in place. Firefighting strategies for plant areas are available for use by responding personnel. The Shift Fire Brigade is in charge of extinguishing the fire.

Applicable health physics, security, and safeguards procedures apply. If outside assistance is needed, the Waterford Fire Service is called.

#### 6.3.2 Damage Control, Repair and Decontamination

Station personnel normally provide decontamination, repair and damage control services. For ALERT, SITE AREA EMERGENCY and GENERAL EMERGENCY operations, the support of specialized outside contractors is obtained, as required. Decontamination of personnel and equipment is conducted in accordance with approved procedures.

### 6.4 Protective Actions

Protective actions are taken when an incident has occurred, or may occur, that could result in concentrations of airborne radioactivity or radiation levels that exceed normal limits for a specific area or areas and cannot be readily controlled, or personnel safety from other causes is threatened. Emergency procedures provide guidance for protective actions, such as evacuation, assembly or sheltering.

#### 6.4.1 On-site Protective Actions

Persons in the owner-controlled area of the site, but outside the protected area, are considered members of the general public. Persons within the protected area are either station personnel, contractor personnel, or visitors. If the protected area has been evacuated, Security will inspect locations outside the protected area to ensure all personnel have evacuated.

The radiological protective actions specified in this section and in Emergency Plan Procedures are augmented by the normal health physics procedures and are used during an emergency unless different actions are identified and authorized by the ADTS. The MRCA establishes radiological control areas (RCAs) in response to the incident. Access to the RCA is controlled by the emergency team briefing process unless immediate access is authorized by the ADTS to facilitate emergency repairs.

a. Notification

The actuation of radiation monitoring alarms, the station emergency alarm, fire alarms, and public address announcements alerts personnel to hazardous conditions and response actions. Station procedures provide for a range of protective actions to protect onsite personnel during hostile action.

b. Security and Site Access Control

If station access has been restricted, traffic is diverted through a security checkpoint in the Simulator Training Building parking lot. Site access roads will be manned and barricaded as necessary. Station access controls will be supported by the Waterford Police Department and the Connecticut State Police, as necessary. Personnel accessing the protected area must be authorized. Station security procedures provide detailed guidance for responding to an emergency.

c. Precautionary Dismissal of Non-Essential Personnel

A precautionary dismissal of non-SERO personnel occurs at the Alert level declaration and can be initiated from the Control Room or TSC. The CR DSEO or ADTS can elect NOT to conduct the precautionary dismissal if the nature of the event warrants such judgment.

A precautionary dismissal directs all non-essential Millstone employees, contractors, and visitors to leave the site.

d. Evacuation

A site evacuation is initiated at the SITE AREA EMERGENCY or GENERAL EMERGENCY classification levels. Site evacuation may be called for at the ALERT level classification depending on the environmental conditions at the time of the event. All non-essential personnel are instructed to leave the Owner Controlled Area. Personnel can be evacuated in about 30 minutes. Evacuation may be suspended or deferred during certain situations (e.g., Security-related, toxic gas), until the threat is resolved. Evacuation will be implemented as quickly as possible thereafter, given the specific situation.

Evacuation can involve the movement of large numbers of personnel out of the Protected Area through the turnstiles at the NAP or SAP. An evacuation alarm actuator is located in the Unit 2 and Unit 3 control rooms. A public alert system is in place in the protected area to communicate evacuation messages in the event of a station emergency.

Evacuation may warrant station egress control by Security. Following discussion with the Connecticut State Police and the Waterford Police Departments, Security will provide specific instructions to exiting personnel as requested by off-site authorities. As part of evacuation, station personnel may be directed to a specific location for monitoring and decontamination.

Other situations which involve the evacuation of personnel from occupied localized areas onsite must be controlled on a case-by-case basis.

e. Local Area Evacuation

Local area evacuation is an evacuation of a building, area, unit, or multi-units for the immediate protection of station personnel from a hazard with limited exposure potential. It is a standard response immediately taken by control room personnel upon acknowledging the hazard.

f. Sheltering

Sheltering is a short-term action taken in specific situations where there is insufficient time available to conduct an evacuation due to the hazard being short lived or threatening the safety of the evacuating population. If a release or hazard is projected to occur within 30–60 minutes, sheltering in place with subsequent staggered movement of personnel may be considered.

g. Assembly

Assembly occurs upon declaration of an ALERT or higher emergency classification level. Minimum staffing and full staffing SERO positions report to their emergency response facilities (control room, EOF, TSC/OSC, OSC AA). SERO personnel assigned to the SEOC report to Hartford. Non-essential personnel are not involved in assembly activities. The Assembly Areas are used to retain SERO personnel who may be needed in the near term to support the event.

h. Accountability

Accountability is conducted at a SITE AREA or GENERAL EMERGENCY and may be conducted at the Alert level following SERO activation and the completion of the precautionary dismissal.

Accountability is the process of verifying the location of personnel who are inside the Protected Area. That is, any unaccounted for person that has keyed into the Protected Area (NAP/SAP) and is not keyed into a vital area, the TSC/OSC, or the OSC Assembly Area (cafeteria) will be identified as missing. Accountability is required to be completed within 45 minutes of its initiation (the names of any missing persons identified to the DSEO or ADTS and announced over the PA).

If precautionary dismissal or evacuation could endanger plant personnel, these actions may be deferred until the condition has been resolved. When conditions warrant, dismissal, evacuation and accountability will be performed, as appropriate.

i. Personnel Monitoring

All personnel within the Protected Area are monitored for radioactive contamination before leaving the Owner-Controlled Area. Portal monitors and RMTs will be used for monitoring personnel. An off-site monitoring location will be established if radiological conditions on site prohibit adequate monitoring.

Each ERF has radiation detection equipment.

The MRCA will establish decontamination areas as necessary. Decontamination facilities are available at various areas within the station. The EOF may be used for monitoring and decontamination if conditions prohibit on-site monitoring. Transportation to an off-site facility will be provided, as necessary. Monitoring and decontamination procedures are detailed in the Radiation Protection Manual (RPM).

Documentation of personnel contamination surveys will be maintained. Any person suspected or known to have ingested radioactive material will receive bioassay examinations as specified by the RPM.

#### 6.4.2 Use of On-site Protective Equipment and Supplies

Protective equipment and supplies are used to minimize external and internal radiological exposure and contamination of personnel entering the station. Detailed procedures on the use of protective equipment and supplies are referenced in Appendix D.

#### 6.4.3 Contamination Control Measures

- a. Detailed guidance for controlling radioactive contamination of personnel and equipment is provided in the RPM.
- b. During accident conditions, the MRCA may approve conditional release of items from the RCA, in excess of RPM release limits. Special controls for release of this equipment will be instituted.
- c. Personnel are advised not to consume on-site drinking water and food supplies during an accident, until sampling and analysis are completed.
- d. For areas outside the station protected area, RMTs will be used to identify radiation control areas and security will be used to control access. Public access areas of the site will be controlled to off-site radiological criteria.
- e. Radiological waste material will be controlled, stored and shipped in accordance with the RPM.
- f. Off-site surface contamination and other radiological control criteria are detailed in the state and local RERP.

#### 6.4.4 Personnel Radiation Dose Determination

Health Physics (HP) coverage is provided 24 hours per day to support normal Station operations. During accident conditions, HP technicians may accompany emergency workers, as needed, during RCA entries.

Emergency dosimetry (i.e., self-reading Pocket Ion Chamber dosimeters (PICs) or alarming dosimeters (also called Self Reading Dosimeters (SRDs)) and Dosimeters of Legal Record (DLRs) are used by the initial SERO responders, as necessary. Additional dosimetry is distributed by HP personnel and is issued to individuals, including off-site individuals arriving at the EOF.

DLRs are available from and analyzed by the Dosimetry Laboratory. The individual integrated dose records are maintained by the HP Department. Exposure information is recorded from self-reading dosimeters and provides personnel exposure tracking until DLRs results become available. The DLRs results will be used as a permanent exposure record.

Permanent dosimetry will usually be read when it is determined that the emergency workers have received an exposure near their administrative limit or if an overexposure is suspected. All other dosimetry is read on a schedule established by the MRCA.

## 6.5 Aid to Affected Personnel

Provisions are made to assist personnel who are injured and/or have received high radiation exposures. First Aid qualified personnel provide on-site emergency medical services. First aid and decontamination facilities are available on-site and off-site. The following subsections describe measures to be used to provide necessary assistance.

### 6.5.1 Exposure Control Guidelines

In the event of an ALERT, SITE AREA EMERGENCY or GENERAL EMERGENCY, emergency worker exposure limits are automatically increased in accordance with EPA 400. This limit remains in effect until mission-specific limit upgrades are required and authorized by the appropriate emergency manager (refer to Table 6-1). The use of radioprotective Potassium Iodide (KI) will be evaluated for administration to on-site and off-site SERO personnel in accordance with emergency procedures. Exposures are commensurate with the significance of the objective and are held to the lowest levels that the emergency permits. In all situations, every reasonable effort is made to minimize exposure to emergency personnel.

Planned actions are carefully examined by weighing the risks and consequences of potential exposure and injury against the probability of success and the benefits to be gained from these actions.

Emergency worker exposure limits and KI issuance for State and local agency responders (i.e., National Guard, police) onsite are controlled by the State of CT or applicable agency.

### 6.5.2 Emergency Exposure Control Guidelines for Off-Site Personnel

If off-site emergency personnel are required during a nuclear incident to support combating fires, provide emergency first aid, or transport injured and/or contaminated injured to off-site medical treatment facilities, exposure limits as specified in Table 6-1 are applied. Appropriate dosimetry will be issued to all off-site responders in accordance with the RPM.

Off-site medical facility staff personnel performing medical treatment on injured and/or contaminated injured persons shall control exposure in accordance with facility emergency procedures. Medical staff shall be issued appropriate dosimetry (i.e., DLR and SRD).

All dosimetry will be evaluated to determine and document the actual exposure received responding to the emergency.

For security-related events, offsite emergency responders such as the National Guard and State Police will report to the site with their own dosimetry. Dosimetry will be processed by a State contractor. Exposures received will be reported to the individuals and the station, as requested. Exposure control will be through the State of CT or local agency.

#### 6.5.3 Decontamination

Radiological decontamination of personnel, supplies and equipment and waste disposal is conducted in accordance with the RPM, under direction of HP personnel.

Unit 2 and Unit 3 have decontamination facilities which may be used to decontaminate emergency response personnel.

The EOF is the principal decontamination facility during emergencies. A shower with holding tank and supplies for personnel decontamination are provided. If on-site areas are not usable because of inclement weather or continuing releases, the EOF may be used.

#### 6.5.4 First Aid

First Aid qualified personnel are available to assist ill or injured personnel on-site 24 hours per day. If necessary, a physician may be requested to provide medical assistance on-site.

#### 6.5.5 Medical Transportation

Injured or radioactively contaminated injured personnel requiring hospitalization are transported using local community ambulance services. The ambulance may be requested via dedicated or commercial telephone. The ambulance crews are trained to respond to radiological incidents. Personnel qualified in radiation protection are directed to report to the receiving hospital or accompany the injured, contaminated patients to the hospital. If necessary, the receiving hospital will be provided details of patients being transported. Station procedures provide detailed instructions for personnel responding to personnel injuries or contamination.



#### 6.5.6 Medical Treatment

Arrangements for the primary care of injured, or radioactively contaminated injured personnel are made with Lawrence and Memorial Hospital in New London and Middlesex Hospital in Middletown. Communications will be by commercial telephone lines. The hospital staff is trained annually and the facility is equipped to treat contaminated injured patients. Contaminated wounds are treated and decontaminated as necessary by the hospital staff.

#### 6.6 Public Information

At an Unusual Event Corporate Communications will determine the actions to take regarding notification of media in coordination with corporate management.

In an ALERT or higher public information emergency response personnel consist of the Nuclear News Manager (NNM), Corporate Support Director, Corporate External Affairs Manager, the Millstone Emergency Offsite Representative (MEOR), Corporate Executive Spokesperson (CES), and supporting staff. Public information will be coordinated between the station, the Hartford Armory, and Innsbrook. A variety of methods may be used to share information, including conference lines, Incident Report Forms, electronic or FAXed logs from the DSEO/EIS, and plant monitoring systems (OFIS).

The NNM reports to the MEOR at the Hartford Armory. The NNM interacts with the State and Federal media staff at the Joint Media Center and provides feedback including identified rumor trends to the ICSC. The Corporate External Affairs Manager reports to the Corporate Support Director at the ICSC. The Corporate External Affairs Manager develops and distributes news releases. The NNM may develop and distribute news releases if the Corporate External Affairs Manager is not available. The Corporate Support Director approves news releases. The Millstone Emergency Offsite Representative represents the licensee in communications with state decision makers at the SEOC and represents Dominion Energy in media briefs. The MEOR may be relieved by a CES at which time the MEOR assists the CES in an advisory role and manages the Dominion Energy staff at the Hartford Armory.

**Table 6-1**  
**Emergency Exposure Limits**

| <b><u>Category</u></b>   | <b><u>TEDE</u></b>       |
|--|--------------------------|
| Annual Part 20   | 5.0 Rem <sup>(1)</sup>   |
| Mission to protect valuable property                                   | 10.0 Rem <sup>(2)</sup>  |
| Mission to save a life or prevent/mitigate a severe accident           | 25.0 Rem <sup>(3)</sup>  |
| Voluntary mission to save a life or prevent/mitigate a severe accident | >25.0 Rem <sup>(4)</sup> |

**NOTES:**

- (1) Automatic exposure up to 5 Rem is allowed in a declared emergency. Members of the SERO responding to on-site emergency response facilities are designated emergency workers subject to NRC 10 CFR 50.47(b).11 radiation exposure controls which are the EPA guidelines for on-site emergency workers.
  - (2) In accordance with EPA 400, emergency workers can be authorized for an exposure up to 10 Rem TEDE for operations necessary to protect valuable property.
  - (3) Depending on station radiological conditions, authorized emergency workers may receive exposures up to a job/mission-specific designated limit, not to exceed 25 Rem TEDE.
  - (4) Exposures above 25 Rem may be received for life saving activities on a volunteer basis and with full awareness of the risk involved.
- It is recognized by NRC and EPA that an accident involving significant radiation exposure is a low probability occurrence. An exposure level below 25 Rem is not considered to be life-threatening and will occur once in a lifetime. ALARA principles will be applied when possible.
  - Dose received during an emergency is administratively tracked/controlled in accordance with 10 CFR 20 requirements following termination of the event.
  - Total Effective Dose Equivalent is defined as part of the station health physics program.

## 7. Emergency Facilities and Equipment

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This section identifies, describes, and gives the locations of emergency operation centers, support centers, communication systems, and first aid and medical facilities. Diagrams of the station emergency response facilities (ERFs) are provided in Appendix F. Locations of the on-site emergency response facilities (ERFs) are indicated in Table 7-1. The various facilities and equipment are controlled and surveilled, using MP-26-EPA-FAP05, "Emergency Planning Facility Manual," and MP-26-EPA-FAP01, "Management Program for Maintaining Emergency Preparedness." These documents provide detailed lists of equipment and schedules for conduct of facility/equipment surveillance. Equipment inspection and inventories are conducted quarterly or after known or suspected use of equipment occurs in accordance with this procedure. Operational checks of emergency equipment are completed at specified intervals and during activation of the emergency response organization.

### 7.1 Control Room

The Control Room is the primary facility where conditions of the plant are monitored, controlled and corrective actions are taken to mitigate any abnormal conditions. The Unit 1 Central Monitoring Station (CMS) houses one control station in "monitor mode" only (can be reconfigured to the control mode). No control functions are available in the "monitor mode." The Unit 2 control room contains a Programmable Logic Controller (PLC) and one control station (SM's work station) and two monitors which provide all control and monitoring functions remotely. Both locations provide indications and alarms for Unit 1.

The Control Room provides the main communications link between the Station and the other ERFs concerning system problems as well as long-term and short-term corrective actions. The Control Room is the primary operations center during events classified as UNUSUAL EVENT, and prior to the activation of the other ERFs for ALERT, SITE AREA EMERGENCY, and GENERAL EMERGENCY classifications. The SM/CRDSEO can initiate and coordinate appropriate procedures from the Control Room until additional assistance is available.

Emergency lighting, power, ventilation systems, and shielding enable operators to remain in the Control Room to ensure the station can be maintained in a safe condition. In addition, the operators are able to evaluate station conditions and relay pertinent information and data to appropriate emergency facilities, personnel, and agencies during all emergencies. To ensure that operating shift and other personnel can remain self-sufficient, portable radiation monitors, respiratory equipment, portable lighting, and alternate communication systems are maintained in the Control Room.

The Unit 2 and Unit 3 control rooms use the Off-site Facilities Information System (OFIS) as the primary data communications link to the ERFs. In addition, the Unit 2 and Unit 3 Control Rooms have Safety Parameter Display System (SPDS) terminals.

The Unit 2 control room contains one SM's work station and two monitors which provide indications and alarms for various parameters applicable to Unit 1's decommissioned condition, including the Spent Fuel Pool Island.

### 7.1.1 Normal Operations

The Control Room is the on-site location from which the nuclear power plant is operated. For Unit 2 and Unit 3, the control room contains the instrumentation, controls, and displays, as applicable to the unit, for:

- Reactor coolant and Auxiliary systems
- Balance of Plant and Nuclear Steam Supply systems
- Electrical systems
- Safety systems (including engineered safety features), and
- Accident monitoring systems

The Unit 2 control room is the on-site location from which the defueled plant is monitored and controlled. It contains instrumentation or displays for the Spent Fuel Pool, Balance of Plant, and Accident Monitoring Systems. If the Unit 2 control station console should become inoperable, the Unit 1 CMS may be used for control and monitoring.

### 7.1.2 Alert and Notification

The Unit 2 and Unit 3 control rooms are equipped with an ENRS terminal from which personnel transmit notification messages. State and local emergency response personnel acknowledge the notification.

### 7.1.3 Communications

In addition to regular direct-dial telephone lines and on-site extensions, the Unit 2 and Unit 3 Control Rooms are equipped with reliable emergency communication systems (dedicated telephone lines, satellite phones, and radios) necessary to alert station and other essential licensee, state, and local community personnel and maintain communications with the station ERFs throughout an emergency. The Unit 2 and Unit 3 Control Rooms, the TSC, and the EOF have a dedicated telephone system to communicate with the NRC.

## 7.2 Emergency Operations Facility

### 7.2.1 Function

The EOF serves as a support facility for the management of the overall site emergency response, the coordination of radiological and environmental assessments, and determination of recommended public protective actions. It is the primary communication center and contains appropriate communication links to on-site data sources and off-site organizations.

Emergency radiological monitoring and decontamination equipment and supplies, protective clothing, and respiratory protective devices are also located in the EOF. In addition, the EOF contains a facility for limited analyses of radiological data.

The EOF is activated during events classified as ALERT, SITE AREA EMERGENCY, or GENERAL EMERGENCY and is the primary interface between the SERO and off-site agencies.

If an event occurs which prohibits access to the station per NRC Letter A15638, commitment number B18617-10, designated locations are available for EOF SERO response. Full activation may not be possible until the threat conditions have been resolved.

### 7.2.2 Location

The EOF is located approximately 15 miles north of the station protected area (refer to Appendix F, Figure F-2).

An alternate EOF is located in the Unit 3 Control Room (office area in the back of the Control Room) for key positions.

### 7.2.3 Structure and Habitability

The EOF is designed for continuous operation during an emergency. It is a rectangular, one-level, above-ground structure. It provides approximately 16,000 ft<sup>2</sup> of working space. The EOF is a fenced in facility with a key card security system for entry. It has an Emergency Generator to provide backup AC power.

### 7.2.4 Layout

The EOF functional areas are indicated in Appendix F, Figure F-2.

### 7.2.5 Communications

The EOF is the primary communications center at the station during an emergency. The EOF is provided with communications to the control rooms, TSC/OSC, SEOC, Joint Media Center, Innsbrook Corporate Support Center (ICSC), and NRC.

An ENRS terminal is available as well as radios, dedicated telephones, satellite phones, and facsimile machines.

### 7.2.6 Power Supplies

Normal power is provided to the EOF from the power grid. Emergency power is provided automatically by an emergency generator, capable of meeting all EOF power requirements.

### 7.2.7 Technical Data and Data Systems

The EOF receives plant operational data via the Offsite Facility Information System (OFIS) and direct voice communications with other ERFs. Facsimile machines provide hardcopy communications between ERFs.

### 7.2.8 Records Availability and Management

An administratively controlled library of station and plant specific drawings and procedures is maintained in the EOF. This information is stored at the EOF in hard copy or electronic form.

## 7.3 Technical Support Center/Operational Support Center

### 7.3.1 Function

The TSC provides technical support to plant operations personnel in the Control Room, OSC (co-located with the TSC) and EOF during an emergency. The TSC is activated within 60 minutes of notification of an ALERT or higher event.

TSC personnel are under the direction of the ADTS. The MTSC will use communication networks, data system networks, and available documents to analyze the plant behavior throughout the incident. TSC personnel will also research, collect, and interpret plant parameter data, perform detailed calculations, trend data, determine probable consequences of proposed plant corrective actions and provide engineering recommendations to mitigate plant system degradation. The MTSC communicates with the MCRO to evaluate plant conditions, and recommends corrective action via the ADTS.

If an event occurs which prohibits staffing the TSC (i.e., Security threat), designated locations are available for TSC SERO response. Full TSC activation may not be possible until the threat conditions have been resolved.

The ADTS, located in the TSC, provides guidance and direction to the control room operating personnel. The MTSC coordinates with the MOSC to brief emergency repair teams.

The NRC dispatches representatives to the TSC to monitor plant conditions and station emergency technical support activities, and to maintain communications with the NRC senior representative on site.

### 7.3.2 Location

The TSC is located inside the protected area, adjacent to the west side of the Unit 3 control building. An alternate TSC is located in the Emergency Operations Facility.

### 7.3.3 Structure and Habitability

The TSC/OSC is a 2000-ft<sup>2</sup> below-ground facility with one-foot thick (minimum) exterior walls and ceiling. It was designed and built in accordance with the Connecticut State Building Code. It is able to withstand the most adverse conditions reasonably expected during the design life of the station.

A dose consequence study for the TSC/OSC revealed that the calculated 30-day integrated doses to personnel in the TSC/OSC following a design basis accident at any of the three units are within 10CFR50 Appendix A, General Design Criteria 19 guidelines and the NRC Standard Review Plan for Control Room Habitability:

|                  | <u>Limit</u> |
|------------------|--------------|
| Thyroid          | 30 Rem       |
| Whole body gamma | 5 Rem        |
| Beta skin dose   | 30 Rem       |

The HVAC system is rated for 2,000 CFM and located in the TSC/OSC penthouse, which is above ground level. The facility receives an isolation signal initiating HVAC operation from the Unit 3 control building isolation (CBI) signal. This system is designed to maintain habitability for facility occupants. Specific occupancy criteria is included in Section 9.4.13 of the Unit 3 Final Safety Analysis Report (FSAR).

### 7.3.4 Layout

Work centers exist to enable OSC and TSC personnel to monitor plant data on the OFIS, SPDS terminals, and provide technical assistance. The critical safety functions may be continuously monitored on provided SPDS displays.

The NRC work area provides a space for the NRC to establish local area network communications and monitor OSC and TSC activities. NRC dedicated telephone system connections are provided in addition to site telephone access.

### 7.3.5 Communications

The OSC and TSC are provided with reliable communications to the control rooms and EOF. A facsimile machine is provided for hard copy data transmission.

### 7.3.6 Power Supplies

The TSC/OSC is powered from the Unit 3 normal power bus. The Security system emergency diesel generator provides reliable backup power to meet all TSC requirements.

### 7.3.7 Technical Data and Data Systems

The TSC will initially receive plant operational data via the Unit 2 or Unit 3 SPDS and/or OFIS system and telephone communications between the TSC and the control room. OFIS automatically records plant system variables and provides history, data trending and graphic print capability to the ERFs.

### 7.3.8 Records Availability

An administratively controlled library of station and plant specific drawings and procedures is maintained in the TSC. This information is stored in hard copy or electronic form.

## 7.4 Operational Support Center (OSC) and OSC Assembly Area

### 7.4.1 Function

The OSC is a protected area facility, co-located within the same structure as the TSC. Emergency response personnel will assemble in the OSC during an emergency to provide support to the affected control room.

The OSC Assembly Area provides a staging area for emergency teams being dispatched during accident conditions, as well as space for additional SERO personnel outside the TSC/OSC.

### 7.4.2 Location and Size

The OSC is located within the TSC/OSC facility adjacent to the west side of the Unit 3 control building. The OSC is approximately 23 feet by 26 feet.

The OSC Assembly Area accommodates support personnel not located in the TSC/OSC facility.

The OSC Assembly Area is located in the Technical Support Building (B475), Conference Room C-102, which is approximately 50 yards west of the TSC/OSC (see Figure F-3).



### 7.4.3 Structure and Habitability

The OSC has the same habitability as the TSC.

The OSC Assembly Area has no specific habitability criteria.

### 7.4.4 Communications

The MOSC will maintain communications with the OSC Assembly Area using normal or dedicated telephones in the OSC. The MOSC will directly communicate with the ADTS.

### 7.4.5 Emergency Equipment

In order to support the OSC function, the following emergency equipment is located in OSC storage locations:

- Radiation Monitoring Team Kit
- Portable Radios
- Protective Clothing
- Respiratory Protection

Access to additional HP and maintenance equipment is readily available to obtain specific materials required to perform OSC functions.

The OSC AA contains the following equipment:

- Dosimetry issue equipment
- Portable radios
- Hotlines and fax machines

## 7.5 State Emergency Operations Center

### 7.5.1 Function

The State Emergency Operations Center (SEOC) is activated by the State of Connecticut. Overall direction for response to major emergencies in Connecticut is coordinated by Unified Command (UC) in the SEOC. Participants in the UC include the Governor, various state department leads, federal agencies, and for Millstone emergencies, Millstone/Dominion Energy SERO staff. In this facility, SERO staff advises state officials regarding plant conditions, plant response activities, protective actions, public information messaging and state resources needed to support the response. SEOC SERO staff participates in communications with local town EOCs to provide plant information. SERO staff work with CT DEEP staff in the SEOC supporting independent plant condition analysis and dose assessment activities.

The Joint Media Center is located within this facility. It is activated by the DEMHS and Governor's press staff as the principal media contact point for the licensee, the state and local communities during a Site Area Emergency, General Emergency, or other incidents that may generate high media interest. State and licensee plans do not include use of station facilities for a media center; however space is available for media briefings or conferences at the site.

### 7.5.2 Location

The SEOC is located in the Connecticut State Armory in Hartford Connecticut.

### 7.5.3 Structure and Habitability

The State of Connecticut, DEMHS maintains this facility available 24/7 as an all hazards emergency response facility.

### 7.5.4 Layout

Space in the SEOC includes the UC center, work spaces for various agencies and non-governmental organizations including Millstone SERO staff, meeting areas, kitchen facilities, restrooms, and the Joint Media Center. Space is provided to allow SERO staff to maintain contact with other ERFs.

### 7.5.5 Communications

SERO staff at the SEOC communicates with the EOF and the ICSC using commercial telephone lines, email and/or FAX. OFIS monitoring capability is provided for SERO and DEEP staff. Millstone maintains a direct line for the DEEP to receive Protective Action Recommendations (PARs) from the DSEO, and a direct line for the DEEP to contact the DEEP representative in the EOF.

### 7.5.6 Technical Data and Data Systems

The SEOC receives plant operational data via the Offsite Facility Information System (OFIS) and direct communication with other ERFs.

### 7.5.7 Records Availability and Management

Procedures, job aids and presentation materials are stored at the SEOC for use by Millstone SERO staff.

## 7.6 Emergency Equipment

Emergency equipment is stored at various on-site locations, including the control rooms, TSC/OSC, access points and the EOF.

For a representative list of emergency equipment, see Appendix E. Emergency equipment is maintained in accordance with station procedures including MP-26-EPA-FAP01 and MP-26-EPA-FAP05.

### 7.6.1 Emergency Response Data System (ERDS)

The ERDS, established in accordance with regulatory guidance, is provided via electronic data transfer. An ERDS link is initiated within an hour of an ALERT or higher emergency classification. An ERDS link is not provided for Unit 1.

## 7.7 Security Posts

The security posts that are established and used during an emergency are addressed in general terms to avoid disclosing safeguards information. More specific information is contained in the proprietary Security Plan and procedures.

The Station Security Department primary objectives during an emergency are to maintain adequate station security, facilitate the precautionary dismissal and evacuation of the protected area and outlying areas, and assist with emergency communications, as necessary.

Either the Central or Secondary Alarm Station will become the Security Command Console if an emergency occurs and will function as an on-site emergency communications center during the first 60 minutes while the SERO is being activated. Security computer proximity card reader units are used to perform accountability for the protected area. Accountability can be performed via alternate method if proximity card reader units are inoperable.

## 7.8 Alternate Locations

- 7.8.1 An alternate location is designated for off-site officials who are unable to reach the EOF due to radiological or environmental conditions near the EOF. The Alternate Location is physically located at the SEOC (Armory) in Hartford, Connecticut. The alternate location has communications capability with the site emergency response facilities (i.e., EOF, TSC, control room). There is enough space to accommodate off-site officials requiring access to site emergency managers.
- 7.8.2 The EOF in Norwich, CT, functions as a staging area for augmentation of emergency response staff if the site is under threat of, or experiencing, hostile action. This location has the capability to communicate with the control rooms and plant security.

## 7.9 Communication Systems

The communication links between emergency response centers and off-site agencies are shown in Figures 7-1a through 7-1c. These systems provide reliable communications and consist of a combination of the station PA system, emergency alarm, intraplant telephones, computer terminals, dedicated hotlines, commercial and utility (tie-line) telephones, satellite phones, facsimile machines, and two-way radios including utility, State Police, Waterford Police, and ISO New England radio communications. In addition, the Station has NRC dedicated telephone system lines installed in the Unit 2 and Unit 3 control rooms, EOF and TSC.

Two-way radio communications are used to maintain communication between the EOF and RMTs. Police and utility radio communication are used by the Control Room in the event of the failure of the telephone system for off-site communications. Backup power is maintained for selected communication links in the protected area and the EOF.

Ambulances are equipped with radios and can communicate with the hospital. Normal communication between the station and off-site medical facilities will be over commercial telephone. There are also hotline telephones between the Central Alarm Station and TSC/OSC to the State Police, Waterford Police / Waterford Emergency Communications Center.

The states of New York and Rhode Island are within the 50-mile ingestion pathway EPZ and are contacted through the Connecticut DEMHS and State Police as described in the State RERP. Fishers Island and Plum Island, New York, are within the plume exposure EPZ and are notified of emergency events via ENRS.

#### 7.10 Assessment Facilities

Appropriate on-site and off-site monitoring instruments and laboratory facilities needed to analyze an accident are available 24-hours per day and are listed in Appendix H, Tables H-1 and H-2. The MRDA and MRCA will coordinate the collection of sample media by the Radiological Monitoring Teams (RMTs). The RMTs will return samples to the EOF for analysis when directed. Appendix B provides letters of agreement with private laboratory facilities specified in Table H-2. Post-accident environmental samples are collected by responsible state agencies and analyzed by the State Health Department laboratory. The licensee will assist the State of Connecticut in the collection of environmental samples under direction and control of DEEP, as requested.

#### 7.11 First Aid and Medical Facilities

24-hour per day first aid services are provided by first aid qualified personnel, as a minimum, with multi-media first aid training. First aid supplies and equipment are stored in various locations throughout the station. The Site Medical Facility is also available during selected hours, which may provide equipment and personnel to assist in medical emergencies.

#### 7.12 Damage Control Equipment

Damage control equipment consisting of fire hydrants, fire hose stations, fire extinguishers, and portable lanterns are provided throughout the station for fire fighting. Self-contained breathing apparatus is located strategically throughout the station for fire fighting and entry into airborne radioactivity or toxic gas areas. Selected equipment spare parts are stored in the warehouse for emergency repairs. Tools and equipment required for equipment maintenance are available in the maintenance shops.

#### 7.13 Meteorological Data Acquisition

The Millstone site has a primary meteorological installation consisting of a 450-foot instrumented tower, a climate-controlled shelter, and a computerized data acquisition system. Wind speed and direction are measured at four different levels: 33, 142, 374, and 447 feet. Vertical temperature difference is measured at 142, 374, and 447 foot levels: the vertical interval in all three cases is measured from a baseline height of 33 feet. The critical parameters of wind speed, wind direction, and a measure of atmospheric stability are continuously available in the Unit 2 and Unit 3 Control Rooms and at the base of the meteorological tower. Other non-critical meteorological parameters are also measured.

The site has a backup meteorological monitoring system located near the training facility. The system consists of a 10-meter instrumented mast, a climate-controlled shelter, and a backup computerized data acquisition system. Additional information may be obtained from a weather service organization, listed in Appendix B.

The primary source of meteorological data used by the meteorological team is the EDAN system, an electronic data acquisition network. If EDAN is inoperative, the critical data may be obtained over the telephone from operators reading Unit 3 Plant Process Computer data. If the primary meteorological tower instruments are not operating properly, the backup meteorological installation located near the training building may be used. If both on-site systems are inoperative, arrangements have been made to obtain information from the assisting weather service organization.

7.14 Innsbrook Corporate Support Center (ICSC)

The ICSC located near Richmond, VA, is required to be activated to provide support during an ALERT or higher event at Millstone Power Station. When activated, the function of the ICSC includes public information and may include logistical support in the event of an emergency at Millstone.

**Table 7-1**

**Locations Of Emergency Response Centers**

**On-site**

**Location**

- |  |   |
|--|---|
| 1. Control Room  | Unit 2 and 3 Control Room   |
| 2. OSC Assembly Area (OSC AA)                                    | Cafeteria, Bldg 475   |
| 3. Technical Support Center/Operational Support Center (TSC/OSC) | Adjacent to and below Unit 3 Control Bldg.                        |
| 4. Alternate TSC   | EOF   |
| 5. Alternate EOF   | Unit 3 Control Room (office area in the back of the Control Room) |

**Off-site**

**Location**

- |   |   |
|---|---|
| 1. Emergency Operations Facility                | 18 Stott Avenue, Norwich, CT  |
| 2. Assembly Area                                | Simulator Foyer in the Training Building                                |
| 3. Joint Media Center                           | Connecticut State Armory (Hartford)                                     |
| 4. State Emergency Operations Center            | Connecticut State Armory (Hartford)                                     |
| 5. Local Community Emergency Operations Centers | Refer to the Local Community Radiological Emergency Response Procedures |
| 6. Alternate Location                           | State EOC (Armory) Hartford, CT   |
| 7. Remote Mustering Area                        | EOF, Norwich, CT  |
| 8. Offsite Monitoring Location                  | EOF, Norwich, CT  |

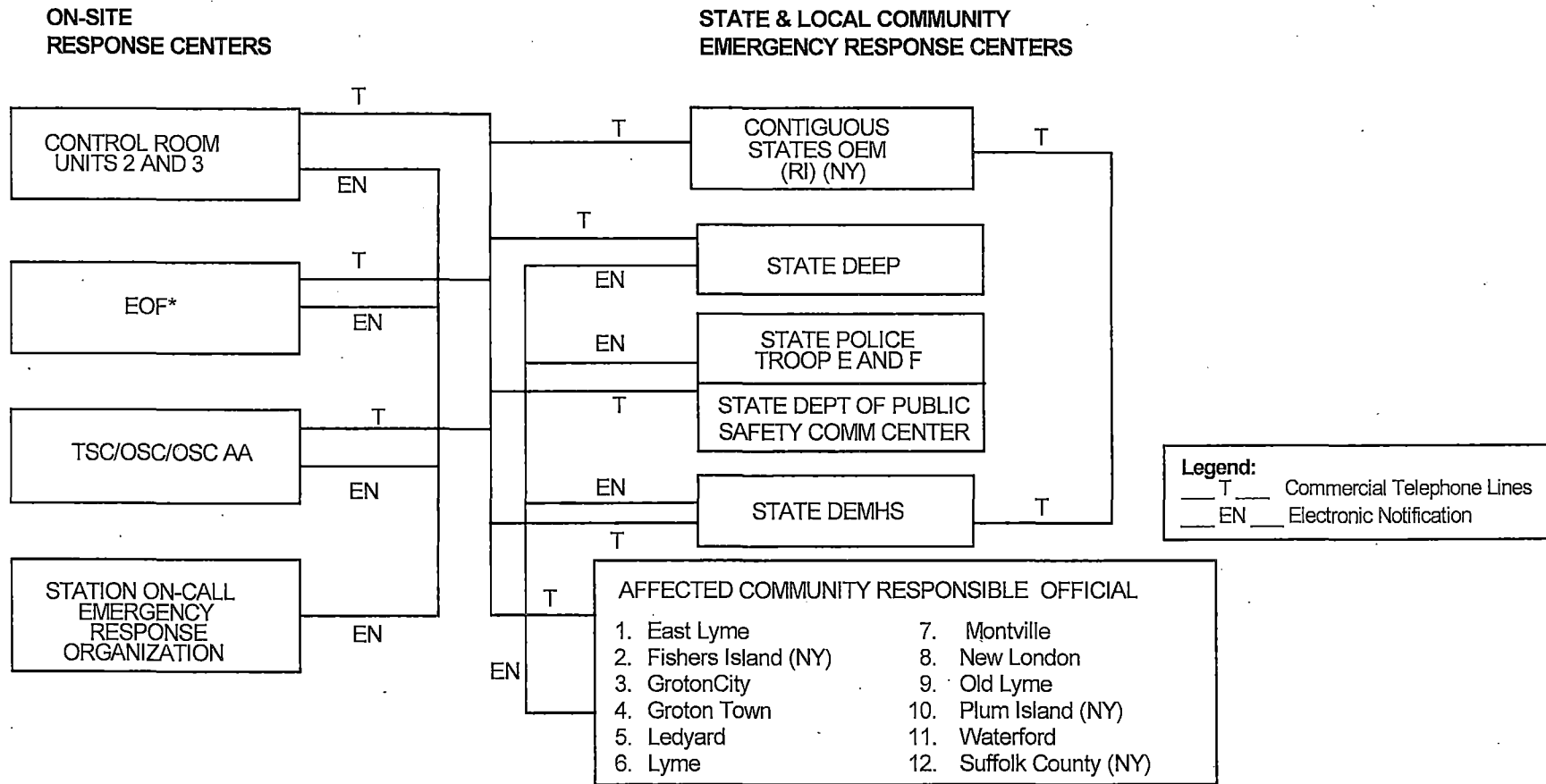
**Corporate**

**Location**

- |  |                          |
|--|--------------------------|
| 1. Innsbrook Corporate Support Center (ICSC) | Richmond, VA (Innsbrook) |
|--|--------------------------|

**Figure 7-1a**

**Notification of Emergency Response Organizations**

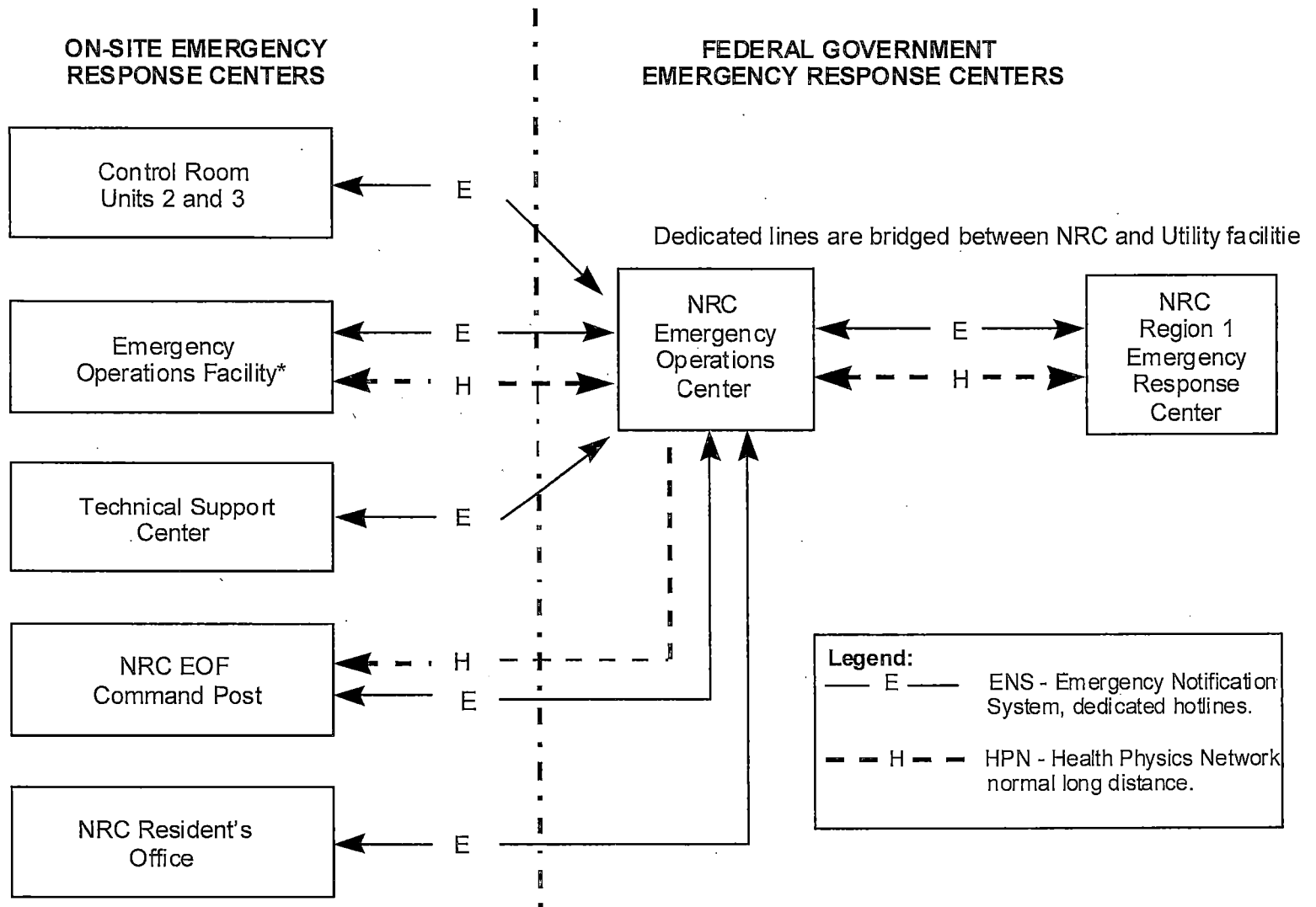


\*Located offsite



**Figure 7-1b**

**NRC Emergency Notification System (ENS) and Health Physics Network (HPN) Millstone Station**

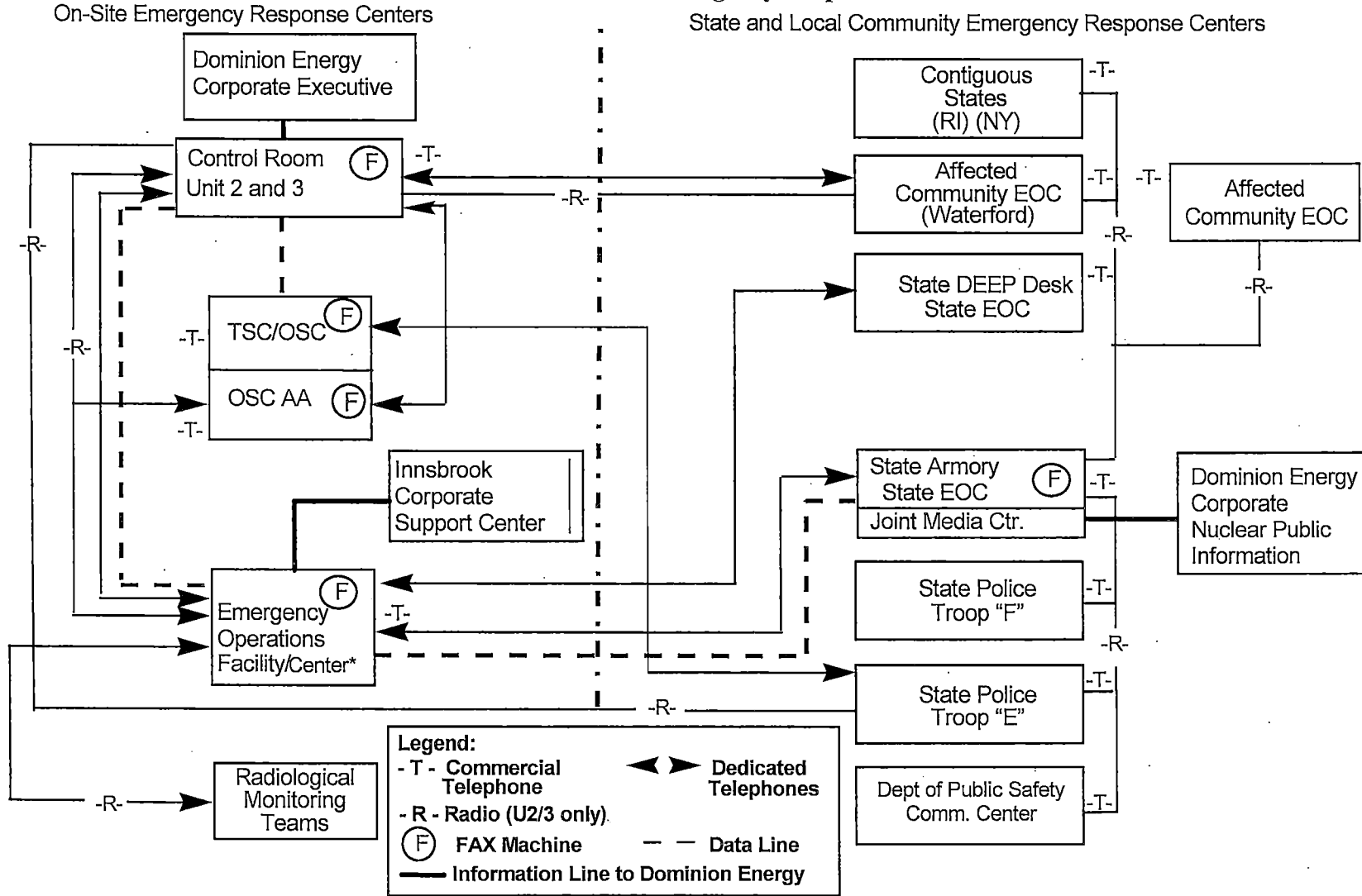


MPEPLAN6.PPT

\*Located offsite

**Figure 7-1c**

**Lines of Communications Between Emergency Response Centers Millstone Station**



\*Located offsite

## **8. Maintaining Emergency Preparedness**

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Station management is responsible for the staffing of the SERO and approval of station emergency plan procedures.

The Manager, Emergency Preparedness is responsible for the following:

- Maintenance and readiness of the on-site emergency response facilities and equipment.
- Maintenance and development of the Station Emergency Plan and implementing procedures (Appendix D).
- Preparation and conduct of emergency plan drills and exercises.
- Training off-site emergency response personnel.
- Conducting and providing input to SERO training.
- Scheduling, coordinating, and conducting SERO training using EP Personnel.
- Coordination of licensee, state and local emergency plans and procedures.
- Assisting station management to ensure effective emergency plan implementation.
- Collecting and reviewing additional EP-related information such as severe accident management research, and NRC regulations and industry research, for incorporation into the EP Program.

The Manager, Emergency Preparedness is assisted by the EPD staff. Appropriate EPD staff training is ensured by attendance at NRC/FEMA seminars/meetings, academic institutions, industry conferences/meetings, on-the-job training, and supervised work assignments. Administration and management of emergency preparedness programs is detailed in Emergency Preparedness implementing and administrative procedure.

The Manager, Nuclear Training, is responsible for scheduling, coordinating, and conducting SERO training using Nuclear Training Department personnel. The Manager, Nuclear Training, will obtain assistance as necessary from discipline managers in the conduct of discipline-specific training. In addition, the Manager, Nuclear Training, is responsible for supporting chemistry drills and health physics drills. The Supervisor Nuclear Training is responsible for conducting required fire drills.

### **8.1 Training**

#### **8.1.1 SERO Training**

The goal of the Emergency Plan Training Program is to provide SERO personnel with the additional skills and knowledge necessary for them to effectively respond to an emergency at the station. The SERO Training Program provides both initial and requalification training on an annual, calendar year basis.

Appendix K provides a summary listing of training topics for SERO personnel. Section 5, Table 5-1 lists the topics for personnel by SERO position. Detailed training lesson plans and administrative requirements for SERO personnel are contained in TR-AA-TPG-2400 and MP-26-EPA-FAP01.

### 8.1.2 Off-Site Emergency Response Training

Training for local off-site emergency response personnel, such as local fire, police, mutual aid responders and emergency management officials is offered annually. Training for off-site agencies consists of radiation protection, emergency classification, notification, emergency plan overview and general plant access information. Local ambulance staff are trained annually in plant access and the medical treatment of contaminated, injured patients. Hospital emergency room staff are trained annually in medical treatment of contaminated patients.

State personnel, representing agencies at the State EOC, are trained in specific procedures through participation in periodic drills. In addition, responsible state agencies are trained in emergency classification. Field monitoring and sampling team personnel are trained annually in radiation protection, monitoring and ingestion sampling procedures.

Host community emergency organizations are trained in radiation monitoring and protection, activation and operation of evacuee reception centers.

### 8.1.3 Additional Emergency Preparedness Training

#### a. Plant Access Training (PAT)

Employees obtaining unescorted access to the station for the first time receive general instruction on the Emergency Plan as part of their plant access training. This includes a review of the purpose of emergency planning, the emergency classification system, and the precautionary dismissal, and evacuation. This information is reviewed annually as part of the employee's Plant Access Training Program. Company and contractor personnel obtaining unescorted access to the station receive general instruction on the Emergency Plan as part of their plant access training.

#### b. Fire Brigade Training

The Fire Brigade is composed of designated station firefighting personnel. Initial and annual refresher training is provided to Fire Brigade Members in accordance with training department procedures.

#### c. First Aid Teams

First Aid Teams are provided Medic First Aid training program: "Basic Plus – CPR, AED and First Aid for Adults" or equivalent at a minimum.

## 8.2 Tests, Drills, and Exercises

Drills and exercises are conducted to ensure that the participants are familiar with their emergency duties and responsibilities; to verify the adequacy of and methods used in station emergency plan procedures and other emergency procedures; and to verify emergency equipment function.

Drills are conducted for SERO personnel at intervals throughout the year. The drills may be combined with classroom refresher training for each SERO position. Drills may be conducted as an evaluated event or a training drill, where controllers provide immediate correction of erroneous performance. Guidance for the conduct of drills and exercises is provided in regulatory guides published by NRC and FEMA. Detailed methodology for the structure, administration and conduct of drills is contained in EP-AA-400, "Drill and Exercise Program." Drill comments are also tracked and dispositioned using the station Corrective Action process.

### 8.2.1 Off-Site and On-Site Testing of the Notification, Communication, and Alerting Systems

#### a. Communication Tests

Communication tests shall include an aspect of understanding message content as well as testing the equipment.

- The site emergency alarms and emergency responder notification systems tests are conducted monthly.
- Communications with specific state and local officials within the plume exposure pathway EPZ are tested at least monthly.
- Telephone numbers in emergency plan procedures are reviewed quarterly and corrected as necessary.
- The NRC dedicated telephone systems are tested monthly.
- Communications capability between the RMTs and emergency centers are tested quarterly and during drills or exercises.
- Communications with federal emergency response organizations and states within the ingestion pathway EPZ are tested quarterly by the State DEMHS.
- The ERDS system for Unit-2 and Unit-3 is tested quarterly.

b. Off-site Public Alerting System Testing

The testing of the Public Alerting System (sirens) and communications is detailed in the State and local RERPs. Silent tests may be performed during the full or partial-participation exercise. Silent tests, system polling, individual siren growls, and full load checks are described in MP-26-EPA-FAP09, "Alert Notification System Test and Maintenance," and are performed at varying frequencies. Records on siren availability are kept by the Emergency Preparedness Department and summaries are forwarded to the State DEMHS on an annual basis.

8.2.2 Additional Tests, Drills, and Exercises

The schedule for conducting drills and exercises is as follows:

a. Fire Drills

Fire drills will be conducted in accordance with CM-AA-FPA-100 (Fire Protection/Appendix R (Fire Safe Shutdown) Program). The Training Department is responsible for the review and approval of fire drill scenarios. Fire drill discrepancies shall be entered into the Corrective Action Program (CAP) and will be assigned to the appropriate department to evaluate and to take corrective actions. The Site Fire Marshall shall also review and disposition, as necessary, comments from fire drill critiques.

b. Medical Emergency Drills

The Manager, Emergency Preparedness is responsible for conducting annual medical drills. Arrangements for training and drills are made through the Lawrence and Memorial Hospital or Middlesex Hospital Emergency Departments, as applicable. A medical exercise, involving simulated contaminated and injured worker(s), local ambulance service personnel, station security, health physics and hospital emergency staff is conducted annually.

c. Radiological Monitoring Drills

Environmental radiological monitoring drills (on-site and off-site) are conducted annually and can be conducted as part of the annual exercise. These drills include collecting and analyzing environmental samples. Communications and record-keeping procedures are also checked during these drills.

d. Health Physics Drills

Health physics drills are conducted semi-annually and involve response to and analyses of simulated elevated airborne and liquid samples and direct radiation measurements.

e. Emergency Plan Training Drills

The Emergency Preparedness Department is responsible for scheduling two emergency plan training drills annually for Unit 2 and Unit 3, and one for Unit 1. These drills generally include functional areas identified in Table 5-1. (These include the annual rehearsal and exercise.) The Emergency Preparedness Department will also conduct drills involving severe accident management implementation and terrorist based events at intervals established by the 8-year schedule.

f. Exercises

Emergency Preparedness exercises are conducted in accordance with 10 CFR 50.47(b) and 10 CFR 50 Appendix E requirements.

The Emergency Preparedness Department is responsible for coordinating exercises to test station, state(s), and local emergency plans. Station procedures ensure 8-year exercise cycle objectives are met.

Millstone Power Station shall exercise the emergency plan annually.

Millstone Power Station shall exercise the emergency plan with off-site authorities (state and local government) every two (2) years, with full or partial-participation by state and local governments within the plume exposure pathway EPZ. The level of participation shall be as follows:

- The State of Connecticut shall at least partially participate in each off-site exercise at Millstone Power Station.
- The State of Connecticut shall fully participate in at least one off-site exercise every two (2) years.
- Partial participation by a local government is acceptable, with FEMA approval, when the local government is fully participating in a biennial exercise at another site, or a combination of the following enable demonstration of all exercise objectives:
  - 1) FEMA credits actual incident response for required objectives.
  - 2) The local government cannot demonstrate exercise objectives due to conflicting schedules and required objectives can be demonstrated out-of-sequence with the main exercise.

3) Compensatory measures can be demonstrated by another entity.

- The states of Rhode Island, Connecticut and New York, which are responsible for emergency responses within the 50 mile ingestion exposure pathway EPZ, shall exercise their plans and preparedness related to ingestion exposure pathway measures at least once every 8 years.
- The licensee shall enable any state or local government located within the plume exposure pathway EPZ to participate in an annual exercise when requested by such state or local governments.
- The licensee shall make provisions to conduct an off-hours exercise between the hours of 6:00 p.m. and 4:00 a.m. every 8 years.

Remedial exercises will be required if the plan is not satisfactorily tested during the biennial exercise, such that NRC, in consultation with FEMA, cannot find reasonable assurance that adequate protective measures can be taken in the event of a radiological emergency. The extent of state and local participation in remedial exercises must be sufficient to show that appropriate corrective measures have been taken regarding planning elements not properly demonstrated during the previous exercise.

g. Post-Exercise Critique

An in-house, post-exercise critique will be conducted.

- Exercise evaluators will discuss emergency response observations during the critique. The exercise observations and comments shall be compiled into a formal exercise evaluation report by the Emergency Preparedness Department.
- The Emergency Preparedness Department is responsible for tracking corrective actions for exercise critique comments.
- The Emergency Preparedness Department will evaluate comments, assign responsibilities and track the resolution process. Station management will ensure corrective actions are completed as necessary.



An off-site post-exercise critique will be scheduled at the conclusion of each exercise by FEMA to allow official observers and evaluators from federal agencies and state and local communities to evaluate the performance of the various emergency response organizations. The critique will be chaired by FEMA. Additionally, the critique is open to the public and news media.

### 8.3 Administration of Station Emergency Plan and Procedures

The Station Emergency Plan contains elements of planning that involve assistance and coordination of governmental agencies and intra-company groups. In order to achieve and maintain the most efficient course of emergency action, liaison is continuously maintained with state and local agencies responsible for public safety.

The Station Emergency Plan and letters of agreement are reviewed on an annual basis and updated as appropriate. Changes to the Emergency Preparedness Program are evaluated in accordance with EP-AA-101, 10 CFR 50.54(Q) Change Evaluation, for 10 CFR 50.54(q) prior to implementation. Changes to the Station Emergency Plan and implementing procedures are undertaken in accordance with station administrative procedures and subject to evaluation under 10 CFR 50.54(q).

Evacuation time estimates (ETEs) are developed within 365 days of when U.S. Census Bureau decennial data becomes available. ETEs are reviewed against estimated EPZ permanent resident population changes at least once a year and within 365 days of the date of the previous ETE or its most recent review. Increases of ETEs greater than the limits detailed in 10 CFR 50 Appendix E require the ETE analysis be updated. The decennial ETE and its updates are submitted to NRC as required by 10 CFR 50 Appendix E.

10 CFR 50.54(t) reviews of the Emergency Preparedness Program are performed at the frequency required by 10 CFR 50.54(t)(1) by the licensee oversight group or an industry peer evaluation team. The reviews include the Emergency Plan, implementing procedures and practices, training, readiness testing, equipment, an evaluation of the adequacy of interfaces with state and local government and the conduct of drills and exercises. The reviewer completes a written report that details the items reviewed and corrective actions to be taken. The report is sent to the Manager, Emergency Preparedness and to corporate and station management. The Manager, Emergency Preparedness is responsible for evaluating and correcting report findings. Documentation of report findings and corrective actions shall be maintained for a period of no less than five years. Applicable portions of the report will also be made available to federal, state, and local organizations. The Chairperson of the Management Safety Review Committee (MSRC) receives the report. Unresolved findings from the review are identified to the oversight group management in writing. Review items are not closed until final corrective actions are taken.

#### 8.4 Public Information Programs

Specific emergency instructions are provided primarily via a booklet mailed annually to residences, commercial establishments and emergency management officials within the plume EPZ. The emergency information booklet includes a description of the Public Alerting System, a list of Emergency Alert System stations, sheltering and evacuation checklists, a map of evacuation routes to Host Community Reception Centers, and detailed information about radiation and its effects. The booklet also includes contact points and references to various emergency planning websites. This booklet is made available to the general public on the State's DEMHS website.

A brochure for annual distribution and posting at State designated public areas within the EPZ serves the transient population, in addition to selected telephone directories that contain abbreviated emergency public information. Special needs mailers with a pre-posted return form are sent directly to EPZ residents for voluntary registration with their local emergency officials.

The State of Connecticut DEMHS is provided with information for posting or distribution, as appropriate, at selected public areas within the EPZ.

Other on-going elements of the Public Information program include:

- 1) Educational Outreach Programs. These programs are conducted out of the Nuclear Training Center. The Outreach Program provides public informational and educational activities throughout the EPZ.
- 2) Speakers comprising a variety of company employees from many disciplines and operational functions, provides information on nuclear power to numerous institutions, civic and professional groups, and other organizations.

#### 8.5 Media Information Program

A media information program is offered annually to acquaint the news media with emergency plans, information concerning radiation, and points of contact for release of public information in an emergency.

A media manual, developed to meet the needs of the news media, contains plant specific information and general information concerning emergency planning, nuclear power and radiation. The manual is distributed to the local media and is available for issue at the Joint Media Center at the time of an emergency.

## 9. Recovery

---

### 9.1 Recovery Phase

The Organization for Recovery Operations (ORO) is activated by the DSEO.

The recovery phase occurs after the plant is brought to a long-term stable state. When this occurs the emergency organization will no longer be required to take corrective or mitigating actions to respond to the accident.

If normal resources are adequate to recover the plant to normal operations, the emergency organization is disbanded and the event is terminated. If the unit is damaged and the recovery actions require extensive resources and/or will last from months to years, the ORO will replace the SERO. A Director of Recovery Operations will be designated to convene an event review meeting and investigate the cause.

Recovery actions are described in emergency plan procedures.

### 9.2 Recovery Organization

The ORO is illustrated in Figure 9-1.

#### 9.2.1 Site Vice President – Millstone

The Site Vice President – Millstone is responsible for coordinating the station recovery operations.

#### 9.2.2 Director of Recovery Operations (DRO)

The Director of Recovery Operations (DRO) is responsible for overall direction of recovery operations and reports to the Site Vice President - Millstone.

The Director of Recovery Operations (DRO), as well as those managers reporting directly to him, are chosen by station management. They possess competent managerial skills and are experienced in their areas of responsibility.

#### 9.2.3 Manager of Technical Support

The Manager of Technical Support is responsible for the following:

- Providing necessary technical support services.
- Analyzing core parameters and other technical information.
- Performing reactor systems analysis.
- Providing a central facility for collecting, retaining, and retrieving data.
- Providing post accident data analysis timeline for the accident.

- Developing recovery procedures.
- Developing and approving proposed modifications to procedures, systems and equipment.
- Determining recovery activities needed to be documented in accordance with the Quality Assurance (QA) program.

#### 9.2.4 Manager of Plant Operations

Manager of Plant Operations is responsible for the following:

- Supervising and maintaining a station support staff during the recovery operation.
- Maintaining an effective station security program.
- Implementing maintenance and repair operations with station staff.
- Coordinating Facility Safety Review Committee (FSRC) activities as necessary.

#### 9.2.5 Manager of Radiation Control/Radwaste

Manager of Radiation Control/Radwaste is responsible for the following:

- Assisting the State DEEP as necessary in off-site recovery phase sampling, survey measurements and data analysis to determine re-entry and recovery actions for off-site areas.
- Developing and performing evaluations of health physics equipment and procedures for recovery operations.
- Performing special dosimetry evaluations or providing specialized dosimeters.
- Developing plans and procedures to sample, process, and control liquid, gaseous, and solid radioactive waste, and coordinating waste disposal activities.
- Maintaining an ALARA program.
- Developing decontamination plans.
- Assisting the State DEEP in determining total integrated population doses by using various inputs.

#### 9.2.6 Manager of Engineering Systems

Manager of Engineering Systems is responsible for the following:

- Providing required engineering support services.
- Interface and consultation with engineering and technical experts, as needed.
- Acquisition and coordination of manpower and equipment to support repair activities.
- Acquisition of housing, office, and construction equipment to support recovery operations.
- Arranging for the purchase of legal and insurance assistance.
- Providing general administrative support.
- Scheduling and expediting recovery operations.
- Assisting the DRO in planning activities.
- Coordination of recovery staff meetings.
- Tabulating, expediting and closing out commitment lists in support of recovery operations.
- Establishing cost control procedures.

#### 9.2.7 Advisory Support Staff

Advisory support staff personnel provide support to the DRO in various areas.

#### 9.2.8 Corporate External Affairs Manager

The Corporate External Affairs Manager provides liaison with the media.

#### 9.2.9 Licensing Department

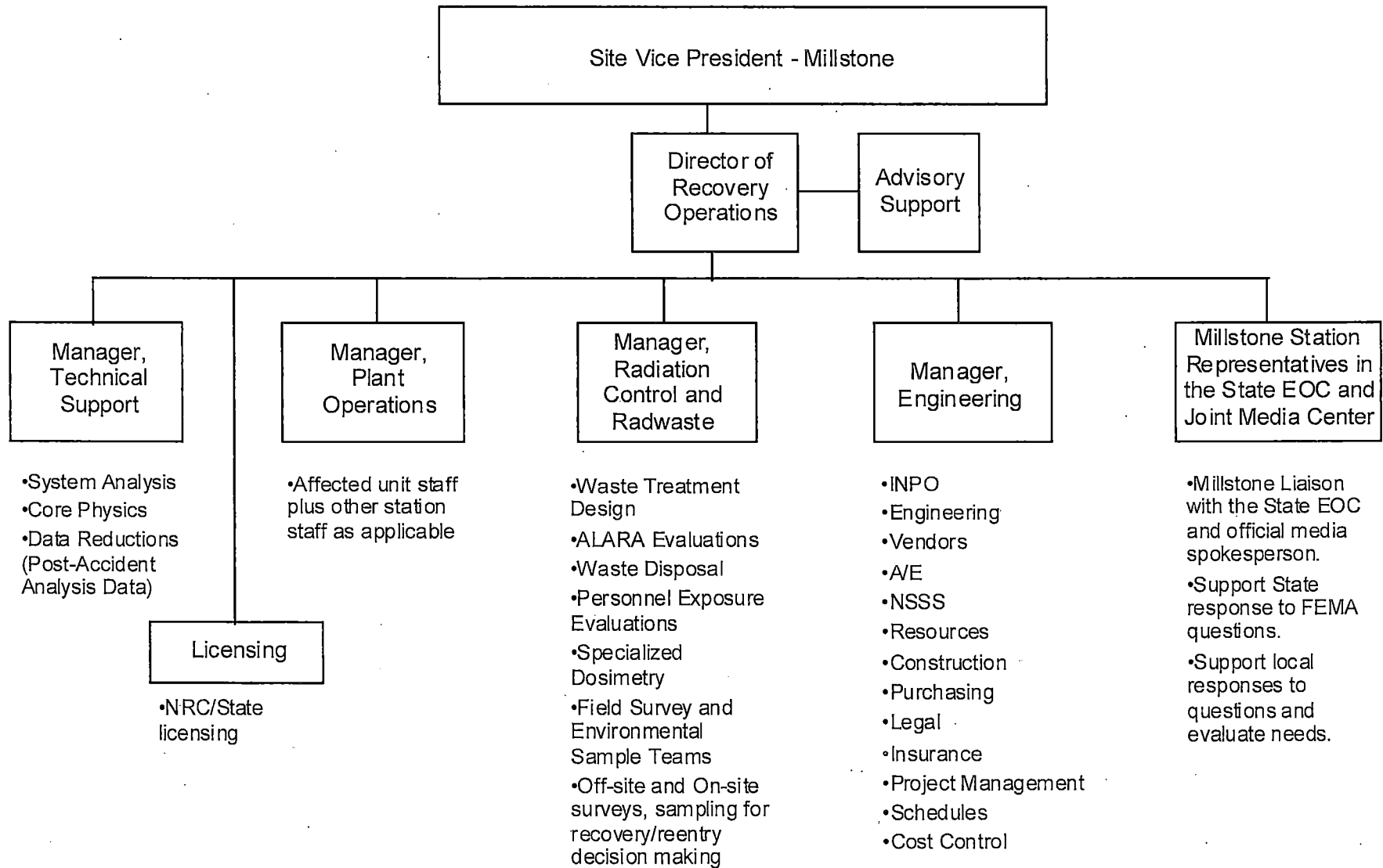
The Licensing Department interfaces with the NRC and other regulatory agencies on licensing issues.

#### 9.2.10 Millstone Representative in the SEOC and Joint Media Center

The Millstone Representative in the SEOC and Joint Media Center provides advisory support to state and local communities.

**Figure 9-1**

**Recovery Organization**



Appendix A

APPENDIX A

**DEFINITIONS, ABBREVIATIONS AND ACRONYMS**

## Appendix A

This section provides definitions of commonly used terms that are applicable to this Emergency Plan.

### **DEFINITIONS**

---

#### **Absorbed Dose**

The quantity of energy imparted from ionizing radiation per unit mass of tissue.

#### **Alternate Location**

A designated facility (SEOC [Armory]) where off-site officials can communicate with company officials if access to the EOF is impaired.

#### **Actions**

##### **Assessment Actions**

Those actions taken during or after an incident to obtain and process information that is necessary to make decisions to implement specific emergency measures.

##### **Corrective Actions**

Those emergency measures taken to improve or terminate an emergency situation.

##### **Emergency Actions**

Actions taken as a result of reaching an Emergency Action Level.

##### **Protective Actions**

An action taken to avoid or reduce a projected dose.

##### **Recovery Actions**

Actions taken after an emergency to restore the station to pre-emergency condition and decide on re-entry of the public affected areas.

#### **Airborne Radioactivity**

Any radioactive material dispersed in the air in the form of dusts, vapors, gases, etc.

#### **Area**

##### **Clean Area**

An area free of contamination or with levels of contamination below the specified limits.



## Appendix A

### Owner Controlled Area

The area within the site boundary including the protected area.

### Protected Area

The area within the Millstone Power Station security fence.

### Radiological Control Area

An area within the restricted area in which radioactive material is present and the potential exists for the spread of radioactive contamination. The area will be posted for the purpose of protecting individuals against undue risks from exposure to radiation and radioactive materials.

### Background Radiation

Radiation arising from material other than the one directly under consideration such as from cosmic rays, the ground, the air, building materials, etc.

### Barrier

One of the three fission product barriers: fuel clad, RCS pressure boundary and containment.

### Barrier Based EALs

A table of symptoms defining the loss or potential loss of a barrier, e.g., the Barrier Reference Table. A combination of barrier losses defines an emergency classification level.

### Central Monitoring Station (CMS)

The Unit 1 facility from which indications and alarms are monitored and control functions performed, if necessary.

### Certified Fuel Handler

An individual who has qualified in accordance with an approved fuel handler training program.

### Condition (also called initiating condition)

A description of a nuclear power plant event where either the potential exists for a radiological emergency, or such an emergency has occurred; e.g., loss of both batteries for greater than 15 minutes is a condition with a category of events titled Loss of Power.

### Confinement Boundary

The sealed dry cask storage canister that provides the spent fuel cladding protection. The barrier between areas containing radioactive substances and the environment.

## Appendix A

### Contamination (Radioactive)

The deposition of radioactive material in any place where it is unwanted (e.g., on persons, products or equipment).

### Control Room

The Control Room is the primary location where conditions of the unit are monitored, controlled and where corrective actions are directed to mitigate any emergency.

### Curie

The unit of radioactivity which is equivalent to  $3.7 \times 10^{10}$  disintegrations per second; millicurie (mCi) = one-thousandth curie; microcurie ( $\mu$ Ci) = one-millionth curie; picocurie (pCi) = one-millionth microcurie.

### Decontamination

The reduction or removal of contaminating radioactive material from a person, area or object by cleaning or washing.

### Dosimeter

A device that records radiation exposure.

### Emergency

Any abnormal condition that could affect the health and safety of people or safe operation of equipment.

### Emergency Action Levels (EALs)

Thresholds for initiating emergency actions such as designating a particular class of emergency, initiating a notification procedure, or initiating a particular protective action.

### Emergency Classification System

A system that arranges abnormal conditions in order of severity. They are listed as follows in order of increasing severity:

- UNUSUAL EVENT (State Posture Code, DELTA ONE/DELTA TWO)
- ALERT (State Posture Code, CHARLIE-ONE)
- SITE AREA EMERGENCY (State Posture Code, CHARLIE-TWO)
- GENERAL EMERGENCY (State Posture Code, BRAVO/ALPHA)

## Appendix A

### Emergency Operations Facility (EOF)

A facility located 15 miles north of Millstone from which station activities related to an emergency will be carried out and from which information will be provided to the corporate, federal, state officials and local community chief executive officers.

### Emergency Planning Zone (EPZ)

An area surrounding the Millstone Power Station for which planning is conducted to ensure that prompt and effective actions can be taken to protect the public in the event of an accident. For the plume exposure pathway, the EPZ has a corresponding radius of about 10 miles; and for the ingestion exposure pathway, the EPZ has a corresponding radius of about 50 miles.

### Event Based EAL

A listing of symptoms and conditions under generic event categories.

### Event Category

A generic group of plant conditions; e.g., loss of power, equipment failure, radiation hazard, security threat, etc.

### Exposure Pathway

#### Plume Exposure Pathway

The pathway by which exposure to a radioactive plume and subsequent deposition of radioactive material could result in external exposure and by which inhalation of the radioactive plume could result in internal exposure.

#### Ingestion Exposure Pathway

The pathway by which deposited radioactive materials could be ingested from contaminated water or food, such as milk or fresh vegetables which would cause internal exposure.

### Full Staffing

SERO positions which are beyond the required minimum staffing. Full staffing positions, as a goal, will be staffed within 4 hours of SERO activation. Personnel assigned to fill these positions are drawn from a pool of qualified individuals.

## Appendix A

### Hostile Action

An act toward a Nuclear Power Plant (NPP) or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. Hostile Action should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the NPP. Non-terrorism based EALs should be used to address such activities (e.g., violent acts between individuals in the owner control area).

### Hostile Force

One or more individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming or causing destruction.

### Incident

An unexpected occurrence that could lead to an emergency.

### Independent Spent Fuel Storage Installation (ISFSI)

A complex designed and constructed for the interim storage of Millstone Power Station spent nuclear fuel.

### Joint Media Center

The Joint Media Center is the principal contact point between the media and Millstone Station, state, and local community representatives. It is a facility where informational releases are made to the public and media and press conferences are held.

### Minimum Staffing

Personnel assigned to fulfill a specific SERO position and who report to the station in accordance with Table 5-1.

### On-Shift

Personnel assigned to duties as part of a normal shift complement.

### Off-site

The area outside the owner controlled area of the Millstone Power Station.

### On-site

The area inside the owner controlled area of the Millstone Power Station.

## Appendix A

### Operational Support Center (OSC)

A center co-located with the TSC where operational support of the emergency is provided.

### OSC Assembly Area

An emergency repair team staging area supporting OSC activities.

### Precautionary Dismissal

A dismissal of non-essential personnel at the Alert level which directs all non-essential Millstone employees, contractors, and visitors to leave the site.

### Procedures

#### Emergency Operating Procedures (EOP)

Procedures which provide specific actions to mitigate the consequences of and terminate an emergency situation.

#### Emergency Plan Implementing Procedures (EPIs)

Procedures which implement the Station Emergency Plan. These procedures specify the emergency organization and actions that would be required of station and other on-site personnel during an emergency.

#### Supplemental Procedures

Station operating, health physics, radiological control, administrative, security and training procedures.

### Projected Dose

The estimated potential dose that could be received by affected individuals if no protective actions are taken.

### Protective Action Guides (PAGs)

Projected absorbed dose to individuals in the general population which warrants protective action.

### Radiation (ionizing)

The emission and propagation of energy through a medium in the form of electromagnetic waves or particles which impart their energy to the medium through the creation of electrically charged ion pairs directly or indirectly in its passage through the medium.

## Appendix A

### Radioactivity

The property possessed by certain unstable radionuclides of spontaneously emitting charged particles, gamma photons or X-rays.

### Radiopager System

The system used by Millstone Power Station for prompt notification of emergency response personnel.

### Shift Manager's Work Station

The Unit 2 control room location from which indications and alarms for Unit 1 are monitored and control functions are performed.

### Station Emergency Operations Center

A facility in Hartford, CT, where responses to overall direction for major emergencies in Connecticut are coordinated.

### Station Emergency Response Organization

The organization responsible for station operations under emergency conditions.

### State

The State of Connecticut.

### Site Evacuation

The orderly withdrawal of personnel from the owner controlled area except designated resource and SERO personnel.

### State Plan

The State of Connecticut Emergency Operations Plan, Annex V, Fixed Nuclear Facilities Radiological Emergency Response Plan.

### Station Evacuation

The orderly withdrawal of all personnel from the protected area, except designated resource and SERO personnel.

### Symptom

A predetermined site and unit specific parameter observable in the Control Room (or reported to the Control Room) that is the threshold for a plant "condition" that places the plant in a given emergency classification. A symptom can be an instrument reading, equipment status indicator, a measurable parameter (on-site or off-site), a discrete observable event, or the results of analyses.

## Appendix A

### Technical Support Center (TSC)

A center located where technical support personnel monitor station conditions and provide data interpretation.

## Appendix A

### ABBREVIATIONS AND ACRONYMS

---

|                       |   |   |
|-----------------------|---|---|
| AC                    | - | Alternating Current                                   |
| ADM                   | - | Administrative  |
| AFW                   | - | Auxiliary Feedwater                                   |
| ADTS                  | - | Assistant Director Technical Support                  |
| ALARA                 | - | As Low As Reasonably Achievable                       |
| ALI                   | - | Annual Limit on Intake                                |
| ALS                   | - | Advanced Life Support                                 |
| AMRDA                 | - | Assistant Manager Radiological Dose Assessment        |
| AMT                   | - | Accident Management Team                              |
| ANI                   | - | American Nuclear Insurers                             |
| ANSI                  | - | American National Standards Institute                 |
| AOP                   | - | Abnormal Operating Procedure                          |
| ARC                   | - | American Red Cross                                    |
| ARCOS                 | - | Automated Rose Call Out System                        |
| ARMS                  | - | Area Radiation Monitoring System                      |
| ARPS                  | - | Assistant Radiation Protection Supervisor             |
| ASME                  | - | American Society of Mechanical Engineers              |
| ATWS                  | - | Anticipated Transient Without Scram                   |
|                       |   |   |
| BAST                  | - | Boric Acid Storage Tank                               |
| BLS                   | - | Basic Life Support                                    |
| BP                    | - | Blood Pressure  |
| BWR                   | - | Boiling Water Reactor                                 |
|                       |   |   |
| CAR                   | - | Containment Air Recirculation (system)                |
| CBETS                 | - | Computer Based Exposure Tracking System               |
| CC or CM <sup>3</sup> | - | Cubic Centimeter                                      |
| CDA                   | - | Containment Depressurization Actuation                |
| CDC                   | - | Center for Disease Control                            |
| CDE                   | - | Committed Dose Equivalent                             |
| CEDE                  | - | Committed Effective Dose Equivalent                   |
| CERT                  | - | Community Emergency Response Team                     |
| CES                   | - | Corporate Executive Spokesperson                      |
| CFH                   | - | Certified Fuel Handler                                |
| CFM                   | - | Cubic Feet per Minute                                 |
| CFR                   | - | Code of Federal Regulations                           |
| Ci                    | - | Curie (Unit of Radioactivity)                         |
| CMS                   | - | Central Monitoring Station                            |
| CO                    | - | Control Operator                                      |
| CONVEX                | - | Connecticut Valley Exchange                           |
| CPM                   | - | Counts per minute                                     |
| CR                    | - | Control Room  |
| CRDC                  | - | Control Room Data Coordinator                         |
| CRDM                  | - | Control Rod Drive Mechanism                           |
| CRDSEO                | - | Control Room Director of Station Emergency Operations |



## Appendix A

|                         |   |   |
|-------------------------|---|---|
| CRS                     | - | Control Room Simulator                                    |
| CSS                     | - | Core Spray System   |
| CST                     | - | Condensate Storage Tank                                   |
| CT                      | - | Connecticut   |
| CTNG                    | - | Connecticut National Guard                                |
| CVCS                    | - | Chemical and Volume Control System                        |
|                         |   |   |
| DAC                     | - | Derived Air Concentration                                 |
| DBA                     | - | Design Basis Accident                                     |
| DBE                     | - | Design Basis Earthquake                                   |
| DC                      | - | Damage Control  |
| DEMHS                   | - | Division of Emergency Management and Homeland Security    |
| DENC                    | - | Dominion Energy Nuclear Connecticut                       |
| DEEP                    | - | Department of Energy and Environmental Protection         |
| DHS                     | - | Department of Health Services (formerly DHEW)             |
| DIL                     | - | (FDA) Derived Intervention Level                          |
| DLR                     | - | Dosimeter of Legal Record                                 |
| DSEO                    | - | Director of Station Emergency Operations                  |
| DOE                     | - | U.S. Department of Energy                                 |
| DOT                     | - | Department of Transportation                              |
| DPH                     | - | Department of Public Health (CT)                          |
| dpm/100 cm <sup>2</sup> | - | Disintegrations per minute per 100 square centimeter area |
| DPM                     | - | Disintegrations per minute                                |
| DRO                     | - | Director of Recovery Operations                           |
|                         |   |   |
| EAL                     | - | Emergency Action Level                                    |
| EAS                     | - | Emergency Alert System                                    |
| EC                      | - | Emergency Communicator                                    |
| ECCS                    | - | Emergency Core Cooling System                             |
| ED                      | - | Emergency Department (hospital)                           |
| EDAN                    | - | Environmental Data Acquisition Network                    |
| EDG                     | - | Emergency Diesel Generator                                |
| EIS                     | - | Emergency Information Specialist                          |
| EMR                     | - | Emergency Medical Responder                               |
| EMS                     | - | Emergency Medical Services                                |
| EMT-B                   | - | Emergency Medical Technician – Basic                      |
| EMT-P                   | - | Emergency Medical Technician – Paramedic                  |
| ENRS                    | - | Emergency Notification and Response System                |
| ENS                     | - | NRC Emergency Notification System telephone               |
| EOC                     | - | Emergency Operations Center (State, local, or Site)       |
| EOP                     | - | Emergency Operating Procedure                             |
| EOF                     | - | Emergency Operations Facility                             |
| EPA                     | - | Environmental Protection Agency                           |
| EPAP                    | - | Emergency Plan Administrative Procedure                   |
| EPC                     | - | Emergency Planning Coordinator                            |
| EPI                     | - | Emergency Plan Implementing Procedure                     |
| EPRI                    | - | Electric Power Research Institute                         |

## Appendix A

|       |   |   |
|-------|---|---|
| EPZ   | - | Emergency Planning Zone                         |
| ERF   | - | Emergency Response Facility                     |
| ERO   | - | Emergency Response Organization                 |
| ESST  | - | Emergency Station Service Transformer           |
| ETE   | - | Evacuation Time Estimate                        |
| ETS   | - | Environmental Technical Specification           |
|       |   |   |
| FCV   | - | Flow Control Valve                              |
| FDA   | - | Food and Drug Administration                    |
| FEMA  | - | Federal Emergency Management Agency             |
| FERC  | - | Federal Energy Regulatory Commission            |
| FFD   | - | Fitness For Duty                                |
| FSAR  | - | Final Safety Analysis Report                    |
| FSRC  | - | Facility Safety Review Committee                |
| FTDC  | - | Field Team Data Coordinator                     |
|       |   |   |
| GCS   | - | Glasgow Coma Scale                              |
| GE    | - | General Emergency                               |
| GM    | - | Geiger-Mueller detector                         |
| gpd   | - | Gallons per day                                 |
| gpm   | - | Gallon per minute                               |
|       |   |   |
| HAB   | - | Hostile Action Based                            |
| HEPA  | - | High Efficiency Particulate Air Filter          |
| HP    | - | Health Physics                                  |
| HP    | - | High Pressure                                   |
| HPN   | - | NRC Health Physics Network Telephone            |
| HVAC  | - | Heating Ventilation and Air Conditioning System |
|       |   |   |
| I     | - | Iodine  |
| I&C   | - | Instrumentation and Calibration                 |
| IC    | - | Incident Commander                              |
| ICP   | - | Incident Command Post                           |
| ICSC  | - | Innsbrook Corporate Support Center              |
| ILRT  | - | Integrated Leak Rate Testing                    |
| INPO  | - | Institute of Nuclear Power Operations           |
| IPZ   | - | Ingestion Pathway Zone                          |
| IRF   | - | Incident Report Form                            |
| ISFSI | - | Independent Spent Fuel Storage Installation     |
| ISI   | - | In Service Inspection                           |
|       |   |   |
| JIC   | - | Joint Information Center                        |
| JMC   | - | Joint Media Center                              |
|       |   |   |
| KI    | - | Potassium Iodide                                |
| KW    | - | Kilowatt  |
| KWh   | - | Kilowatt-hour                                   |

## Appendix A

|         |   |   |
|---------|---|---|
| LCO     | - | Limiting Condition for Operation                              |
| LER     | - | Licensee Event Report   |
| LI      | - | Level Indicator   |
| LOCA    | - | Loss of Coolant Accident                                      |
| LPCI    | - | Low Pressure Coolant Injection                                |
| LPSI    | - | Low Pressure Safety Injection                                 |
|         |   |   |
| MA      | - | Massachusetts   |
| MAX     | - | Maximum   |
| MCI     | - | Mass Casualty Incident  |
| MCL     | - | Media Center Liaison  |
| MCRO    | - | Manager of Control Room Operations                            |
| Met     | - | Meteorological  |
| MEOR    | - | Millstone Emergency Offsite Representative                    |
| MOC     | - | Manager of Communications                                     |
| MOR     | - | Manager of Resources  |
| MOS     | - | Manager of Security   |
| MOV     | - | Motor Operated Valve  |
| MP      | - | Millstone Point   |
| MPS     | - | Millstone Power Station                                       |
| MRCA    | - | Manager of Radiological Consequence Assessment                |
| MRDA    | - | Manager of Radiological Dose Assessment                       |
| mR      | - | MilliRoentgen   |
| mRad    | - | MilliRad  |
| mRem    | - | Millirem = 1/1000 Rem   |
| mRem/hr | - | 1/1000 Rem per hour   |
| MRC     | - | Medical Reserve Corporation                                   |
| MSIV    | - | Main Steam Isolation Valve                                    |
| MSRC    | - | Management Safety Review Committee                            |
| MTSC    | - | Manager of Technical Support Center                           |
| MW      | - | Megawatt  |
|         |   |   |
| NAP     | - | North Access Point  |
| NCRP    | - | National Council on Radiation Protection (and<br>Measurement) |
| NEI     | - | Nuclear Energy Institute                                      |
| NFSA    | - | Nuclear Fuel and Safety Analysis (formerly RES)               |
| NG      | - | National Guard  |
| NRC     | - | U.S. Nuclear Regulatory Commission                            |
| NNM     | - | Nuclear News Manager  |
| NOUE    | - | Notification of Unusual Event                                 |
| NSSS    | - | Nuclear Steam Supply System                                   |
| NSST    | - | Normal Station Service Transfer                               |
| NUREG   | - | Nuclear Regulation  |
| NY      | - | New York  |

### Appendix A

|       |   |  |
|-------|---|--|
| OBE   | - | Operational Basis Earthquake             |
| OFIS  | - | Off-site Facilities Information System   |
| OMF   | - | Offsite Monitoring Facility – EOF        |
| OOS   | - | Out of Service                           |
| ORO   | - | Organization for Recovery Operations     |
| OSC   | - | Operational Support Center               |
| OSCAA | - | Operational Support Center Assembly Area |
|       |   |  |
| PA    | - | Physician’s Assistant                    |
| PA    | - | Public Address System                    |
| PAD   | - | Protective Action Decision               |
| PAG   | - | Protective Action Guide                  |
| PAR   | - | Protective Action Recommendation         |
| PASS  | - | Post Accident Sampling System            |
| PAT   | - | Plant Access Training                    |
| PC    | - | Protective Clothing                      |
| PD    | - | Police Department                        |
| PEO   | - | Plant Equipment Operator                 |
| PF    | - | Protection Factor                        |
| PIO   | - | Public Information Officer               |
| PIR   | - | Plant Incident Report                    |
| PORV  | - | Power Operated Relief Valve              |
| PRA   | - | Probabilistic Risk Assessment            |
| PSAP  | - | Public Service Answering Post            |
| PSI   | - | Pounds per Square Inch                   |
| PSIG  | - | Pounds per Square Inch Gauge             |
| PWR   | - | Pressurized Water Reactor                |
| PZR   | - | Pressurizer                              |
|       |   |  |
| Q     | - | Release Rate                             |
| QA    | - | Quality Assurance                        |
|       |   |  |
| R     | - | Roentgen. A unit of radiation exposure   |
| rad   | - | Unit of radiation dose                   |
| RAE   | - | Radiological Assessment Engineer         |
| RC    | - | Reception Center                         |
| RCA   | - | Radiological Control Area                |
| RCP   | - | Reactor Coolant Pump                     |
| RCS   | - | Reactor Coolant System                   |
| REM   | - | Unit of radiation dose                   |
| Resp  | - | Respirations                             |
| RERP  | - | Radiological Emergency Response Plan     |
| RHR   | - | Residual Heat Removal                    |
| RIEMA | - | Rhode Island Emergency Management Agency |
| RL    | - | Regulatory Liaison                       |
| RMS   | - | Radiation Monitoring System              |
| RMT   | - | Radiological Monitoring Team             |

### Appendix A

|                  |   |  |
|------------------|---|--|
| RO               | - | Reactor Operator                             |
| RP               | - | Radio Pager                                  |
| RPM              | - | Radiation Protection Manual                  |
| RWP              | - | Radiation Work Permit                        |
| RWST             | - | Refueling Water Storage Tank                 |
| SAE              | - | Site Area Emergency                          |
| SAP              | - | South Access Point                           |
| SCBA             | - | Self-Contained Breathing Apparatus           |
| SDO              | - | Station Duty Officer                         |
| SEOC             | - | State Emergency Operations Center            |
| SERO             | - | Station Emergency Response Organization      |
| SIS              | - | Safety Injection System                      |
| SM               | - | Shift Manager                                |
| SOP              | - | Step Off Pad                                 |
| SPDS             | - | Safety Parameter Display System              |
| SpO <sub>2</sub> | - | Oxygen saturation                            |
| SRD              | - | Self Reading Dosimetry                       |
| SRO              | - | Senior Reactor Operator                      |
| STA              | - | Shift Technical Advisor                      |
| State            | - | State of Connecticut                         |
| TA               | - | Technical Assistant                          |
| TEDE             | - | Total Effective Dose Equivalent              |
| TIC              | - | Technical Information Coordinator            |
| TSA              | - | Transportation Staging Area                  |
| TSC              | - | Technical Support Center                     |
| TSCEE            | - | Technical Support Center Electrical Engineer |
| TSCSM            | - | Technical Support Center Shift Manager       |
| UC               | - | Unified Command                              |
| US               | - | Unit Supervisor                              |
| USCG             | - | US Coast Guard                               |
| u                | - | Wind speed                                   |
| μCi              | - | Microcuries                                  |
| X (chi)          | - | Concentration                                |
| X/Q              | - | Relative Concentration                       |

Appendix B

APPENDIX B

**LETTERS OF AGREEMENT**

Appendix B

| <b>Page</b> | <b>Organization</b>   |
|-------------|---|
| B-3         | Amtrak  |
| B-4         | Electric Boat Division of General Dynamics  |
| B-5         | Institute of Nuclear Power Operations   |
| B-6         | Lawrence & Memorial Hospital  |
| B-7         | Middlesex Hospital  |
| B-8         | Shipman's Fire Equipment Company, Inc.  |
| B-9         | State of Connecticut, Department of Emergency Services and Public Protection-<br>Office of the Commissioner |
| B-10        | Teledyne Brown Engineering  |
| B-11        | Town of Waterford Ambulance Service   |
| B-12        | Town of Waterford Fire Service  |
| B-13        | Town of Waterford Police Department   |
| B-14        | AccuWeather   |
| B-15        | GEL   |
| B-16        | Norwich Fire Department   |
| B-17        | Salem Volunteer Fire Department   |

Note: The letters of agreement are reviewed annually and verified to be current. Only letters with significant changes require reissue.

## Appendix B

November 13, 2017

Mr. John Daugherty  
Site Vice President  
Dominion Nuclear Connecticut  
Rope Ferry Road  
Waterford, CT 06385

Dear Mr. Daugherty:

This letter is to confirm that the National Railroad Passenger Corporation will, when requested respond in the event of an emergency at the Millstone Power Station on Long Island Sound, in the following areas:

### Implementation Criteria/Authorities, Responsibilities

It is our understanding that, in the event of an emergency, the nuclear facility Director Site Emergency Operations may request our assistance. Assistance should be requested by calling the Chief Train Dispatcher of the Boston CETC Office at 617/345-7474. Indicate the nature of the incident, the location, and the type of assistance required.

### Measures to be Provided/Limits of Actions

Our commitment for assistance is to direct train traffic away from any areas that may be affected by the emergency.

### Information Exchange /Point of Contact at Site

Verification communications to the nuclear facility will be by telephone to the Director of Site Emergency Operations at 860/892-5600. Information exchange can be provided by using the Chief Train Dispatcher's number.

### Training and Drills

Please notify us of your plant drills so that we may have the opportunity to observe your emergency response actions and meet your emergency operations personnel. Please coordinate by contacting my office at 617/345-7406.

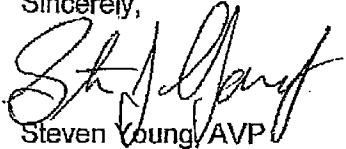


Appendix B

Mr. John Daugherty  
November 13, 2017  
Page Two

This letter of agreement shall remain in effect until cancellation by either party, provided on ninety (90) days prior written notice, and shall be reviewed and certified as needed.

Sincerely,



Steven Young, AVP  
Transportation  
Northeast SubDivision

cc: W. B. Moore, Deputy Chief -- Amtrak Police  
S. Pugsley, Amtrak Emergency Management

Appendix B

Enclosure (1)  
to 438-37497  
Page 1 of 2

**LETTER OF AGREEMENT  
BETWEEN ELECTRIC BOAT CORPORATION  
AND  
DOMINION NUCLEAR CONNECTICUT  
RADIOLOGICAL ASSISTANCE**

It is understood that the Electric Boat Corporation will, upon request, respond with personnel and equipment in the event of an emergency at the Millstone Power Station in accordance with the following:

1. In the event of a radiological emergency, the Director of the Site Emergency Organization may request personnel and equipment to assist in performing emergency radiological surveys. Assistance should be requested by calling:

Director of Radiological Services  
Telephone: 433-3139 (during normal business hours)

2. If after normal business hours, or no answer, call in order:

RAD CON Office: 433-5019 or 433-5392  
Shipyards Security: 433-5530 or 433-5531

*NOTE: If shipyard Security is contacted, request that RAD CON Management be notified.*

It is understood that the Electric Boat Corporation's commitment for assistance includes providing trained radiological control personnel and equipment for the purpose of performing emergency radiation, contamination, and airborne radioactivity measurements. Personnel responding to the facility's request for assistance will report to the Manager of Resources who will be located in the Emergency Operations Facility (EOF).

Appendix B

Enclosure (1)  
to 438-37497  
Page 2 of 2

It is understood that should the Electric Boat shipyard be affected by a radioactive release from another facility, Electric Boat resources will be used, as the first priority, to protect the shipyard and its personnel; support will be provided to Millstone Station as available.

It is understood that in each case where assistance is provided under this Agreement, all radiological waste from the emergency will remain the responsibility of the affected facility.

It is understood that verification of communications will be by telephone to:

Manager of Resources - 442-5139  
Director Station Emergency Organization - 443-2276

Information exchange can be provided by using the same telephone number.

It is understood that Millstone Station will train representatives of Electric Boat Corporation's Radiological Training Section annually on the use of Station equipment and procedures. These Radiological Training Section individuals, in turn, will train selected Electric Boat Corporation personnel on this equipment and procedures. It is understood that this training will be performed annually and the Electric Boat Corporation will be given advance notification of plant drills or additional training that would be advantageous to both organizations.

This Letter of Agreement shall remain in effect until cancellation by either party, provided on ninety-(90) days prior written notice, and shall be reviewed and certified as needed.

|        | Dominion Nuclear Connecticut    | Electric Boat Corporation |
|--------|---------------------------------|---------------------------|
| By:    | <u><i>Stephen Price for</i></u> | <u><i>M. Toner</i></u>    |
| Name:  | <u>J. Alan Price</u>            | <u>M. Toner</u>           |
| Title: | <u>Site Vice-President</u>      | <u>President</u>          |
| Date:  | <u>11/04/02</u>                 | <u>10/29/02</u>           |

## Appendix B

AGREEMENT BETWEEN PARTIES

November 8, 2013

### **Nuclear Power Plant Emergency Response Assistance Agreement**

This Nuclear Power Plant Emergency Response Assistance Agreement (hereinafter "Agreement") has been entered into by and among INPO and electric utilities that have responsibility for the construction or operation of commercial nuclear power plants under a license issued by the U.S. Nuclear Regulatory Commission pursuant to Title 10 of the Code of Federal Regulations (hereinafter "nuclear power plants") and that have subscribed counterpart signature pages in the form attached hereto (hereinafter "Parties").

The Parties wish to set forth herein their understanding and agreement with respect to their mutual undertaking to each other in the situation wherein an emergency occurs at a nuclear power plant under the control of or operated on behalf of a Party or wherein an event arises during the transportation of nuclear materials shipped by or on behalf of a Party, and a request for assistance is issued to another Party and such assistance is provided. For purposes of this agreement, a nuclear power plant emergency is defined as an event warranting classification as a site area emergency or greater and that has the potential to damage fuel.

This Agreement is intended only to define the terms and conditions under which such assistance will be rendered and received. It is understood that this Agreement does not impose any obligation on any Party to render or continue to render any such assistance, but this Agreement records the understanding of the Parties with respect to the rights and obligations that will be incurred in responding to requests for assistance. Attachment A, "Coordination Agreement on Sharing Emergency Information Among EPRI, INPO, NEI, and Their Member Utilities" describes the responsibilities and expected actions for EPRI, INPO, and NEI.

NOW, THEREFORE, it is agreed, that:

1. Assistance rendered by a Party as described hereunder may be given in response to a request by any Party for help following an emergency arising at a nuclear power plant or during the transportation of nuclear materials. If such assistance is given, it shall be rendered in accordance with the terms and conditions herein.
2. The Party that requests assistance shall be known as the "Requesting Company" and the Party furnishing assistance shall be known as the "Responding Company."
3. Assistance shall be defined as the requested, offered and/or actual responsive assistance to a request under the terms of this Agreement by a Responding Company, as documented in an Assistance Agreement.
4. Assistance Agreement shall be defined as a scoping document that may be as informal as an email, fax, or phone request (followed with documentation) in emergency circumstances that lists the requested, offered and agreed upon Assistance, that references this Agreement, and that is agreed to by both the Requesting and Responding Parties.

## Appendix B

AGREEMENT BETWEEN PARTIES

November 8, 2013

5. (a) Requesting Company shall notify INPO or a Responding Company of the type of assistance requested and the anticipated duration during which such assistance is desired. If INPO is contacted directly, then INPO shall identify and contact the appropriate Responding Companies to ask for help in responding to an emergency. If a Responding Company is called directly, then the Responding Company may furnish such assistance that is within the scope of this agreement. Except as such companies may agree otherwise, Requesting Company shall be responsible for determining the procedures to be followed relative to the furnishing of such assistance, directing the work, and making any reports to governmental authorities and the news media regarding the emergency or the furnishing of assistance pursuant to this Agreement. Requesting Company shall notify Responding Company when its assistance is no longer needed.
- (b) The furnishing of assistance hereunder shall be deemed to have commenced when personnel of the Responding Company are assigned to other than normal duties or transportation of equipment commences pursuant to a determination by the Responding Company to provide assistance to a Requesting Company under this Agreement and shall be deemed to have terminated when the transportation of such personnel or equipment back to its working base, or home (for personnel returning at other than regular working hours), is completed.
- (c) The Responding Company shall make all arrangements for the transportation of its personnel and equipment from and to their working base or home.
6. (a) Employees of Responding Company shall at all times continue to be employees of the Responding Company and shall at no time and for no purpose be deemed to be servants, agents, employees, or representatives of the Requesting Company.
- (b) Wages, hours, and other terms and conditions of employment applicable to personnel of the Responding Company shall be those of the Responding Company. Work procedures, security, and safety rules for such personnel shall be those of the Requesting Company.
- (c) Unless otherwise agreed, all personnel of the Responding Company shall be equipped by the Responding Company with such normal working and protective equipment as shall be compatible with the circumstances under which said personnel shall function hereunder; Requesting Company shall inform Responding Company of any specific equipment which may be required in a particular situation.

## Appendix B

AGREEMENT BETWEEN PARTIES

November 8, 2013

7. (a) Responding Company shall furnish the requested personnel and equipment to the extent that the Responding Company may determine to do so in its sole judgment and discretion.
- (b) Any information which Responding Company may provide to Requesting Company (including drawings, reports, and analyses) or which Requesting Company provides to Responding Company, which either the Responding Company or the Requesting Company considers proprietary or confidential, shall be so designated. Such proprietary information shall be held in confidence and shall be used exclusively in connection with the emergency at the nuclear power plant at which the emergency has occurred (including necessary disclosures on a proprietary basis to others in that connection) and shall not be published or otherwise disclosed to others, except as may be required by law. The restrictions set forth in this section 7.(b) shall not apply to information that the Receiving Company can establish by documentary evidence:
- (1) is or has become generally known to, or readily ascertainable by, the public without fault or omission of either party or its employees or agents; or
  - (2) was already known to the Receiving Company prior to the first disclosure of such information by the disclosing party; or
  - (3) was received by the Receiving Company without restrictions as to its use from a third-party who is lawfully in possession and not restricted as to the use thereof; or
  - (4) was independently developed through persons who have not had, either directly or indirectly, access to or knowledge of similar information provided by the other party.
- (c) Responding Company shall have the right, at any time and in its sole judgment and discretion and without any obligation to Requesting Company, to withdraw personnel and equipment furnished to the Requesting Company and return such personnel and equipment to its working base. Without limiting Responding Company's rights under the preceding sentence, Responding Company shall attempt to schedule any such withdrawal of its personnel or equipment to accommodate the needs of Requesting Company. Responding Company shall give written notice at least 24 hours in advance to Requesting Company of the permanent withdrawal of personnel or equipment furnished. Responding Company's withdrawal of personnel or equipment shall not affect any obligations which may have been incurred hereunder prior to such withdrawal or which may arise out of events occurring prior to such withdrawal.
8. All time sheets and work records pertaining to Responding Company personnel and equipment shall be kept by the Responding Company. The Responding Company shall furnish the Requesting Company with a detailed statement of all costs and expenses paid or incurred by the Responding Company in connection with the furnishing of assistance to the Requesting Company, which statement shall be paid by Requesting Company within thirty (30) days after receipt.

## Appendix B

AGREEMENT BETWEEN PARTIES

November 8, 2013

9. The Requesting Company shall reimburse Responding Company for all direct and indirect costs and expenses, not including a profit, incurred by Responding Company in giving assistance pursuant to this Agreement, including but not limited to costs and expenses related to or resulting from compliance with governmental requirements such as Title 10 of the Code of Federal Regulations Part 20. Such costs and expenses shall be computed in accordance with Responding Company's standard rates and accounting practices, including such overheads as are determined by Responding Company to be applicable to such direct and indirect costs and expenses incurred by Responding Company. Requesting Company shall have the right to request a third party audit the records of Responding Company relative to work performed pursuant to this Agreement.

10. (a)

In addition, and subject to the provisions of paragraph 10(b) hereof, Requesting Company shall indemnify and hold Responding Company, its officers, directors, and employees, jointly and severally, harmless from and against any and all liability or loss, damage, cost, or expense which any of them may incur by reason of bodily injury, including but not limited to death, to any person or persons, or by reason of damage to or destruction of any property, including but not limited to any property located at the site of the Requesting Company's nuclear power plant or the loss of use of any property, which results from furnishing assistance pursuant to this Agreement, whether due in whole or in part to any act or omission, or negligence of Responding Company, its officers, directors, or employees.

(b)

Where payments are made by Responding Company or its insurers to Responding Company's officers, directors, or employees or their beneficiaries for bodily injury or death resulting from furnishing assistance pursuant to this Agreement, including but not limited to workers' compensation, disability, pension plan, medical and hospitalization, or other such payments, Requesting Company shall make reimbursement to Responding Company to the extent such payments increase the Responding Company's employees' related costs, whether such increase in costs occur in the form of an increase in premiums or contributions, a reduction in dividends or premium refunds, or otherwise. Requesting Company shall also reimburse Responding Company for any deductible amounts or for any amounts paid by Responding Company as a self-insurer. Responding Company will request its insurer to waive any right of subrogation it may have against Requesting Company as a result of any payment described in this paragraph 10(b) which such insurer may make on behalf of Responding Company because of Responding Company's furnishing of assistance pursuant to this Agreement.

## Appendix B

AGREEMENT BETWEEN PARTIES

November 8, 2013

(c)

Responding Company makes no warranty with respect to any goods or services provided to Requesting Company and NO WARRANTY, EITHER EXPRESS OR IMPLIED, ORAL OR WRITTEN, SHALL APPLY TO THE GOODS OR SERVICES PROVIDED, INCLUDING, WITHOUT LIMITATION, THE WARRANTIES OF MERCHANTABILITY AND OF FITNESS FOR SPECIFIED OR INTENDED PURPOSE. All equipment and services furnished by Responding Company pursuant to this Agreement are furnished as is.

(d)

In the event any claim or demand is made or suit, action, or proceeding is filed against Responding Company, its officers, directors, or employees, jointly or severally, alleging liability for which Requesting Company shall indemnify and hold harmless Responding Company, its officers, directors, and employees under this paragraph 10 hereof, Responding Company shall promptly notify Requesting Company thereof, and Requesting Company, at its sole cost and expense, shall settle, compromise, or defend the same in such manner as it in its sole discretion deems necessary or prudent. Responding Company shall cooperate with Requesting Company in the resolution of any such matter. If a Requesting Company settles a liability suit with a 3rd party that involves a Responding Company, Requesting Company will ensure the Responding Company is released from liability.

(e)

Each Party to this Agreement agrees to carry the amount of financial protection required by the Atomic Energy Act of 1954, as amended, and self-insurance or comprehensive liability insurance, including contractual liability coverage, covering the indemnification and defense obligations set forth herein, subject to such types and amounts of self-insurance, retentions, or deductibles as are consistent with standard business practice in the industry.

(f)

In the event a Responding Company provides assistance pursuant to this Agreement through an affiliate or subsidiary, the indemnification provided in this paragraph 10 to the officers, directors, and employees of that Responding Company shall apply with equal force to the officers, directors, and employees of that affiliate or subsidiary.

11. Each Party shall provide the Institute of Nuclear Power Operations (hereinafter "INPO") with an executed counterpart signature page to this Agreement and to any amendments or attachments hereto. This Agreement shall become effective when counterpart signature pages executed by at least two Parties shall have been received by INPO. This Agreement shall remain in effect as to any Party until such Party has withdrawn from the Agreement as provided below.



## Appendix B

### AGREEMENT BETWEEN PARTIES

November 8, 2013

12. (a)

INPO may provide certain administrative and emergency response support services in furtherance of this Agreement, such as maintaining and distributing to the Parties a roster of the signatories to this Agreement; providing copies of the Agreement and any amendments thereto to all Parties; and preparing and distributing to the Parties other documents, such as a list of sources of emergency manpower and equipment. INPO may provide such other services as may be requested of INPO from time to time by the Parties. The Parties recognize that INPO shall not be responsible for implementing, enforcing, or interpreting this Agreement.

(b)

The Parties shall defend, indemnify, and hold harmless INPO, its officers, directors, and employees, jointly and severally, from and against any and all liability or loss, damage, cost, or expense which results from performance of INPO's functions described in paragraphs 12(a) and 12(c) of this Agreement. Each Party hereby expressly waives any right it may have to assert any claim against INPO, its officers, directors, or employees arising out of its or their performance of INPO's functions described in paragraphs 12(a) and 12(c).

(c)

Following an emergency at a nuclear power plant the Requesting Company may contact INPO for help in locating and coordinating delivery of requested resources and equipment. Based on that contact from the Requesting Company, INPO will proceed to locate requested equipment and human resources and coordinate assistance delivery. This agreement does not preclude the Requesting Company from contacting other Parties (Responding Companies) for assistance. In either case the Assistance Agreements will be established between the Requesting Company and Responding Companies.

(d)

If INPO furnishes assistance and unless otherwise agreed by INPO and the Requesting Company, the Requesting Company and INPO shall have the same rights and obligations as if INPO were a Responding Company (including but not limited to the Requesting Company's obligations to INPO, its officers, directors, and employees under paragraph 10 hereof), except that paragraphs 8 and 9 and 10(e) shall not apply to INPO.

13. This Agreement will not create any rights or defenses in favor of any entity or person not a signatory to this Agreement except to the extent provided in this paragraph and in paragraphs 10 and 12 of this Agreement. This agreement shall be binding upon and inure to the benefit of each signatory to this Agreement and the subsidiaries and affiliates of each such signatory.

## Appendix B

AGREEMENT BETWEEN PARTIES

November 8, 2013

14. Except as otherwise provided in paragraph 15, any Party may withdraw from this Agreement upon at least thirty (30) days prior written notice to INPO with a copy to all of the other Parties. Notice of withdrawal shall not affect any obligations which may have been incurred hereunder prior to the effective date of such notice or which may arise out of events occurring prior to the date. No Party may withdraw from this Agreement while it is receiving assistance pursuant to this Agreement.
15. This Agreement may be amended by the agreement of a majority of the Parties hereto. Such amendment shall be effective and binding upon all Parties thirty (30) days after INPO has received counterpart signature pages for the amendment executed by at least a majority of the Parties to the Agreement. INPO shall notify all Parties when at least a majority of the Parties have executed an amendment to the Agreement. No amendment shall affect any obligation that may have been incurred hereunder prior to the effective date of such amendment or that may arise out of events occurring prior to that date. Notwithstanding the first sentence of paragraph 14, any Party may withdraw from this Agreement by submitting written notice to INPO at any time during the thirty (30) day period prior to the effective date of such amendment with a copy to all of the other Parties.
16. If any provision of this Agreement is determined to be invalid or unenforceable as to any Party or otherwise, such determination shall not affect the validity or enforceability of the other provisions of this Agreement as to that Party or otherwise.
17. In the event (i) an emergency occurs at a nuclear power plant under the control of or operated on behalf of a Party, or an event associated with transportation of nuclear materials shipped by or on behalf of a Party; (ii) a request for assistance is issued to another Party hereto in respect to such emergency; and (iii) such assistance is provided, this Agreement shall be construed in accordance with the law of the State in which the nuclear power plant is located with respect to all rights and obligations arising out of such emergency.
18. This Agreement, together with the attachments hereto, shall constitute the entire agreement between and among the parties hereto relating to nuclear power plant emergency response. This agreement, once signed, supersedes previous assistance agreements among the parties hereto.

Appendix B

AGREEMENT BETWEEN PARTIES

November 8, 2013

**EXHIBIT**

COUNTERPART SIGNATURE PAGE

The undersigned company hereby agrees to become a Party to the Nuclear Power Plant Emergency Response Assistance Agreement and its attachments.

Date 11/12/13 Company Dominion

By [Signature] (Corporate Officer Signature)

Printed Name: DAVID A. HEACOCK

## Appendix B

### Coordination Agreement on Sharing Emergency Information Among EPRI, INPO, NEI, and Their Member Utilities

#### Background:

In order to provide for the efficient and timely transfer of technical and public information regarding emergencies at nuclear power stations and to maximize their assistance roles to their utility members and the industry, the Electric Power Research Institute (EPRI), the Institute of Nuclear Power Operations (INPO), and the Nuclear Energy Institute (NEI) have agreed to coordinate their actions and activities as outlined in this agreement.

It is recognized that the primary responsibility for release of appropriate information concerning an emergency situation to the public and the news media rests with the affected utility. The purpose of this agreement is to provide a coordinated process by which the industry organizations can effectively convey information to the rest of the industry and to the media, in order to lessen the burden on the affected utility.

#### Agreement:

1. Among the three organizations involved in this coordination agreement, NEI will provide information concerning industrywide implications of an emergency and will use existing mechanisms and media contacts to disseminate timely information regarding the emergency.

- NEI will develop and issue, in coordination with the affected utility, appropriate public statements to the news media, as necessary.
- NEI will provide information about the emergency and associated press releases to its members and other industry organizations.
- NEI also will make all relevant information available to Edison Electric Institute (EEI) and EPRI.
- NEI will maintain an emergency response capability for consultation on regulatory issues and handle inquiries from media, government, and other organizations and individuals.

2. Among the organizations, INPO will coordinate assistance requests from the utility to other INPO members and participants.

- INPO will notify NEI and EPRI of U.S. events classified Alert or higher or non-U.S. events classified as level 4 or higher on the International Nuclear Events Scale.
- INPO will provide communications to its members, participants, EPRI and NEI to facilitate the flow of technical information about the emergency and share information provided by the affected utility on a selected basis.

## Appendix B

- INPO will maintain an emergency resource capability to furnish EPRI and NEI technical information relevant to the emergency as obtained from the utility and/or available in its own databases.
  - INPO will maintain information on industry assistance capabilities including:
    - Personnel with specialized plant or emergency response knowledge
    - Emergency response equipment available for sharing with the affected utility.
  - INPO will coordinate the delivery of persons and material under its Nuclear Power Plant and Transportation Agreements, as requested by the affected utility.
3. Among the organizations, EPRI will maintain an emergency response capability and will be available for consultation and to conduct in-depth analyses of the emergency as appropriate.
- Both EPRI and INPO will be available to assist the affected utility through their technical analysis and events analysis capabilities, respectively. EPRI and INPO will coordinate such efforts with each other.
4. EPRI, INPO, and NEI will develop and share written procedures governing emergency notifications and specifying points of contact to provide for cross-notification of emergencies.

Appendix B

AGREEMENT BETWEEN PARTIES

November 8, 2013

**EXHIBIT**

COUNTERPART SIGNATURE PAGE

The undersigned company hereby agrees to become a Party to the Nuclear Power Plant Emergency Response Assistance Agreement and its attachments.

Date January 3, 2014 Company Institute of Nuclear Power Operations

By William E. Webster (Corporate Officer Signature)

Printed Name: William E. Webster, Executive Vice President

## Appendix B



BRUCE D. CUMMINGS  
President & Chief Executive Officer

email: bcummings@lmhosp.org  
365 Montauk Avenue | New London, CT 06320  
860.442.0711, Ext. 4645. | FAX 860.271.4474

November 23, 2015

John Daugherty, Station Vice President  
Dominion Nuclear Connecticut Inc.  
PO Box 128  
Waterford, CT 06385

Dear Mr. Daugherty,

This letter is to confirm that Lawrence + Memorial Hospital will respond in the event of a radiological emergency at Millstone Power Station.

### Implementation Criteria / Authorities, Responsibilities

It is our understanding that in the event of an emergency, the nuclear facility may request medical assistance. The Hospital Emergency Department is to be contacted at calling (860)442-0711 ext. 2261 and requesting to speak to Emergency Department Charge Nurse to activate our Radiation Accident Plan.

### Measures to be Provided / Limits of Action

Our commitment for medical assistance includes patients who might be injured as a result of an industrial or radiation accident and who are in need of medical treatment at Lawrence + Memorial Hospital.

This letter of agreement shall remain in effect until cancelation by either party, provided on ninety (90) days prior written notice, shall be reviewed and certified as needed.

Sincerely,

A handwritten signature in black ink, appearing to read 'Bruce D. Cummings'.

Bruce D. Cummings, FACHE  
President and CEO

cc:

- Oliver Mayorga, MD, Chair, Emergency Department ~ Lawrence + Memorial
- Ron Kersey, Emergency Medical Services Coordinator ~ Lawrence + Memorial
- Karen Ramus-Stone RNC, MSN, Director of Parent/Child, Critical Care, Paramedics and Emergency Services ~ Lawrence + Memorial.
- Gregory M. Olexy, Emergency Preparedness Specialist ~ Dominion Nuclear Connecticut, Inc.
- D. Smith, Emergency Planning Service ~ Dominion Nuclear Connecticut, Inc.

Appendix B



ADMINISTRATION

November 19, 2015

Mr. John Daugherty  
Vice President & Senior Nuclear Executive  
Dominion Nuclear Connecticut, Inc.  
Millstone Power Station  
Rope Ferry Road  
Waterford, CT 06385

Dear Mr. Daugherty:

This letter represents a continuance of the Letter of Agreement between Millstone Power Station and Middlesex Hospital.

Middlesex is ready to receive and administer treatment to accident victims sent to us by Millstone Power Station. We will provide backup and support for Lawrence and Memorial Hospital, acting as the secondary medical treatment facility for the Millstone Station. Any expenses incurred as a result of providing these services will be the responsibility of Millstone Power Station.

In case of an emergency situation, we would follow the plan for "Decontamination and Treatment of the Radioactively Contaminated Patient at Middlesex Hospital," currently in effect between our institution and the facility mentioned above.

If you have any questions concerning our arrangements for contaminated patients, please contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Gary Havican'.

Gary Havican  
Vice President  
Strategic Planning & Ambulatory Operations

GH:aac

c: David A. Smith, Manager, Emergency Preparedness, Millstone

28 Crescent Street  
Middletown, Connecticut 06457-3650

tel 860 344-6000  
fax 860 346-5485

A member of the Middlesex Health System



Appendix B



SHIPMAN'S FIRE EQUIPMENT CO., INC.  
172 CROSS ROAD  
WATERFORD, CONNECTICUT 06385-0257  
(860) 442-0678



October 12, 2017

Mr. John Daugherty  
Site Vice President  
Dominion Nuclear Connecticut  
Millstone Station  
Rope Ferry Road  
Waterford, CT 06385

Dear Mr. Daugherty:

This letter is to confirm that Shipman's Fire Equipment Co., will, when requested, respond in the event of an emergency at the Millstone Power Station, in the following areas:

Implementation Criteria/Authorities, Responsibilities

It is our understanding that, in the event of an emergency, the nuclear facility Director of Site Emergency Operations may request services to assist in the emergency effort. Assistance should be requested by calling 860-442-0678-611.

Measures to be Provided/Limits of Actions

Our commitment for assistance is supplying breathing air in the event of an emergency at Millstone Power Station.

Information Exchange/Point of Contact at Site

Verification communications to the nuclear facility will be by telephone to the Director of Site Emergency Operations. The telephone number is unlisted. Information exchange can be provided by using the same telephone number.

Training and Drills

Since our assistance is limited to providing equipment and service, we feel that we do not need to participate in your training drills. However, we would appreciate being invited to your plant drills to observe your emergency response actions, and to meet your emergency personnel.

This letter of agreement shall remain in effect until cancellation by either party, provided on ninety (90) days prior written notice, and shall be reviewed and certified as needed.

Sincerely,

Michael Kirchhoff  
President

cc: David A. Smith, Emergency Preparedness Planning Services Department, Millstone

FAX (860) 444-7395

FIRE & SAFETY EQUIPMENT  
www.shipmans.com

Email: info@shipmans.com

Appendix B



STATE OF CONNECTICUT  
DEPARTMENT OF EMERGENCY SERVICES & PUBLIC PROTECTION  
OFFICE OF THE COMMISSIONER

November 14, 2014

Stephen E. Scace, Site Vice President  
Dominion Nuclear Connecticut  
Millstone Station  
Rope Ferry Road, RT 156  
Waterford, CT 06385

Dear Mr. Scace:

This letter is to confirm that personnel and equipment from the Department of Emergency Services and Public Protection will, when requested, respond in the event of an emergency at the Millstone Power Station.

This response is submitted in accordance with the State of Connecticut Radiological Emergency Response Plan.

Sincerely,

A handwritten signature in cursive script, appearing to read "Dora B. Schiro".

Dora B. Schiro  
COMMISSIONER

cc: William P. Shea, Deputy Commissioner  
Col. Brian Meraviglia, Deputy Commissioner

1111 Country Club Road  
Middletown, CT 06457  
Phone: (860) 685-8000 / Fax: (860) 685-8354  
*An Affirmative Action/Equal Opportunity Employer*

Appendix B

November 13, 2017



Mr. John Daugherty  
Site Vice President  
Dominion Energy Nuclear Connecticut  
Rope Ferry Road  
Waterford, CT 06385.

Reference: Emergency Services Letter of Agreement

Dear Mr. Daugherty,

This letter serves as our "Letter of Agreement" to provide assistance in the event of an emergency.

We have 16 gamma detectors and 40 gross alpha/beta proportional counters which are used for gross alpha and beta, I-131, and Sr-89 and Sr-90 counting. During an emergency we could dedicate a large portion of these detectors to provide fast turn-around analysis. Table 1 lists the types of analyses and the number of analyses that can be performed on a one-day, two-day, or three-day basis. Also listed are the types of sample media and detection sensitivities. Table 2 lists typical sample volumes required for analysis.

The following is a list of phone numbers for contacting us in case of an emergency. The numbers should be called in the order listed:

|                            |                |                       |
|----------------------------|----------------|-----------------------|
| Teledyne Brown Engineering | (865) 690-6819 |                       |
| Keith Jeter                | (865) 934-0373 | (865) 621-9118 (cell) |
| Marty Webb                 | (865) 934-0375 | (865) 776-0573 (cell) |
| Rebecca Charles            | (865) 934-0379 | (865) 924-6041 (cell) |

The agreement letter shall remain in effect until cancellation by either party, provided by a ninety (90) day prior written notice, and shall be reviewed and certified as needed.

If you need additional information, you may contact me at the above number.

Sincerely,

A handwritten signature in black ink that reads "Keith Jeter".

Keith Jeter  
Laboratory Manager

Enclosure

**Appendix B**



**Emergency Analytical Services  
Table 1**

| Analysis        | Matrix                                   | Days for Analysis | Detection Level                                       | Quantity |
|-----------------|--|-------------------|---|----------|
| Gamma Scan      | I-131 charcoal,<br>Milk, Water,<br>Other | 1                 | .04 pCi/CmM<br>5 pCi/L (Cs-137)<br>.05 pCi/g (Cs-137) | 20       |
| Tritium         | Water                                    | 1                 | 200 pCi/L   | 30       |
| I-131           | Water, Milk                              | 3                 | 1.0 pCi/L   | 20       |
|                 | Vegetation                               | 3                 | .05 pCi/L   |          |
| Gross Beta      | Air Particulates                         | 1                 | .01 pCi/Cu.M  | 80       |
| Total Strontium | Milk, Water                              | 2                 | 1.0 pCi/L   | 20       |

\*Based on volume of 200 Cubic Meters

**Table 2**

| Analysis        | Medium          | Volume     |
|-----------------|-----------------|------------|
| Gamma           | Water or Milk   | 4 Liters   |
|                 | Soil            | 500 grams  |
|                 | Vegetation      | 500 grams  |
| Tritium         | Water           | 100 ml     |
| I-131           | Milk            | 4 Liters   |
|                 | Vegetation      | 500 grams  |
| Gross beta      | Air particulate | As sampled |
|                 | Water           | 1 Liter    |
|                 | Soil            | 50 grams   |
| Total Strontium | Water or Milk   | 1 liter    |

## Appendix B



### Waterford Ambulance Service, Incorporated

---

August 5, 2015

Mr. John Dougherty  
Millstone Power Station  
Dominion Nuclear Connecticut  
Rope Ferry Road  
Waterford CT 06385

Dear Mr. Daugherty

This letter of agreement is to confirm that the Waterford Ambulance Service will, when called upon, respond in the event of emergencies at the Millstone Power Station complex in the following areas.

Implementation Criteria/Authorities, Responsibilities

It is our understanding that, in the event of an emergency, the Millstone Shift Manager/Director of Station Emergency Operations or designee will request ambulance services to assist in the emergency operations. Assistance should be requested by calling the Waterford Emergency Communications Center (911), or by other means provided.

Measures to be Provided/Limit of Action, Responsibilities

Our commitment is to provide emergency medical services to personnel who might be injured or become ill at the Millstone Power Station Complex. In the event of a large scale incident or hostile action based event, we will coordinate with Waterford Fire Service and with the Waterford Police Department in accordance with standard operating guidelines and within the Incident Command System.

Information Exchange/Points of Contact

Verification of communication to the site may be by telephone to the Control Room or emergency operations facility.

Training and Drills

We would appreciate and welcome notification of the plant drills or additional training which you feel would be advantageous to us.

Please do not hesitate to contact me should you have any question or concerns

Sincerely,

*Steven D. Garvin*

President, Waterford Ambulance Service

Copies distributed  
David Smith, Manager, Millstone Emergency Preparedness Department  
Daniel Steward, First Selectman, Town of Waterford  
Lt. Stephan Bellos, Waterford Police Department/ Emergency Management Director

204 Boston Post Road, P.O. Box 137, Waterford Connecticut 06385

## Appendix B

FIFTEEN ROPE FERRY ROAD



WATERFORD, CT 06385-2886

August 6, 2015

Mr. John Dougherty  
Millstone Power Station - Dominion Nuclear Connecticut  
Rope Ferry Road  
Waterford CT 06385

Dear Mr. Daugherty

This letter is to confirm that personnel and equipment for the Waterford Fire Service will, when requested, respond in the event of an emergency at Millstone Power Station.

#### Implementation Criteria/Authorities, Responsibilities

It is our understanding that, in the event of an emergency, the Millstone Shift Manager/Director of Station Emergency Operations / designee may request personnel and equipment to handle the emergency. Assistance should be requested by calling the Waterford Emergency Communications Center (911), or by other means that may be provided.

#### Measures to be Provided/Limits of Actions

Our commitment for assistance is to respond to the best of our ability with personnel and equipment in the event of a fire emergency or a rescue at Millstone Power Station Complex and attempt to control the situation with the resources that may be available. We will request the assistance of regional and state assets as needed. In the event of a large scale incident or hostile action based event, we will coordinate establishment of Incident Command with the Waterford Police Department, regional, state and federal assets.

#### Information Exchange/Points of Contact

Verification of communication to the nuclear facility will be by telephone to the Control Room or Director of Station Emergency Operations/Designee.

#### Training and Drills

We would appreciate advanced notification of the plant drills or additional training which you feel would be advantageous to us. This notification should also include any additional security requirements that are being implemented at the Millstone nuclear facility.

This letter of agreement shall remain in effect until cancellation by either party, provided on 90 days prior to written notice, and shall be reviewed and certified as needed.

Sincerely,

Bruce A. Miller  
Director of Fire Services

cc: David Smith, Manager, Millstone Emergency Preparedness Department  
Daniel Steward, First Selectman, Town of Waterford  
Lt. Stephan Bellos, Waterford Police Department/ Emergency Management Director  
President Steven Garvin, Waterford Ambulance Service

Appendix B



**WATERFORD POLICE DEPARTMENT  
41 AVERY LANE  
WATERFORD, CT 06385-2819**



**Brett Mahoney  
Chief of Police**

(860) 442-9451 TEL  
bmahoney@waterfordct.org

September 14, 2015

Mr. John Dougherty  
Dominion Nuclear CT, Millstone Power Station  
P. O. Box 128  
Waterford, CT 06385

Dear Mr. Dougherty:

This letter is to confirm that personnel from the Waterford Police Department shall serve as the primary law enforcement agency which, when requested, will respond to the Millstone Power Station.

In the event of an emergency, the Millstone Shift Manager/Director of Station Emergency Operations / designee may request personnel and equipment from the Waterford Police Department by utilizing the established hot lines within the Waterford Emergency Communication Center, calling the Waterford Emergency Communications Center (911), or by other means that may be provided.

The Waterford Police Department's commitment for assistance to provide personnel and equipment may include, but not be limited to, traffic control, security and/or tactical assistance. When assistance is requested, information will be verified by the Waterford Police Department utilizing a call back verification method, which shall be conducted by the ranking Executive Officer on duty. In addition, for an event such as a hostile action based event the Waterford Police Department may establish incident command, request regional, state and federal assistance and be the initial staging area for incidents involving outside law enforcement agencies.

The Waterford Police Department shall be notified of all noteworthy plant drills or additional training that would be advantageous to law enforcement.

This response is in accordance with criteria as set forth in the Federal Regulations, 10 CFR, Part 73.55, "Requirements for Physical Protection of Licensee Activities in Nuclear Power Reactors Against Radiological Sabotage" and 10 CFR, Part 37, "Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material."

Sincerely,

Brett Mahoney  
Chief of Police

cc: David Smith, Manager, Millstone Emergency Preparedness Department  
Daniel Steward, First Selectman, Town of Waterford  
Lt. Stephen Bellos, Waterford Police Department/ Emergency Management Director

[www.waterfordpolice.org](http://www.waterfordpolice.org)

Appendix B



Mr. John Daugherty  
Site Vice president  
Millstone Power Station

11/27/17

Mr. Daugherty,  
Per our ongoing discussion and your notification, AccuWeather will be available for telephone consultation 24 hours a day 7 days per week.  
AccuWeather Meteorologists will be made available during, Incidents, Drills and Alerts to discuss the weathers potential impact to the Millstone Power Station.  
This service will include the impact potential from all-weather events potentially affecting the physical location.

Additionally AccuWeather will participate in the periodic weather forecast simulations with the Millstone Power Staff.

The fee per consultation request is \$495.00 per 24-hour period. We look forward to continuing to support the Millstone Power Station.

Regards,

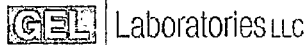
Lou

Louis S Seidel  
Director Business Development  
AccuWeather Enterprise Solutions  
814 235 8608  
[Lou.Seidel@AccuWeather.com](mailto:Lou.Seidel@AccuWeather.com)

385 Science Park Road, State College, PA 16803-2215 P 814.237.0309 F 814.238.1339  
E [sales@accuweather.com](mailto:sales@accuweather.com) [AccuWeather.com/EnterpriseSolutions](http://AccuWeather.com/EnterpriseSolutions)



Appendix B



a member of The GEL Group INC



PO Box 30712 Charleston, SC 29417  
2040 Savage Road Charleston, SC 29407  
P 843.556.8171  
F 843.766.1178

gel.com

November 16, 2015

Mr. John Daugherty  
Vice President  
Millstone Power Station  
Dominion Nuclear Connecticut  
PO Box 128  
Waterford, CT 06385

Re: Emergency Plan

Dear Mr. Daugherty:

GEL Laboratories, LLC (GEL) is providing this letter to Dominion as a commitment to provide emergency response radiochemical analysis of environmental samples to assist your organization in the event of an emergency situation or emergency drill.

Please note that in the event of an emergency, Dominion will be responsible for the sample analysis costs as well as the sample disposal costs. Prices for requested analysis will be established at the time services are requested, and analysis will be based on GEL's Standard Operating Procedures. GEL's standard terms and conditions, which are enclosed, will apply to the analysis as well.

Should you have any questions or need additional information, please call me at 843-556-8171.

Yours very truly,

Anna K. White  
Contract Manager

problem solved

Appendix B

City of Norwich Fire Dept.

10 North Thames Street  
Norwich, Connecticut 06360



Kenneth J. Scandariato

Fire Chief  
(860) 892-6080  
Fax (860) 886-2555

October 11, 2017

John Daugherty  
Site Vice President  
Millstone Power Station  
Dominion Nuclear CT  
Rope Ferry Rd.  
Waterford, CT 06385

Dear Mr. Daugherty:

This letter is to confirm that the Norwich Fire Department will, to the best of its ability during a station emergency, fill breathing bottles brought to the Norwich Fire Department by Dominion Nuclear Connecticut upon telephone request by its Emergency Response Operations.

The Emergency Planning Services Department at Millstone Station is responsible for any questions pertaining to this agreement. (Contact: Tom Dembek at 860-440-4223)

This agreement shall remain in effect until revised, as agreed upon by both parties, or cancelled by either party with 90 days written notice.

Sincerely,

A handwritten signature in black ink that reads "Kenneth J. Scandariato".

Kenneth J. Scandariato, EFO CFEI  
Fire Chief

KJS/js

cc: David A. Smith, Manager  
Emergency Preparedness Dept., Millstone

Appendix B

SALEM VOLUNTEER  
FIRE COMPANY, INC.  
424 Hartford Road  
Salem, Connecticut 06420

(860) 859-0942  
fax (860)859-2961  
www.salemfireco.com

---

October 9, 2017

Mr. John Daugherty  
Vice President & Sr. Nuclear Executive  
Dominion Energy Nuclear Connecticut, Inc.  
P.O. Box 128  
Waterford, CT 06385

Dear Mr. Daugherty :

This letter is to confirm that the Town of Salem and the Salem Volunteer Fire Department will, to the best of its ability, during a station emergency, fill breathing bottles brought to the Salem Volunteer Fire Station by Dominion Energy Nuclear Connecticut, Inc. upon telephone request by its Emergency Response Operations.

The Emergency Preparedness Department at Millstone Station is responsible for any questions pertaining to this agreement.

This agreement shall remain in effect until revised, as agreed upon by both parties, or cancelled by either party with 90 days written notice. Sincerely,

Eugene R. Maiorano  
Fire Chief  
Salem Volunteer Fire Department

cc: David Smith, Emergency Preparedness Department, Millstone

Appendix C

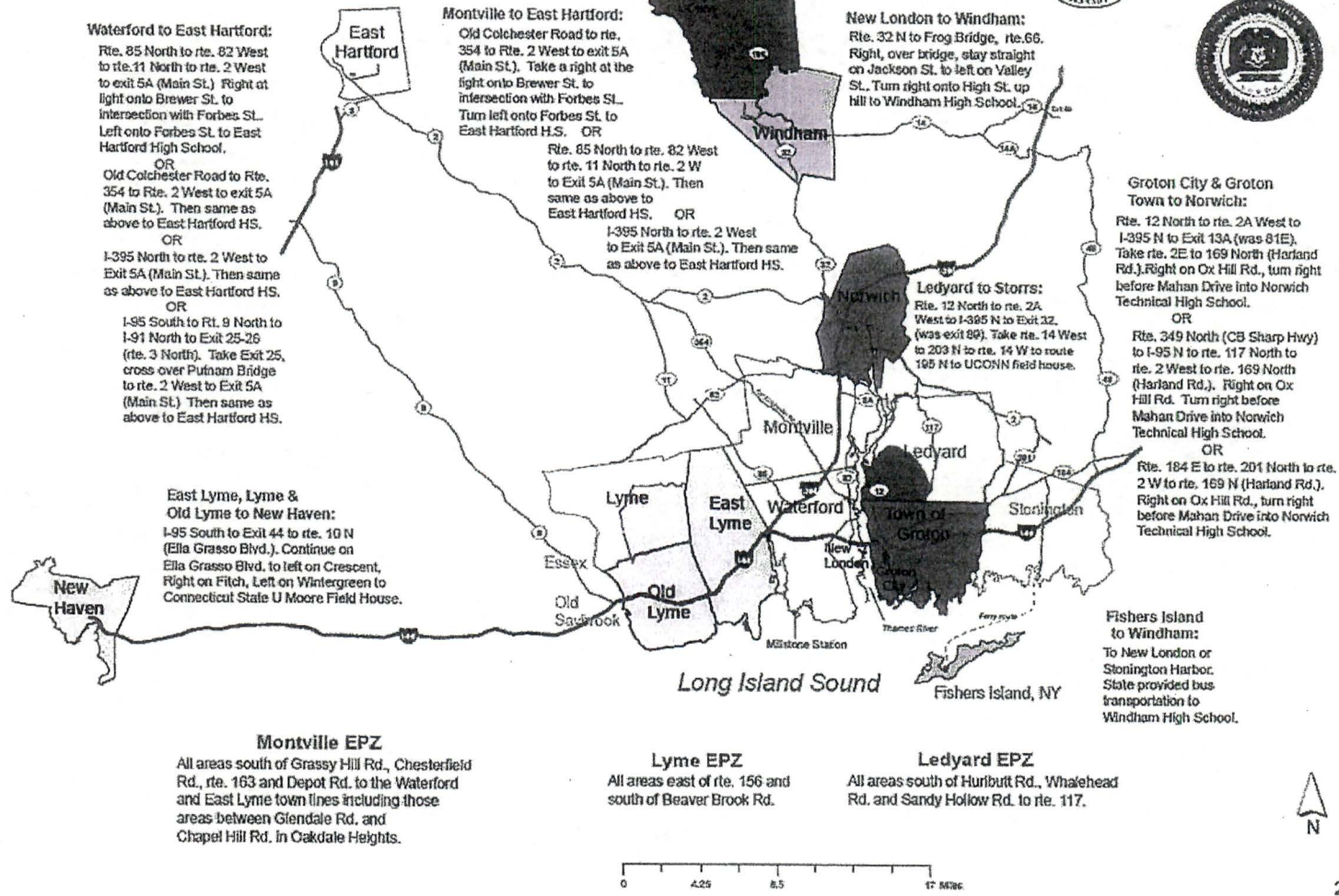
APPENDIX C

**MAPS OF PLUME EXPOSURE AND INGESTION EXPOSURE EPZ, LOCATIONS OF  
ON-SITE AND OFF-SITE RADIOLOGICAL MONITORING STATIONS, STATION  
EVACUATION ROUTES**

# EMERGENCY PLANNING ZONE EVACUATION ROUTES



The Connecticut Department of  
Emergency Services and  
Public Protection  
Division of Emergency Management  
and Homeland Security



Date: 3/2/2016

Path: NADEMHS map docs\REP maps\Evacuation Route maps\evacroutes for 2016 fir new exits.mxd

Map of Millstone Emergency Planning Zone, Host Communities and Evacuation Routes

Figure C-1

**Figure C-2**

**Locations of On-Site and Off-Site Radiological Monitoring Stations**

(As specified by the Radiological Effluent Monitoring and Off-Site Dose Calculation Manual)

**Figure C-3**

**Map of Millstone 10 Mile Emergency Planning Zone**



| Distance  | Zone       | Community  |
|-----------|------------|--|
| (0-2 mi)  | <b>A</b>   | Waterford (A-1)<br>East Lyme (A-2)                     |
| (2-5 mi)  | <b>B</b>   | East Lyme (B-1)<br>Waterford (B-2)<br>New London (B-3) |
| (5-10 mi) | <b>C</b>   | East Lyme (C-1)<br>Montville (C-2)<br>Waterford (C-3)  |
|           | <b>D</b>   | Old Lyme (D-1)<br>Lyme (D-2)                           |
|           | <b>E</b>   | Ledyard (E-1)<br>Groton City & Town (E-2)              |
|           | <b>F</b>   | Fishers Island   |
|           | <b>N/A</b> | Plum Island  |

**Figure C-4**

**Map Of Millstone 50-Mile Emergency Planning Zones**

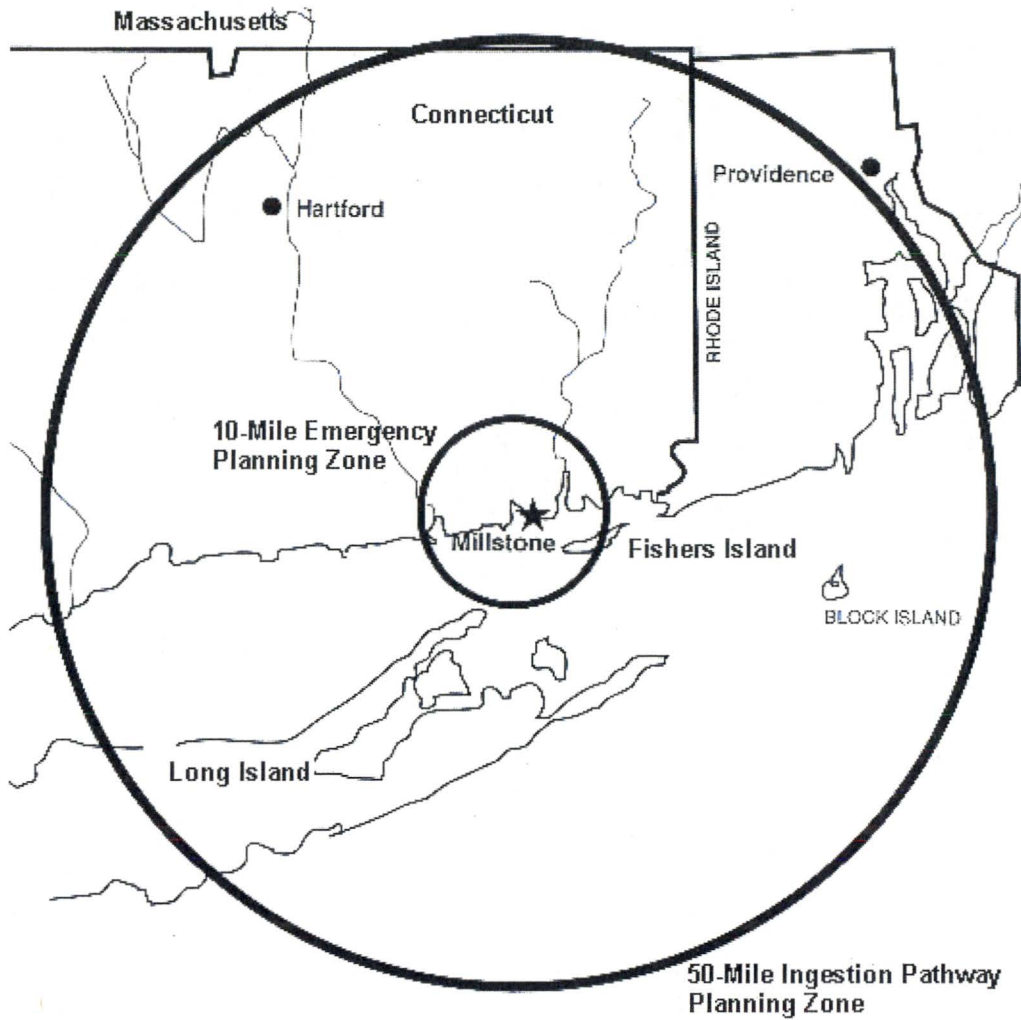
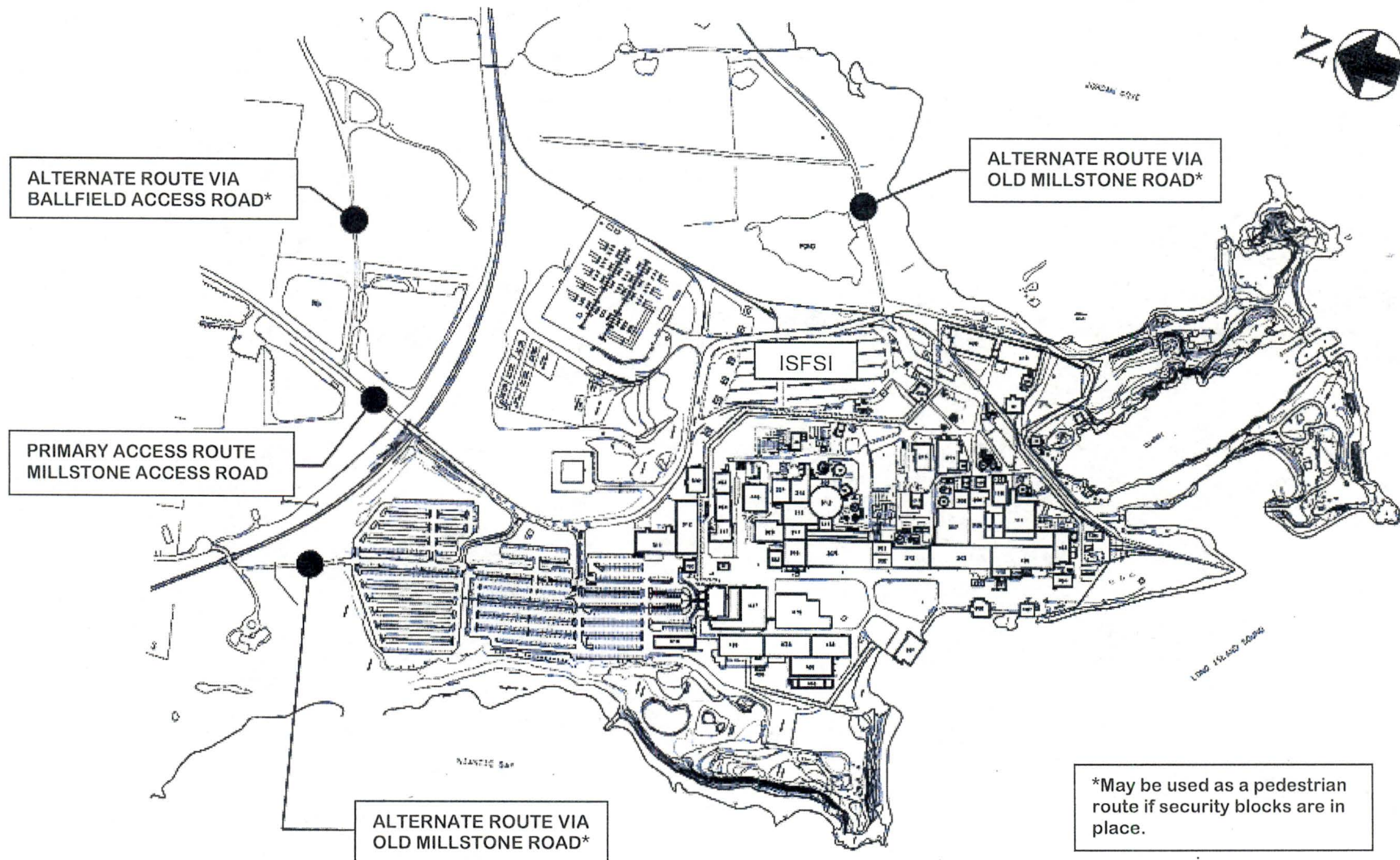




Figure C-5

Map of Millstone Station Evacuation Routes



Appendix D

APPENDIX D

**SUPPORTING PROCEDURES LIST**

## Appendix D

| <u>Procedure Number</u>                              | <u>Title</u>  | <u>Emergency Plan Section(s)</u> |
|--|---|----------------------------------|
| <b>Emergency Plan Implementing Procedures (EPIs)</b> |   |                                  |
| MP-26-EPI-FAP01                                      | CR Emergency Operations   | 5.1                              |
| MP-26-EPI-FAP02                                      | TSC Activation and Operation  | 5.2, 5.3, 7.3                    |
| MP-26-EPI-FAP03                                      | OSC Activation and Operation  | 5.2, 5.3, 7.4                    |
| MP-26-EPI-FAP04                                      | EOF Activation and Operation  | 5.2, 5.2.14,<br>5.2.16, 5.3, 7.2 |
| MP-26-EPI-FAP05                                      | State Emergency Operation Center (EOC) Activation and Operation       | 5.2, 5.2.1.4,<br>5.2.1.6, 5.3    |
| MP-26-EPI-FAP06                                      | Classification and PARs   | 4, 5.2.1, 6.2,<br>5.2.5          |
| MP-26-EPI-FAP07                                      | Notification and Communications                                       | 5.1, 6.1                         |
| MP-26-EPI-FAP08                                      | Evacuation and Assembly   | 6.4.1                            |
| MP-26-EPI-FAP09                                      | Radiation Exposure Control  | 6.4, 6.5                         |
| MP-26-EPI-FAP10                                      | Dose Assessment   | 6.2.1, 6.2.3                     |
| MP-26-EPI-FAP11                                      | Core Damage Assessment  | 6.2.4                            |
| MP-26-EPI-FAP12                                      | Thermal Hydraulic Evaluation  | 5.2.18, 5.3.13                   |
| MP-26-EPI-FAP14                                      | Recovery  | 9.0                              |
| MP-26-EPI-FAP15                                      | Common Forms  | N/A                              |
| MP-26-EPI-FAP16                                      | Innsbrook Corporate Support Center                                    | 5.4                              |
| MP-26-EPI-FAP18                                      | Offsite Incident Command Post (ICP) Activation and Operation          | N/A                              |
| <b>Emergency Plan Administrative Procedures</b>      |   |                                  |
| MP-26-EPA-FAP01                                      | Management Program for Maintaining Emergency Preparedness             | 7.0, 8.0                         |
| MP-26-EPA-FAP05                                      | Emergency Planning Facility Maintenance                               | 7.0, 7.5                         |
| MP-26-EPA-FAP08                                      | Public Alerting System Administration                                 | 8.2                              |
| MP-26-EPA-FAP09                                      | Public Alerting System Test and Maintenance                           | 8.2                              |
| MP-26-EPA-GDL05                                      | Emergency Response Data System (ERDS) Change Process                  | N/A                              |
| MP-26-EPA-GDL06                                      | OFIS  | 7.1, 7.2, 7.3                    |
| MP-26-EPA-REF01                                      | Millstone Unit 1 Defueled Emergency Action Level (EAL) Basis Document | N/A                              |
| MP-26-EPA-REF02                                      | Millstone Unit 2 Emergency Action Level (EAL) Basis Document          | N/A                              |
| MP-26-EPA-REF03                                      | Millstone Unit 3 Emergency Action Level (EAL) Basis Document          | N/A                              |
| MP-26-EPA-REF04                                      | Off-Site Programs   | 8.0                              |
| MP-26-EPA-REF08B                                     | Millstone Emergency Planning Resource Book                            | 8.2.1                            |

## Appendix D

| <u>Procedure Number</u>                          | <u>Title</u>   | <u>Emergency Plan Section(s)</u> |
|--|--|----------------------------------|
| <b>Fleet Procedures</b>                          |  |                                  |
| EP-AA-101  | 10 CFR 50.54(q) Change Evaluation  | N/A                              |
| EP-AA-102  | Revision and Control of Emergency Plan, Emergency Action Levels (Technical Basis and Matrix), and Reference Manual | N/A                              |
| EP-AA-103  | Emergency Preparedness Performance Indicators  | N/A                              |
| EP-AA-104  | Emergency Preparedness Steering Committee  | N/A                              |
| EP-AA-105  | Emergency Preparedness Department Staff Training   | N/A                              |
| EP-AA-303  | Equipment Important to Emergency Response  | Various                          |
| EP-AA-400  | Drill and Exercise Program   | 8.2                              |
| EP-AA-505  | B.5.b Program  | N/A                              |
| EP-AA-600  | Emergency Plan Offsite Interfaces  | N/A                              |
| EP-AA-601  | Emergency Press Releases   | N/A                              |
| EP-AA-3001                                       | Cyclic and Prompted Emergency Preparedness Tasks   | 8.0                              |
| <b>Nuclear Training Procedures</b>               |  |                                  |
| TR-AA-TPG-2300                                   | Millstone Fire Protection Program, Training Program Guide  | 8.1.3.b.                         |
| TR-AA-TPG-2400                                   | Emergency Plan Training Program Guide  | 8.1.1                            |
| <b>Radiation Protection/Radiation Monitoring</b> |  |                                  |
| RP-AA-163  | Inspection and Inventory of Respiratory Protection Equipment   | Various                          |
| REMP Section 2.1                                 | Sample Identification and Transmittal to the Contractor Analyses   | 6.2.4                            |
| REMP Section 2.6                                 | Terrestrial Biota Sampling   | 6.2.4                            |
| REMP Section 2.4                                 | Soil Sampling  | 6.2.4                            |
| REMP Section 2.7                                 | Terrestrial Water Sampling   | 6.2.4                            |
| RPM Section 4.8.5                                | Emergency Radiological Equipment Maintenance and Inspection  | Various                          |
| REMDCM   | Radiological Effluent Monitoring and Off-Site Dose Calculation Manual  | Figure C-2, Appendix H Table H-2 |

## Appendix D

| <u>Procedure Number</u>  | <u>Title</u>   | <u>Emergency Plan Section(s)</u> |
|--|--|----------------------------------|
| <b>Millstone Unit-2 Severe Accident Management Guidelines (SAMG)</b> |  |                                  |
| SAMG 4211  | Phase 1 Initial Diagnosis  | 5.2.2, 5.1.3, 5.3.12             |
| SAMG 4212  | Phase 2 Verification of Diagnosis                                  | 5.2.2, 5.1.3, 5.3.12             |
| SAMG 4213  | Phase 3 CHLA Implementation  | 5.2.2, 5.1.3, 5.3.12             |
| SAMG 4214  | Phase 4 Restorative Actions  | 5.2.2, 5.1.3, 5.3.12             |
| SAMG 4215  | Calculational Aids   | 5.2.2, 5.1.3, 5.3.12             |
| EDMG 2.01  | MP2 B.5.b Event Initial Response                                   | 5.2.2, 5.1.3, 5.3.12             |
| EDMG 2.02  | MP2 B.5.b Event TSC Response                                       | 5.2.2, 5.1.3, 5.3.12             |
| <b>Millstone Unit-3 Severe Accident Management Guidelines (SAMG)</b> |  |                                  |
| SACRG-1  | Severe Accident CR Guideline Initial Response                      | 5.2.2, 5.1.3, 5.3.12             |
| SACRG-2  | Severe Accident CR Guideline for Transients after TSC is Activated | 5.2.2, 5.1.3, 5.3.12             |
| SACRG-3  | Severe Accident CR Guideline for MP3 B.5.B Initial Event Response  | 5.2.2, 5.1.3, 5.3.12             |
| SAG-1  | Injection into the Steam Generators                                | 5.2.3, 5.3.12                    |
| SAG-2  | Depressurize the RCS   | 5.2.3, 5.3.12                    |
| SAG-3  | Inject into RCS  | 5.2.3, 5.3.12                    |
| SAG-4  | Inject into Containment  | 5.2.3, 5.3.12                    |
| SAG-5  | Reduce Fission Product Releases                                    | 5.2.3, 5.3.12                    |
| SAG-6  | Control Containment Conditions                                     | 5.2.3, 5.3.12                    |
| SAG-7  | Reduce Containment Hydrogen  | 5.2.3, 5.3.12                    |
| SAG-8  | Flood Containment  | 5.2.3, 5.3.12                    |
| SAG-9  | Severe Accident CR Guideline for MP3 B.5.B TSC Event Response      | 5.2.3, 5.3.12                    |
| SCG-1  | Mitigate Fission Product Release                                   | 5.2.3, 5.3.12                    |
| SCG-2  | Depressurize Containment   | 5.2.3, 5.3.12                    |
| SCG-3  | Control Hydrogen Flammability                                      | 5.2.3, 5.3.12                    |
| SCG-4  | Control Containment Vacuum   | 5.2.3, 5.3.12                    |
| SAEG-1   | TSC Long Term Monitoring   | 5.2.3, 5.3.12                    |

## Appendix D

| <u>Procedure Number</u>                | <u>Title</u>  | <u>Emergency Plan Section(s)</u> |
|--|---|----------------------------------|
| SAEG-2                                 | SAMG Termination  | 5.2.3, 5.3.12                    |
| CA-1                                   | RCS Injection to Recover Core   | 5.2.3, 5.3.12                    |
| CA-2                                   | Injection Rate for Long-Term Decay Heat Removal                               | 5.2.3, 5.3.12                    |
| CA-3                                   | Hydrogen Flammability in Containment  | 5.2.3, 5.3.12                    |
| CA-4                                   | Volumetric Release Rate from Vent   | 5.2.3, 5.3.12                    |
| CA-5                                   | Containment Water Level and Volume  | 5.2.3, 5.3.12                    |
| CA-6                                   | RWST Gravity Drain  | 5.2.3, 5.3.12                    |
| CA-7                                   | Hydrogen Impact when Depressurizing Containment                               | 5.2.3, 5.3.12                    |
| DFC                                    | TSC Diagnostic Flow Chart   | 5.2.3, 5.3.12                    |
| SCST                                   | Severe Challenge Status Tree  | 5.2.3, 5.3.12                    |
| <b>Common Operating Procedures</b>     |   |                                  |
| C OP 200.2                             | Response to Security Events   | 6.4.1                            |
| C OP 200.2AIR                          | Airborne Threat   | 6.4.1                            |
| C OP 200.3                             | Response to Medical Emergencies   | 6.5.4, 6.5.5                     |
| C SP 600.1                             | Paging Evacuation Alarm System Operability Test                               | 8.2.1                            |
| C SP 600.2                             | Communications-ENRS/ARCOS and Callback Monthly Operability Test               | 8.2.1                            |
| C SP 600.3                             | State Police and Waterford Police Radio Systems Operability Test              | 8.2.1                            |
| C SP 600.4                             | Communication- Radiopaging and ENRS/ARCOS Practice Test                       | 8.2.1                            |
| C SP 600.20                            | Communications-Emergency Response Data System ERDS Quarterly Operability Test | 8.2.1                            |
| <b>Chemistry Department Procedures</b> |   |                                  |
| CP 3804K                               | PASS RCS/RSS Sample (Unit 3)  | N/A                              |
| CP 3804AC                              | Liquid Waste Sample Sink (Unit 3)   | N/A                              |
| CP 3804L                               | PASS Containment Air Sample (Unit 3)  | N/A                              |
| CP 3804M                               | PASS Ventilation Samples (Unit 3)   | N/A                              |
| CP 2804L                               | Unit 2 Reactor Coolant and Liquid Waste PASS                                  | N/A                              |
| CP 2804M                               | Unit 2 Vent and Containment Air PASS  | N/A                              |

Appendix E

APPENDIX E

**MILLSTONE EMERGENCY EQUIPMENT**

**Appendix E**

**Figure E-1**

**Millstone Emergency Equipment Summary<sup>(6)</sup>**

| Emergency Item  | Control Room | TSC/OSC | NAP/SAP | Ambulance Kit | EOF              | RMT Kit <sup>1</sup> | RMT Kit <sup>2</sup> |
|---|--------------|---------|---------|---------------|------------------|----------------------|----------------------|
| <b>Radiological Monitoring Equipment:</b>             |              |         |         |               |                  |                      |                      |
| RM-14 Frisker (or equivalent)                         | U3           | X       | X       |               | X                |                      |                      |
| RO-2A Survey Meter (or equivalent)                    |              | X       |         |               | X                | X                    | X                    |
| ASP-1 / HP-270 (or equivalent)                        | X            |         |         |               | X                |                      | X                    |
| Teletector (or equivalent)                            | X            | X       |         |               | X                |                      |                      |
| Air Sampler- 110 vac                                  |              |         | X       |               | X                | X <sup>(7)</sup>     |                      |
| Air Sampler- 12 vdc                                   |              |         |         |               | X                | X <sup>(7)</sup>     | X                    |
| Area Radiation Monitor                                |              | X       |         |               | X                |                      |                      |
| L-2241-2/HP-210 (or equivalent)                       | U2           |         |         |               | X                | X                    | X                    |
| Cont. Air Monitor (AMS-3 or equiv.)                   |              |         |         |               | X                |                      |                      |
| Portal Monitor  |              |         | (4)     |               | X                |                      |                      |
| Iodine Sampling Materials                             | (5)          | X       | X       |               | X                | X                    | X                    |
| On-Site RMT Kit (locations)                           | X            | X       | X       |               | X                | (5)                  | (5)                  |
| Off-Site RMT Kit (locations)                          |              |         |         |               | X <sup>(2)</sup> | (5)                  | (5)                  |
| Emergency Dosimetry                                   | X            | X       | (5)     | X             | X                | X                    | X                    |
| <b>Protective Equipment / Materials<sup>3</sup> :</b> |              |         |         |               |                  |                      |                      |
| Respirators   | X            | X       | X       |               | X                | (5)                  | (5)                  |
| SCBA  | X            | X       |         |               | Fire Fac         |                      |                      |
| Protective Clothing                                   | X            | X       | X       | X             | X                |                      |                      |
| Personnel Decontamination Material                    | X            |         |         | X             | X                |                      |                      |
| Facility Rad Control / Decon Material                 |              | X       |         |               | X                |                      |                      |
| Potassium Iodide Tablets                              | U2, U3       | X       | X       |               | X                | X                    | X                    |
| <b>Communications Equipment<sup>3</sup> :</b>         |              |         |         |               |                  |                      |                      |
| Dedicated Telephone Lines                             | U2, U3       | X       |         |               | X                |                      |                      |
| Emergency Radios                                      | X            | X       |         |               | X                |                      |                      |
| Satellite Phones                                      | U2, U3       | X       |         |               | X                |                      |                      |
| <b>Emergency Supplies / Materials<sup>3</sup> :</b>   |              |         |         |               |                  |                      |                      |
| Emergency Preparedness Procedures                     | X            | X       | X       |               | X                | X                    | X                    |
| RMT Vehicles  |              |         |         |               | X <sup>(2)</sup> |                      |                      |
| Tools, Lights, Office Supplies                        | (3)          | X       |         |               | X                |                      |                      |

- (1) On-Site RMT Kit
- (2) Off-Site RMT Kit
- (3) Additional tools and equipment can be obtained from tool cribs located in U2/U3. ERF items maintained in accordance with EP procedures.
- (4) Permanently installed at this location.
- (5) RMT kit resupply equipment is stored at this location.
- (6) HP materials and equipment are maintained and surveilled in accordance with the site Radiation Protection Manual. Detailed inventory of other equipment is provided in MP-26-EPA-FAP05, EP Facility Maintenance.)
- (7) 110v - RMT1 (U2,3 CR) TSC/OSC                      12v - NAP/SAP over water

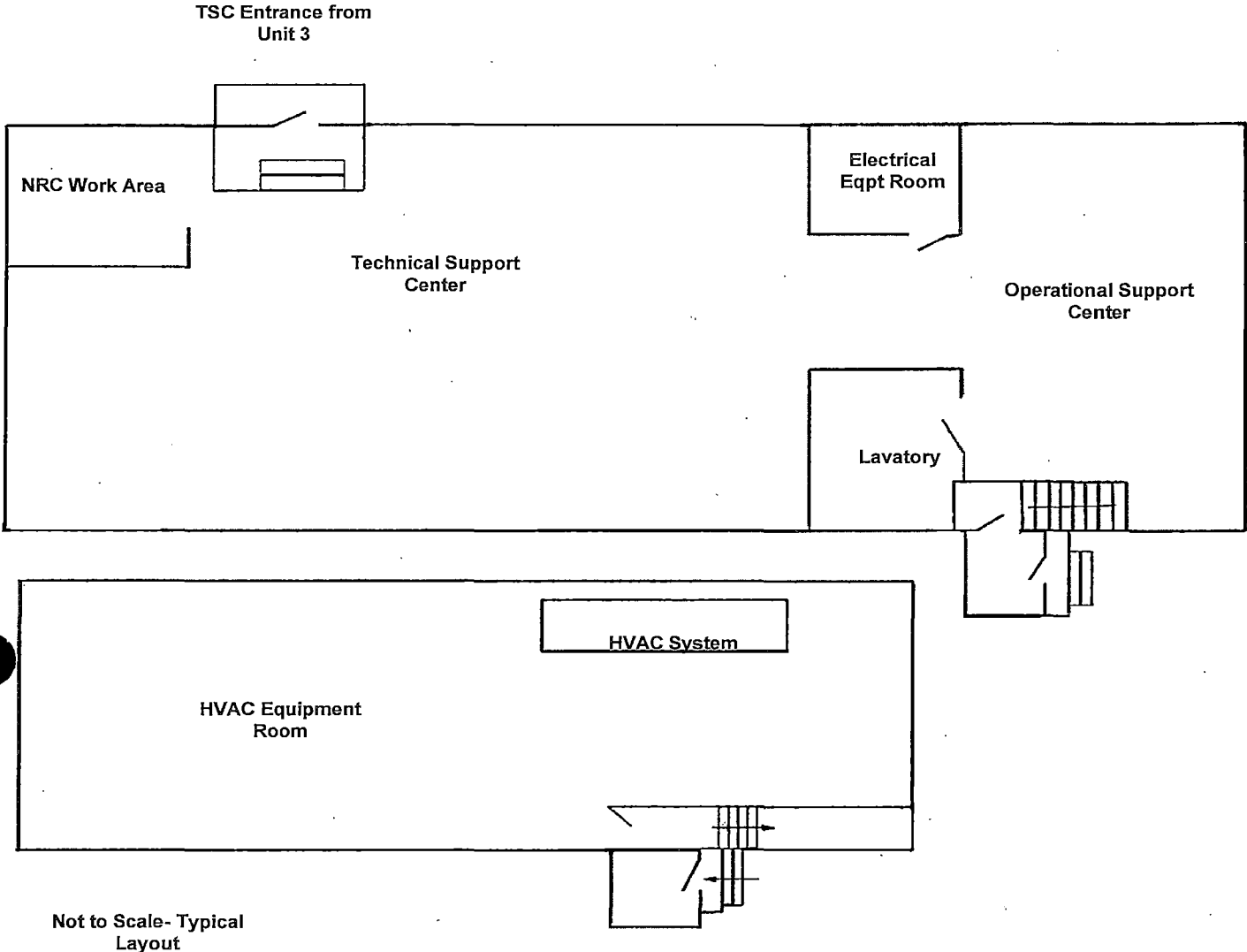


Appendix F

APPENDIX F

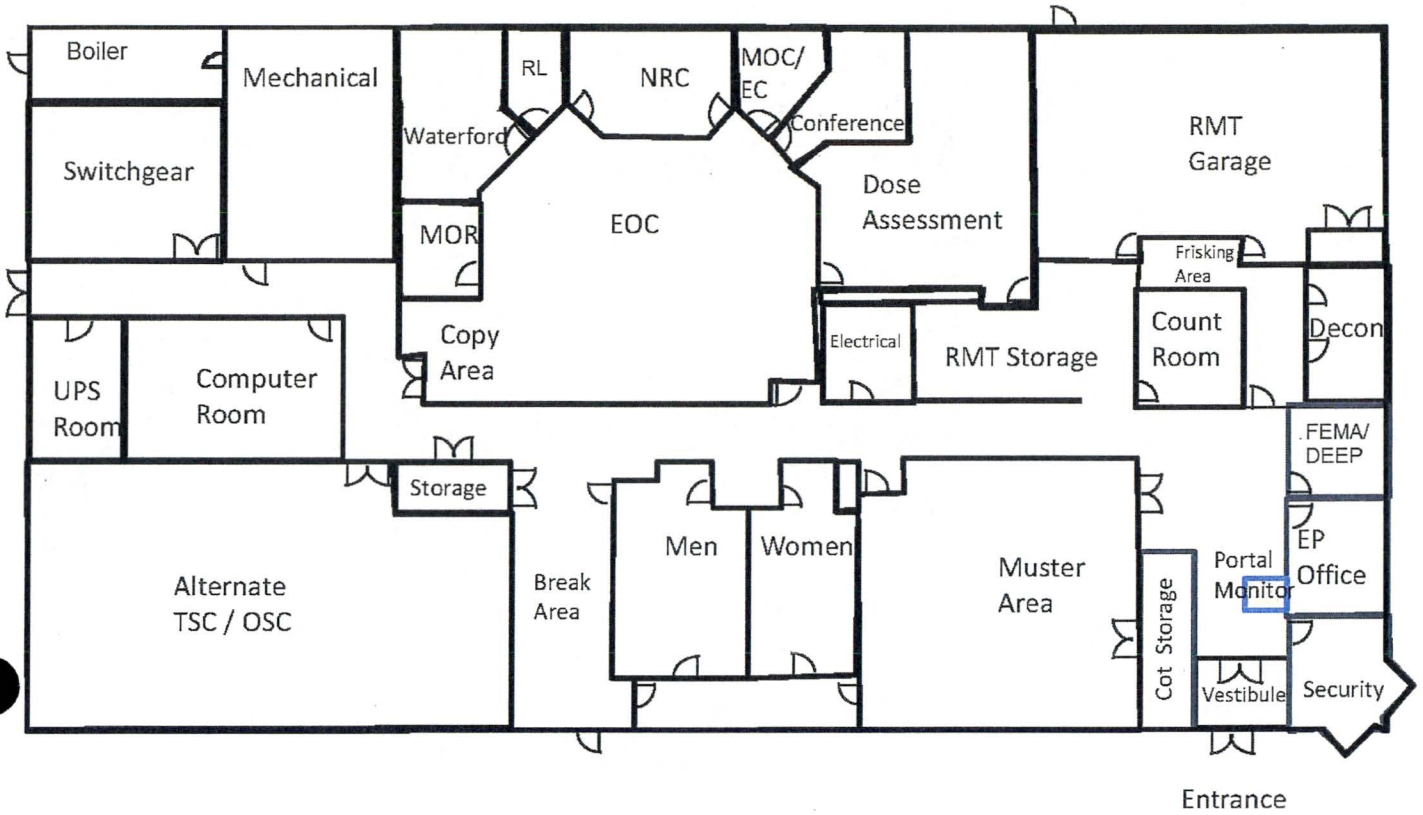
**DIAGRAMS AND ARRANGEMENT OF EMERGENCY FACILITIES**

**Figure F-1**  
**Diagram of TSC / OSC Layout**



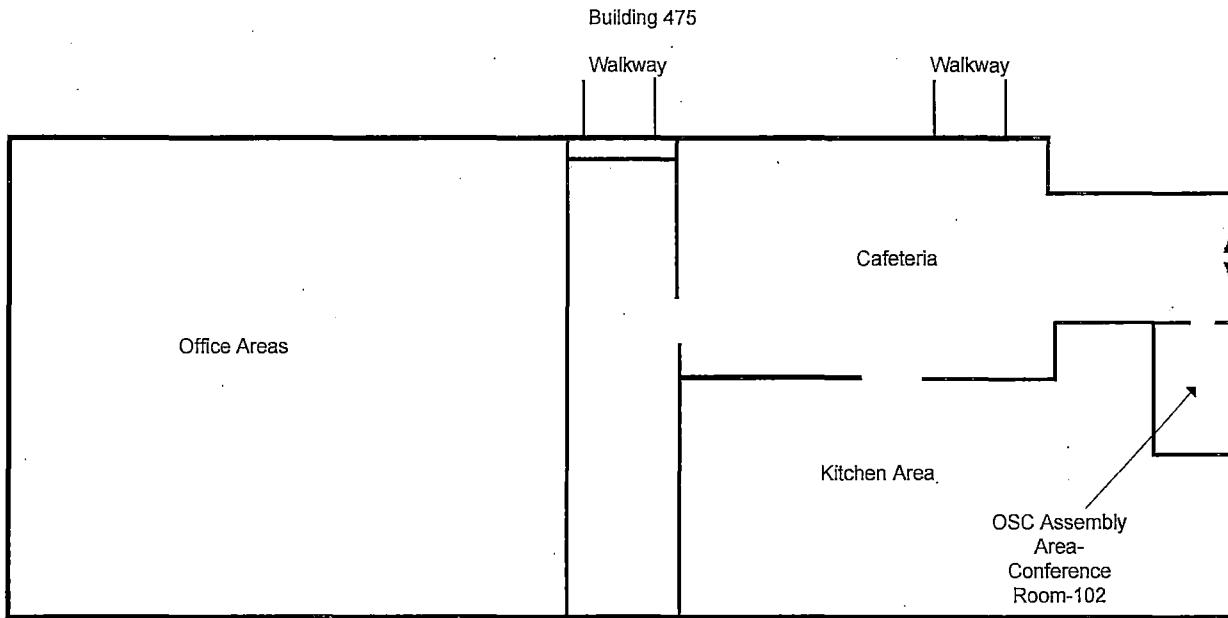
**Figure F-2**

**Diagram of Emergency Operations Facility**



**Figure F-3**

**Diagram of OSC Assembly Area Layout**



Drawing not to scale-

Appendix G

APPENDIX G

**CROSS-REFERENCE TO NUREG-0654 CRITERIA**

## Appendix G

| Planning Standard   | Summary of Planning Standard   | Plan Cross Reference (Section or Item)                 |
|---|--|--|
| <b>A. ASSIGNMENT OF RESPONSIBILITY (ORGANIZATION CONTROL)</b> |  |  |
| A.1.a   | Identify State, Local, Federal and private organizations who are part of emergency plans.  | 1.1, 1.2, Table 1-1, Figure 1-1, Appendix B, Table 2-1 |
| A.1.b   | Each organization shall specify its concept of operations and relationship to total effort.  | Sections 1, 5, 6, 9                                    |
| A.1.c   | Illustrate relationships by block diagram.   | Figures 1-2, 5-1, 7-1a, b, c                           |
| A.1.d   | Title of individual in charge of emergency operations.   | 5.2.1, Figure 5-1                                      |
| A.1.e   | Provide for 24 hr./day emergency response and manning of communications.   | Section 5.0  |
| A.2.a   | Specify functions and responsibilities for major elements and key individuals by title.  | N/A- State and Local requirement only.                 |
| A.2.b   | Each plan shall contain the legal basis for such authorities.  | N/A- State and Local requirement only.                 |
| A.3   | Include written letters of agreement. Include concept of operations, emergency measures to be provided, criteria for implementation and exchange of information.   | 5.4.1, 5.4.2, Appendix B                               |
| A.4   | Title of individual responsible for assuring continuity of resources.  | 5.2.17, 5.4.3  |
| <b>B. ON-SITE EMERGENCY ORGANIZATION</b>                      |  |  |
| B.1   | Relationship between on-site emergency organization and normal staff.  | Table 5-1  |
| B.2   | Specify title of emergency coordinator who is on-site 24-hr./day.  | 5.1.1, Table 5-1                                       |
| B.3   | Line of succession for emergency coordinator. Specify conditions for high level officials assuming this function.  | 5.1.1, 5.2.1, 5.2.5                                    |
| B.4   | Specify functional responsibilities of emergency coordinator. Specify responsibilities which cannot be delegated (e.g., may not delegate the decision to notify and to recommend protective actions to authorities).   | 5.1.1, 5.2.1   |
| B.5   | Specify title and corresponding qualifications of emergency personnel. Include Table B-1, "Minimum Staffing Requirements for Nuclear Power Plant Emergencies." Specify minimum on shift and available within 30 minutes and 60 minutes following declaration of emergency. | Table 5-1  |
| B.6   | Specify interfaces between on-site and off-site organizations. Illustrate in block diagram.  | 1.2, Figures 1-1, 1-2, 1-3, 5-1                        |
| B.7   | Specify corporate organization. Provide a table similar to B-1.  | 5.0, Table 5-1, Figure 5-1                             |
| B.7a  | Logistics support for emergency personnel  | 5.2.17   |
| B.7b  | Technical support for planning, reentry, recovery  | Section 9  |
| B.7c  | Management interface with government authorities   | 6.1, Figures 7-1a, c                                   |
| B.7d  | Release of information to news media   | 5.2.14, 5.2.16   |

## Appendix G

| Planning Standard                                  | Summary of Planning Standard  | Plan Cross Reference (Section or Item)         |
|--|---|--|
| B.8  | Specify private organizations and contractors who would provide assistance.   | 5.4  |
| B.9  | Specify services to be provided by local agencies. Include transportation and treatment of injured personnel who may be contaminated.   | 6.3.1, 6.4.1.b, 6.5.5, 6.5.6                   |
| B.9  | Append letters of agreement with contractor, local, and private agencies which include authorities, responsibilities, and limits of actions.  | 7.10, Appendix B                               |
| <b>C. EMERGENCY RESPONSE SUPPORT AND RESOURCES</b> |   |  |
| C.1  | Make arrangements with DOE for FRMAP/RAP assistance.  | 1.2, 1.4                                       |
| C.1.a  | Specify persons by title authorized to request federal assistance.  | 1.4, 5.4.3                                     |
| C.1.b  | Specify federal resources expected, including expected times of arrival at specific nuclear facility sites.   | 1.4, 5.4.3                                     |
| C.1.c  | Specify resources available to support the federal response.  | 1.4, 5.4.3                                     |
| C.2.b  | Licensee may dispatch a representative to principal off-site governmental EOCs.   | 5.2.15, 5.2.16                                 |
| C.3  | Identify radiological laboratories, capabilities, and expected availability.  | 7.10, Table H-2, Appendix B, Table H-1         |
| C.4  | Identify facilities, organizations, and individuals which can be relied upon in an emergency  | Table H-2, Appendix B                          |
| <b>D. EMERGENCY CLASSIFICATION SYSTEM</b>          |   |  |
| D.1  | Establish EAL scheme per Appendix 1.  | Section 4, Table 4-1, 4-2, 4-3 4-4, Appendix I |
| D.2  | Initiating conditions shall include the example conditions in Appendix 1 and accidents in the FSAR.   | Section 4, Table 4-1, 4-2, 4-3 4-4, Appendix I |
| <b>E. NOTIFICATION METHODS AND PROCEDURES</b>      |   |  |
| E.1  | Establish procedures for notification of response organizations consistent with Appendix 1. Provide verification of messages.   | 1.3, 6.1                                       |
| E.2  | Establish procedures for notifying, alerting, and mobilizing emergency response personnel.  | 6.1  |
| E.3  | Initial emergency message shall include: class of emergency, whether a release is taking place, potentially affected areas, whether protective measures may be necessary.   | 6.1  |
| E.4  | Provide for follow-up messages. Includes the 14 listed items.   | 1.3, 6.1, 6.2.1, 6.2.2                         |
| E.6  | Establish administrative and physical means and the time required to notify public in plume EPZ per Appendix 3. Licensee will ensure means exist. Responsibility of State and Local governments to activate the system. | 1.5, 6.1                                       |
| E.7  | Provide written messages intended for the public, consistent with the operator's classification. Role of the licensee is to provide supporting information for the messages.  | 1.3, 1.5, 6.2.2, 7.7, 8.4                      |

## Appendix G

| Planning Standard                            | Summary of Planning Standard  | Plan Cross Reference (Section or Item)        |
|--|---|---|
| <b>F. EMERGENCY COMMUNICATIONS</b>           |   |   |
| F.1  | Identify organizational titles and alternates for communications links. Establish primary and backup communications.  | 1.3, 6.1, Figures 7-1a, b, c, 7.9, Appendix B |
| F.1.a  | Provide 24-hr./day notification and activation and 24-hr./day manning of communications links.  | 5.1.4, 6.1                                    |
| F.1.b  | Provide communications with contiguous State/Locals within the Emergency Planning Zones.  | 6.1, Figure 7-1a                              |
| F.1.c  | Provide communications with Federal Emergency Response Organizations.   | Figure 7-1b, 7-1c                             |
| F.1.d  | Provide communications between State and Local centers, and field assessment teams.   | 1.3, 6.1, 7.2.5, Figure 7-1a, 7-1c            |
| F.1.e  | Provide for alerting and activating emergency personnel.  | 6.1   |
| F.1.f  | Provide communications to NRC Headquarters, NRC Regional Office EOC, EOF, and RMT assembly area.  | Figure 7-1b, 7-1c                             |
| F.2  | Ensure that coordinated communication links for fixed and mobile medical support facilities exists.   | 7.9   |
| F.3  | Periodic testing of communications systems.   | 8.2.1, 8.2.1.b, 8.2.2                         |
| <b>G. PUBLIC INFORMATION</b>                 |   |   |
| G.1  | Provide periodic information at least annually to public concerning public notification and protective actions in an emergency including the special needs of the handicapped.  | 1.6, 8.4, 8.5                                 |
| G.2  | Information must reach population within plume EPZ and should include written material that would likely be available in an emergency. Updated information should be disseminated annually. Notices to refer the transient populations to the sources of local information. | 1.6, 8.4                                      |
| G.3.a  | Provide point of contact and physical location for use by news media.   | 7.7   |
| G.3.b  | Provide space for a limited number of news media at EOF.  | 7.7   |
| G.4.a  | Designate a spokesperson.   | 5.2.15  |
| G.4.b  | Arrange for timely exchange of information among spokesperson.  | Figure 1-1, 5.2.14, 5.2.15, 5.2.16, 6.1, 6.6  |
| G.4.c  | Coordinate arrangements for dealing with rumors.  | 5.2.14  |
| G.5  | Conduct informational programs for news media at least annually.  | 8.5   |
| <b>H. EMERGENCY FACILITIES AND EQUIPMENT</b> |   |   |
| H.1  | Establish TSC and OSC per NUREG-0696  | 7.3, 7.4, Appendix E, F                       |
| H.2  | Establish EOF per NUREG-0696  | 7.2, Appendix E, F                            |
| H.4  | Provide for activating and staffing facilities in a timely manner.  | Section 5, Table 5-1, 6.1                     |
| H.5  | Provide on-site monitoring systems to be used to initiate emergency measures per Appendix 1, including:   | Table H-1                                     |
| H.5.a  | Geophysical   | Table H-1                                     |



## Appendix G

| Planning Standard             | Summary of Planning Standard  | Plan Cross Reference (Section or Item)              |
|-------------------------------|---|---|
| H.5.b                         | Radiological  | 6.2.3, Table H-1, Figure C-2                        |
| H.5.c                         | Process   | Table H-1   |
| H.5.d                         | Fire  | Table H-1   |
| H.6                           | Provide off-site monitoring equipment including:  |   |
| H.6.a                         | Geophysical   | Table H-2   |
| H.6.b                         | Radiological  | Figures C-2, Table H-2                              |
| H.6.c                         | Laboratory facilities   | 7.10, Table H-1, H-2                                |
| H.7                           | Provide off-site radiological monitoring equipment.   | Appendix E, Table H-2                               |
| H.8                           | Provide meteorological instrumentation and procedures per Appendix 2. Obtain meteorological information from other sources.   | 7.13, Table H-1, H-2                                |
| H.9                           | Provide on-site Operational Support Center (assembly area) with adequate capacity and supplies.   | 7.4, Figures F-2, F-3                               |
| H.10                          | Provide for inspection, inventory and operational checking of equipment at least once each calendar quarter and after each use. Have sufficient reserves of equipment to replace that which was removed from emergency kits for calibration or repair. Calibrate equipment per suppliers recommended intervals. | 7.5, Appendix E, Appendix D                         |
| H.11                          | In appendix, provide inventory of emergency kits.   | Appendix E  |
| H.12                          | Establish central point for receipt and analysis of field monitoring data (preferably associated with EOF) and coordination of sample media.  | 6.2.3, 7.10, Table H-1, H-2                         |
| <b>I. ACCIDENT ASSESSMENT</b> |   |   |
| I.1                           | Provide EALs and corresponding emergency class.   | Section 4, Tables 4-1, 4-2, 4-3, 4-4 and Appendix I |
| I.2                           | On-site capabilities to provide initial values and continuing assessment (per NUREG-0578 and NRC letter of 10/30/79) including:   | N / A   |
| Cont'd                        | Post-accident sampling capability   | Appendix D  |
| Cont'd                        | Radiation and effluent monitors   | Table H-1   |
| Cont'd                        | In-plant iodine instrumentation   | Table H-1   |
| Cont'd                        | Containment radiation monitors  | Table H-1   |
| I.3                           | Establish methods and techniques for determining:   | N / A   |
| I.3.a                         | Source term (e.g., relation of containment radiation monitors and material available for release.)  | 6.2.3, Appendix D                                   |
| I.3.b                         | Magnitude of release based on plant parameters and effluent monitors.   | 6.2.3, Appendix D                                   |
| I.4                           | Establish relationship between effluent monitor readings and exposures and contamination for meteorological conditions.   | 6.2.3, Appendix D, 6.2.4.c                          |

## Appendix G

| Planning Standard             | Summary of Planning Standard   | Plan Cross Reference (Section or Item)                        |
|-------------------------------|--|---|
| I.5                           | Acquire meteorological information per Appendix 2. Provide meteorological data to EOF, TSC, CR, and off-site NRC center. Make available to the State suitable meteorological data processing interconnections. | 6.2.3, 6.2.4.d, 7.13  |
| I.6                           | Determine release rate/projected doses if instruments are off-scale or inoperable.   | 6.2.3, 6.2.4  |
| I.7                           | Field monitoring within plume EPZ.   | 6.2.3, 6.2.4.h  |
| I.8                           | Provide for rapid assessment of radiological hazards. For field teams include: activation, notification, composition, transportation communication, monitoring equipment and deployment times.                 | 6.2.3, 6.2.4.h, Appendix D                                    |
| I.9                           | Have capability to detect radio-iodine in air as low as 10 <sup>-7</sup> µCi/cc.   | 6.2.3, 6.2.4.h.4  |
| I.10                          | Relate measured parameters to dose rates. Estimate integrated dose from dose rates and compare to PAGs.  | 6.2.3, 6.2.4.c, 6.2.4.e                                       |
| <b>J. PROTECTIVE RESPONSE</b> |  |   |
| J.1                           | Establish means and time to warn individuals in owner-controlled areas.  | 6.4.1   |
| J.2                           | Provide evacuation routes and transportation for on-site individuals to off-site locations, including alternatives.  | 6.4.1   |
| J.3                           | Provide radiological monitoring for people evacuated from the site.  | 6.4.1.i   |
| J.4                           | Provide evacuation of on-site non-essential personnel in Site Area or General Emergency. Provide decontamination capability near off-site location.  | 6.4.1.d, 6.4.1.i  |
| J.5                           | Account for all individuals on-site and ascertain names of missing individuals within 30 minutes. Account for all individuals continuously thereafter.   | 6.4.1.d, 6.4.1.h  |
| J.6                           | Provide for individuals remaining or arriving on-site, respiratory protection, protective clothing, radioprotective drugs.   | 6.4.3, 6.4.4, 5.2.2, 5.2.5                                    |
| J.7                           | Establish a mechanism for recommending protective actions to state/local authorities per EALs of Appendix 1 and Tables 2.1 and 2.2 of the EPA PAGs.  | 1.3, 6.2.1, 6.2.2, 6.2.3, Figure 1-1, Table 4-4               |
| Cont'd                        | Provide prompt notification to off-site authorities in plume EPZ as specified in NUREG-0654, Appendix 1.   | Section 4, Tables 4-1, 4-2, 4-3, 4-4, 6.1, Figures 7-1a, b, c |
| J.8                           | Time estimates for evacuation in plume EPZ in accordance with Appendix 4.  | Appendix J  |
| J.10                          | Plans for protective measures to include:  |   |
| J.10.a                        | Maps   | Appendix C  |
| J.10.b                        | Population distribution  | Appendix J  |
| J.10.c                        | Means for notifying population   | 1.5, 6.1  |
| J.10.m                        | Public protective strategies from plume exposure.  | 6.2.1   |

## Appendix G

| Planning Standard                           | Summary of Planning Standard  | Plan Cross Reference (Section or Item)   |
|---|---|--|
| <b>K. RADIOLOGICAL EXPOSURE CONTROL</b>     |   |  |
| K.1   | Establish on-site exposure guidelines for:  |  |
| K.1.a                                       | Removal of injured persons  | 6.5                                      |
| K.1.b                                       | Corrective actions  | 6.5                                      |
| K.1.c                                       | Assessment actions  | 6.5                                      |
| K.1.d                                       | First aid   | 6.5                                      |
| K.1.e                                       | Personnel decontamination   | 6.5                                      |
| K.1.f                                       | Ambulance service   | 6.5                                      |
| K.1.g                                       | Medical treatment   | 6.5                                      |
| K.2   | Provide on-site emergency radiation protection programs. Specify individual (s) who can authorize exposure in excess of 10CFR20 limits.             | 5.1, 5.2.1, 5.2.2, 5.2.5, 6.4, Table 6-1 |
| Cont'd                                      | Provide procedures for volunteers to receive radiation exposures in lifesaving activities.  | 5.1, 5.2.1, 6.4                          |
| K.3.a                                       | Provide 24-hr./day dose determination   | 6.4                                      |
| K.3.b                                       | Maintain dose records and read dosimeters at appropriate frequencies.   | 6.4                                      |
| K.5.a                                       | Levels for decontamination  | 6.4                                      |
| K.5.b                                       | Establish means for radiological decontamination of personnel, supplies, equipment, and waste disposal.   | 6.4.3                                    |
| K.6   | Provide on-site contamination control, including:   |  |
| K.6.a                                       | Area access control   | 5.2.2, 5.2.4, 5.2.5, 6.4.1, 6.4.3        |
| K.6.b                                       | Drinking water and food supplies  | 6.4.3.c                                  |
| K.6.c                                       | Criteria for permitting return of areas and items to normal use in accordance with ANSI 13.12   | 6.4.3                                    |
| K.7   | Capability to decontaminate relocated on-site personnel, including extra clothing and decontaminates (particularly for radio-iodine contamination). | 6.5.3                                    |
| <b>L. MEDICAL AND PUBLIC HEALTH SUPPORT</b> |   |  |
| L.1   | Describe hospital and medical services, including preparations to handle contaminated individuals.  | 6.5.4, 6.5.5, 6.5.6, Appendix B          |
| L.2   | Provide on-site first-aid capability.   | 6.5.4, 7.11                              |
| L.4   | Arrange for transporting patients of radiological accidents to medical facilities.  | 6.5.5                                    |

## Appendix G

| Planning Standard  | Summary of Planning Standard  | Plan Cross Reference (Section or Item) |
|--|---|--|
| <b>M. RECOVERY AND REENTRY PLANNING AND POST-ACCIDENT OPERATIONS</b> |   |  |
| M.1  | Develop general plans and procedures for recovery and means by which decisions are made to relax protective actions.  | Section 9                              |
| M.2  | Specify position/title, authority, and responsibility for key positions in the recovery organization.   | Section 9, Figure 9-1                  |
| M.3  | Means to inform personnel that recovery is to be initiated and changes in organization.   | Section 9                              |
| M.4  | Method of periodically estimating total population exposure.  | 6.2.3, 9.2.5                           |
| <b>N. EXERCISES AND DRILLS</b>                                       |   |  |
| N.1.a  | Conduct an exercise as set forth in NRC and FEMA rules.   | 8.2.2.f                                |
| N.1.b  | Include mobilization of state and local resources. Provide for critique by Federal and State evaluators   | 8.2.2                                  |
| N.2  | Conduct drills, in addition to the annual exercise, at the frequencies indicated.   | 8.2                                    |
| N.2.a  | Communication drills (Quarterly), FEMA - IP State   | 8.2                                    |
| N.2.b  | Fire drills - per technical specifications  | 8.2                                    |
| N.2.c  | Medical drills - annually to include contaminated individual, ambulance, and off-site medical help. (Off-site portions may be part of annual exercise).                       | 8.2                                    |
| N.2.d  | Radiological monitoring - annually (include collection and analysis of sample media).   | 8.2                                    |
| N.2.e  | Health Physics - semi-annually to include simulated elevated environmental samples; analyze actual in-plant liquid samples with elevated radiation levels.                    | 8.2                                    |
| N.3  | Describe the conduct of drills and exercises.   | 8.2                                    |
| N.4  | Official observers from Federal/State/Local governments critique exercises. Hold critiques. Formal evaluation based on critiques.   | 8.2.2.g                                |
| N.5  | Establish means and management control for incorporating observer's comments into plan and implementing corrective actions.   | 8.2.2                                  |
| <b>O. RADIOLOGICAL EMERGENCY RESPONSE TRAINING</b>                   |   |  |
| O.1  | Make provisions for training appropriate individuals.   | 8.1                                    |
| O.1.a  | Provide training to off-site organizations  | 8.1.2                                  |
| O.2  | Training for on-site organization to include drills in which individuals demonstrate abilities. On-the-spot corrections to be made and instructor to show proper performance. | 8.2                                    |
| O.3  | First-aid teams trained in courses equivalent to Red Cross Multi-Media.   | 6.5.4                                  |
| O.4  | Establish training programs, including initial training and retraining. Specify scope, nature, and frequency for:   |  |
| O.4.a  | Directors and coordinators  | 8.1.1                                  |
| O.4.b  | Personnel responsible for accident assessment   | 8.1.1                                  |

**Appendix G**

| <b>Planning Standard</b>                         | <b>Summary of Planning Standard</b>  | <b>Plan Cross Reference (Section or Item)</b> |
|--|--|---|
| O.4.c  | Radiological monitoring teams  | 8.1.1, 8.1.2                                  |
| O.4.d  | Police, security, and fire-fighting personnel  | 8.1.2   |
| O.4.e  | On-site repair and damage control/corrective action teams  | 8.1.1   |
| O.4.f  | First aid and rescue personnel   | 8.1.1, 8.1.2                                  |
| O.4.g  | Local support services   | 8.1.2   |
| O.4.h  | Medical support personnel  | 8.1.2, 8.1.3                                  |
| O.4.i  | Licensee's headquarters support personnel  | 8.1.1   |
| O.4.j  | Personnel responsible for transmission of emergency information instructions.  | 8.1   |
| O.5  | Provide initial and annual retraining of personnel.  | 8.1.1   |
| <b>P. RESPONSIBILITY FOR THE PLANNING EFFORT</b> |  |   |
| P.1  | Train individuals responsible for planning effort.   | Section 8                                     |
| P.2  | Identify by title, individual with overall authority and responsibility for radiological emergency response planning.  | Section 8                                     |
| P.3  | Designate Emergency Planning Coordinator.  | Section 8                                     |
| P.4  | Review and certify plan annually. Update plans as needed. Incorporate changes identified by drills and exercises.  | 8.3   |
| P.5  | Forward plans and approved changes to responsible individuals and organizations. Revised pages shall be dated and marked to show where changes have been made. | 8.3   |
| P.6  | Each plan shall contain a detailed list of supporting plans and their source.  | Section 2, Table 2-1                          |
| P.7  | In appendix, list, by title, procedures required to implement the plan, including sections of the plan to be implemented by procedures.                        | Appendix D                                    |
| P.8  | Include specific table of contents and index.  | Table of Contents                             |
| Cont'd   | Cross reference to NUREG-0654 criteria   | Appendix G                                    |
| P.9  | Conduct independent reviews at least every 12 months and include:  | 8.3   |
| Cont'd   | Plan, procedures, practices, training, readiness, testing, equipment and interfaces with State and Local governments.  | 8.3   |
| Cont'd   | Include management controls for implementation and correction of audit findings.   | 8.3   |
| Cont'd   | Document reports to management and involved Federal, State and Local organizations. Retain for 5 years.  | 8.3   |
| P.10   | Provide for updating telephone numbers in emergency procedures at least quarterly.   | 8.2.1.a                                       |

Appendix H

APPENDIX H

**RADIOLOGICAL ASSESSMENT EQUIPMENT AND FACILITIES**

**Table H-1**

**On-Site Assessment Equipment and Facilities**

| <b><u>Functional System</u></b> | <b><u>Instrument Detector</u></b>                 | <b><u>Individual Applicability</u></b>  |
|---------------------------------|---|---|
| 1. <u>Geophysical Monitors</u>  |   |   |
| Meteorological Tower            | 4 Wind speed indicators                           | Monitor wind speed at 33', 142', 374', and 447' elevations                    |
|                                 | 4 Wind direction indicators                       | Monitor wind direction at 33', 142', 374', and 447' elevations                |
|                                 | 3 Delta temp. sensors                             | Monitor temp. difference between 33' and 142'<br>33' and 374'<br>33' and 447' |
| Meteorological Mast             | 1 Wind speed indication                           | Monitor wind speed at 33'.  |
|                                 | 1 Wind direction indicator                        | Monitor wind direction at 33'.  |
| Time History Accelerographs     | Containment base slab (Unit 2)                    | Record ground accelerations with respect to time                              |
|                                 | Auxiliary building                                | " "   |
|                                 | Intake structure                                  | " "   |
|                                 | Free field  | " "   |
| Peak Accelerographs             | Containment base slab                             | Record peak ground accelerations  |
|                                 | Steam generator support                           | " "   |
|                                 | Pressurizer support                               | " "   |
|                                 | Safety injection tank support                     | " "   |
| Seismic Trigger                 | Containment base slab                             | Activate an annunciator   |
| Response Spectrum Recorder      | Containment base slab                             | Records ground accelerations  |
| 1. <u>Radiological Monitors</u> |   |   |
| Unit 1 Process Monitors         | RM-SFPI-02  | Measure gaseous activity  |
| Unit 2 Process Monitors         | RM8123A Containment recirculation air particulate | Monitor particulate activity  |
|                                 | RM8123B Containment recirculation air gaseous     | Monitor gaseous activity  |
|                                 | RM8262A Containment recirculation air particulate | Monitor particulate activity  |
|                                 | RM8262B Containment recirculation air gaseous     | Monitor gaseous activity  |
|                                 | RM8434A Radwaste ventilation particulate          | Monitor particulate activity  |
|                                 | RM8434B Radwaste ventilation gaseous              | Monitor gaseous activity  |

**Table H-1**

**On-Site Assessment Equipment and Facilities**

| <b><u>Functional System</u></b>     | <b><u>Instrument Detector</u></b>                 | <b><u>Individual Applicability</u></b>         |
|-------------------------------------|---|--|
| Unit 2 Process Monitors<br>(Cont'd) | RM8011 Control room ventilation gaseous           | Monitor gaseous activity                       |
|                                     | RM8145A Spent fuel pool ventilation particulate   | Monitor particulate activity                   |
|                                     | RM8145B Spent fuel pool ventilation gaseous       | Monitor gaseous activity                       |
|                                     | RM8997 Radwaste ventilation particulate           | Monitor particulate activity                   |
|                                     | RM8998 Radwaste ventilation particulate           | Monitor particulate activity                   |
|                                     | RM4299 A, B & C Main steam line monitors          | Measure gaseous activity                       |
|                                     | RM8999 Radwaste ventilation particulate           | Monitor particulate activity                   |
|                                     | RM8132A Unit 2 stack discharge particulate        | Monitor particulate activity                   |
|                                     | RM8132B Unit 2 stack discharge gaseous            | Monitor gaseous activity                       |
|                                     | RM8168A Unit 2 stack high range                   | Monitor high level gaseous activity            |
|                                     | RM8168B Unit 2 stack mid range                    | Monitor gaseous activity                       |
|                                     | RM5099 Steam jet air ejector                      | Monitor gaseous activity                       |
|                                     | RM9095 Waste gas storage tanks discharge gaseous  | Monitor gaseous activity                       |
|                                     | RM4262 Steam generator blowdown                   | Monitor liquid activity                        |
|                                     | RM6038 Reactor building closed cooling water      | Monitor liquid activity                        |
|                                     | RM9049 Clean radwaste discharge                   | Monitor liquid activity                        |
|                                     | RM9116 Aerated radwaste discharge                 | Monitor liquid activity                        |
|                                     | RM9327 Condensate recovery tank                   | Monitor liquid activity                        |
|                                     | 2CND-RE245 Condensate polishing neutralizing sump | Monitor liquid activity                        |
|                                     | RM-8169 Wide Range Gas Monitor                    | Monitors particulate and gaseous radioactivity |



**Table H-1****On-Site Assessment Equipment and Facilities**

| <b><u>Functional System</u></b> | <b><u>Instrument Detector</u></b>                           | <b><u>Individual Applicability</u></b>         |
|---------------------------------|---|--|
| Unit 3 Process Monitors         | 3HVR-RE10 A & B Ventilation Vent                            | Monitors particulate and gaseous radioactivity |
|                                 | 3HVR-RE11 &12 (A&B) Auxiliary Building (lower levels)       | Monitors particulate and gaseous radioactivity |
|                                 | 3HVR-RE13, 14 & 15(A&B) Auxiliary Building (upper levels)   | Monitors particulate and gaseous radioactivity |
|                                 | 3HVR-RE16 (A&B) Charging Pump Cubicle                       | Monitors particulate and gaseous radioactivity |
|                                 | 3HVR-RE17 (A&B) Fuel Building                               | Monitors particulate and gaseous activity      |
|                                 | 3HVR-RE18 (A&B) Waste Building                              | Monitors particulate and gaseous radioactivity |
|                                 | 3HVR-RE19 (A&B) SLCRS                                       | Monitors particulate and gaseous radioactivity |
|                                 | 3HVR-RE91 (A&B) Control Room                                | Monitors particulate and gaseous activity      |
|                                 | 3HVQ-RE49 ESF Building                                      | Monitors particulate and gaseous radioactivity |
|                                 | 3CMS-RE22 A&B Containment Atmosphere                        | Monitors particulate and gaseous radioactivity |
|                                 | 3HVZ-RE09 A&B Hydrogen Recombiner Cubicles Ventilation      | Monitors particulate and gaseous radioactivity |
|                                 | 3HVC-RE16 A&B Control Building Inlet ventilation            | Monitors gaseous radioactivity                 |
|                                 | 3MSS-RE75, 76, 77, 78 4 Main Steam Relief lines             | Monitors gaseous radioactivity                 |
|                                 | 3ARC-RE21 Condenser Air Ejector                             | Monitors gaseous radioactivity                 |
|                                 | 3GWS-RE48 Hydrogenated Vent                                 | Monitors gaseous radioactivity                 |
|                                 | 3MSS-RE79 Turbine Driven Auxiliary Feedwater Pump Discharge | Monitors gaseous radioactivity                 |
|                                 | 3SSR-RE08 Steam Generator Blowdown                          | Monitors liquid radioactivity                  |
|                                 | 3CCP-RE31 Reactor Plant Component Cooling                   | Monitors liquid radioactivity                  |
|                                 | 3CNA-RE47 Auxiliary Condensate                              | Monitors liquid radioactivity                  |
|                                 | 3LWS-RE70 Liquid Waste                                      | Monitors liquid radioactivity                  |

**Table H-1****On-Site Assessment Equipment and Facilities**

| <u>Functional System</u>         | <u>Instrument Detector</u>                          | <u>Individual Applicability</u> |
|----------------------------------|---|---------------------------------|
|                                  | 3DAS-RE50 Turbine Building Drains                   | Monitors liquid radioactivity   |
| Unit 3 Process Monitors (Cont'd) | 3LWC-RE65 Regenerant Evaporator                     | Monitors liquid radioactivity   |
| Unit 1 Area Radiation Monitors   | RM-SFPI-01  | Monitor Radiation Levels        |
| Unit 2 Area Radiation Monitors   | RM-7892 Drumming and decontamination area           | Measure radiation levels        |
|                                  | RM-7894 Engineered safeguards systems area          | Measure radiation levels        |
|                                  | RM-7895 Sampling area                               | Measure radiation levels        |
|                                  | RM-7896 Radioactive waste gas processing area       | Measure radiation levels        |
|                                  | RM-7899 Control room                                | Measure radiation levels        |
|                                  | RM-8139 Spent fuel pool (south wall)                | Measure radiation levels        |
|                                  | RM-8142 Spent fuel pool (north wall)                | Measure radiation levels        |
|                                  | RM-8156 Spent fuel pool (north wall)                | Measure radiation levels        |
|                                  | RM-8157 Spent fuel pool (south wall)                | Measure radiation levels        |
|                                  | RM-8240 Containment High Radiation                  | Measure radiation levels        |
|                                  | RM-8241 Containment High Radiation                  | Measure radiation levels        |
|                                  | 2-RMS-9813 Drumming area                            | Measure radiation levels        |
|                                  | 2-RMS-9799A Control Room ventilation air supply     | Measure radiation levels        |
|                                  | 2-RMS-9799B Control Room Ventilation air supply     | Measure radiation levels        |
|                                  | 2-RMS-04 (not in use) CPF-solid waste               | Measure radiation levels        |
|                                  | 2-RMS-05 (not in use) CPF-Condensate demineralizers | Measure radiation levels        |
|                                  | 2-RMS-06 (not in use) CPF-Access area               | Measure radiation levels        |
|                                  | 2-RMS-08 (not in use) CPF-Evaporator                | Measure radiation levels        |

## Table H-1

### On-Site Assessment Equipment and Facilities

| <u>Functional System</u>       | <u>Instrument Detector</u>                              | <u>Individual Applicability</u> |
|--------------------------------|---|---------------------------------|
| Unit 3 Area Radiation Monitors | 3RMS-RE01 Manipulator Crane<br>51'4" Containment        | Measure radiation levels        |
|                                | 3RMS-RE02 Fuel Transfer<br>Tube 51'4" Containment       | Measure radiation levels        |
|                                | 3RMS-RE03 In-Core Inst. Trans.<br>24'6" Containment     | Measure radiation levels        |
|                                | 3RMS-RE04A Containment HR<br>Internal 51'4" Containment | Measure radiation levels        |
|                                | 3RMS-RE05A Containment HR<br>Internal 51'4" Containment | Measure radiation levels        |
|                                | 3RMS-RE06 Decontamination<br>Area 24'6" Fuel Bldg.      | Measure radiation levels        |
|                                | 3RMS-RE07 Calibration Room<br>66'6" Auxiliary Bldg.     | Measure radiation levels        |
|                                | 3RMS-RE08 Spent Fuel<br>Pit/Hoist 52'4" Fuel Bldg.      | Measure radiation levels        |
|                                | 3RMS-RE09 Aux. Bldg. General<br>(A) 18'6" Aux. Bldg.    | Measure radiation levels        |
|                                | 3RMS-RE10 Aux. Bldg. General<br>(B) 4'6" Aux. Bldg.     | Measure radiation levels        |
|                                | 3RMS-RE11 Aux. Bldg. General<br>(C) 4'6" Aux. Bldg.     | Measure radiation levels        |
|                                | 3RMS-RE12 Aux. Bldg. General<br>(D) 24'6" Aux. Bldg.    | Measure radiation levels        |
|                                | 3RMS-RE13 Aux. Bldg. General<br>(E) 24'6" Aux. Bldg.    | Measure radiation levels        |
|                                | 3RM-RE14 Aux. Bldg. General<br>(F) 24'6" Aux. Bldg.     | Measure radiation levels        |
|                                | 3RMS-RE15 Aux. Bldg. General<br>(G) 43'6" Aux. Bldg.    | Measure radiation levels        |
|                                | 3RMS-RE16 Aux. Bldg. General<br>(H) 43'6" Aux. Bldg.    | Measure radiation levels        |
|                                | 3RMS-RE17 Waste Disp. Bldg.                             | Measure radiation levels        |
|                                | 3RMS-RE18 Waste Disp. Bldg.<br>4'6" Waste Bldg.         | Measure radiation levels        |
|                                | 4RMS-RE19 Solid Waste<br>Storage 24'6" Waste Bldg.      | Measure radiation levels        |
|                                | 3RMS-RE20 Sample Room<br>43'6" Aux. Bldg.               | Measure radiation levels        |

**Table H-1****On-Site Assessment Equipment and Facilities**

| <u>Functional System</u>                                      | <u>Instrument Detector</u>   | <u>Individual Applicability</u>               |
|---|--|---|
| Unit 3 Area Radiation Monitors (Cont'd)                       | 3RMS-RE21 Service Bldg.<br>Laboratory 24'6" Service Bldg.          | Measure radiation levels                      |
|   | 3RMS-RE22 Control Room<br>Monitor 47'6" Control Bldg.              | Measure radiation levels                      |
|   | 3RMS-RE24 Waste Disposal<br>Bldg. (C) 24'6" Waste Disp.<br>Bldg.   | Measure radiation levels                      |
|   | 3RMS-RE25 Waste Disposal<br>Bldg. (D) 24'6". Waste Disp<br>Bldg.   | Measure radiation levels                      |
|   | 3RMS-RE28 Fuel Bldg. Pipe<br>Rack 11'0 Fuel Bldg.                  | Measure radiation levels                      |
|   | 3RMS-RE29 Spent Fuel Cask<br>Area 52'4" Fuel Bldg.                 | Measures radiation levels                     |
|   | 3RMS-RE31 Fuel Transfer Tube<br>24'6" Containment                  | Measures radiation levels                     |
|   | 3RMS-RE32 Containment Air<br>Compressor 24'6" Containment          | Measure radiation levels                      |
|   | 3RMS-RE33 RHR Cubicle "A"<br>(Normal Range) 4'6" ESF Bldg.         | Measure radiation levels                      |
|   | 3RMS-RE34 RHR Cubicle "B"<br>(Normal Range) 4'6" ESF Bldg.         | Measure radiation levels                      |
|   | 3RMS-RE35 In-Core Inst.<br>Thimble Area 3'8" Containment           | Measure radiation levels                      |
|   | 3RMS-RE36 Fuel Pool Monitor<br>52'4" Fuel Bldg.                    | Measure radiation levels                      |
|   | 3RMS-RE37 Condensate<br>Demin. Area 14'6" Cond.<br>Polishing Bldg. | Measure radiation levels                      |
|   | 3RMS-RE38 Regeneration Area<br>38'6" Cond. Polishing Bldg.         | Measure radiation levels                      |
|   | 3RMS-RE41 Fuel Drop Monitor<br>51'4" Containment                   | Measure radiation levels                      |
|   | 3RMS-RE42 Fuel Drop Monitor<br>51'4" Containment                   | Measure radiation levels                      |
| 3RMS-RE52 Recombiner<br>Control Room 24'6" Recombine<br>Bldg. | Measure radiation levels   |   |
| 2. <u>Radiation Monitors and<br/>Sampling Equipment</u>       | Gamma spectrometers  | Isotopic identification and analysis          |
|   | Geiger-Mueller survey<br>instruments (0-1,000 R/hr range)          | Measure gamma and beta radiation<br>dose rate |

**Table H-1**

**On-Site Assessment Equipment and Facilities**

| <b><u>Functional System</u></b>                    | <b><u>Instrument Detector</u></b>       | <b><u>Individual Applicability</u></b>  |
|--|---|---|
| Radiation Monitors and Sampling Equipment (Cont'd) | Ionization chamber (0-1,000 R/hr range) | Measure gamma and beta radiation dose rate                                    |
|  | Contamination survey                    | Count samples for gross alpha and beta  |
|  | Air sampling equipment                  | Sample for airborne radionuclides (particulate, iodine, gaseous, and tritium) |
|  | Neutron survey instrument               | Measure neutron radiation dose rate   |
|  | TLD                                     | Measure personnel radiation dose  |
| 3. <u>Fire Detection</u>                           | Direct reading pocket ion chamber       | Measure personnel gamma radiation dose  |
|  | Smoke detectors                         | Detects products of combustion  |
|  | Rate of rise heat detector              | Detects quick rise of temperature   |
| 4. <u>Facilities</u>                               | Fixed heat detector                     | Detects a set temperature   |
|  | Chemistry laboratory                    | Equipped for chemical and radiological analysis                               |
|  | 9 radiation monitoring stations         | Measure gamma radiation dose  |
|  | 4 Fixed air sampling stations           | Sample particulates and iodines   |
|  | Health Physics Laboratory               | Equipped for radiological analyses  |

## Appendix H

### Table H-2

#### Off-Site Assessment Equipment and Facilities

| <u>Functional System</u>        | <u>Instrument Detector</u>  | <u>Individual Applicability</u>                          |
|---------------------------------|---|--|
| 1. <u>Geophysical Monitors</u>  |   |  |
| Meteorological                  | Meteorological forecasting contractor for full weather forecast service | Provide current and forecast weather for Millstone area  |
| Seismic                         | United States Geological Survey (USGS) for Strong motion recorder       | Record ground accelerations                              |
| 2. <u>Radiological Monitors</u> |   |  |
| Environmental Monitoring        | As specified by REMODCM   | Gamma radiation dose and sample particulates and iodines |
| 3. <u>Laboratory Facilities</u> |   |  |
| Radiochemistry laboratory       | Teledyne Brown Engineering Environmental Services                       | Equipped for chemical and radiological analysis          |
|                                 | GEL Environmental Laboratory  | Equipped for chemical and radiological analysis          |
| 4. <u>Facilities</u>            |   |  |
|                                 | Emergency Operations Facility   | Equipped for limited radiological analyses.              |

Appendix I

APPENDIX I

**EMERGENCY ACTION LEVEL SCHEME**

NOTE: The EAL scheme provides an example of how the Emergency Plan meets the standards of 50.47(b) and requirements of Appendix E. The EAL Tables in the Station Emergency Assessment procedure MP-26-EPI-FAP06 are used to classify event

**Millstone Unit 1 Emergency Action Levels**

UNUSUAL EVENT DELTA ONE
  UNUSUAL EVENT DELTA TWO
  ALERT CHARLIE ONE

| IN-PLANT RADIATION  | SECURITY THREAT/ DESTRUCTIVE PHENOMENA  | FIRE / GASES  | FUEL POOL EQUIPMENT FAILURE  | UNPLANNED OFFSITE RELEASES   | JUDGEMENT   | CLASSIFICATION   |
|---|---|---|--|--|---|--|
| <b>RA1 REACTOR BUILDING RADIATION (D-AA2)</b><br><br>1. Area radiation monitor reading in Reactor Building or survey results indicate an UNCONTROLLED increase in radiation levels by 100 mR/hr that is not the result of a planned evolution AND impedes operation of systems needed to maintain spent fuel integrity.<br><br>2. Valid radiation monitor reading or survey results indicate greater than 15 mR/hr in areas required to be occupied 24 hours a day. | <b>TA1 SECURITY EVENT (D-HA1)</b><br><br>1. Any on-going or imminent security compromise to the safety of the plant.<br><br><b>TA2 DESTRUCTIVE PHENOMENA (N/A)</b><br><br>An event that damages systems, structures, or components needed to maintain spent fuel integrity that may result in overexposure of site personnel or results in an uncontrolled decrease in the spent fuel pool water level or damage to spent fuel.   |   |  | <b>OA1 OFFSITE DOSE (D-AA1)</b><br><br>1. Unplanned release of radioactivity $\geq 3.42E-1$ $\mu\text{Ci/cc}$ to the environment ( $\geq 200$ times REMODCM release limit) for $\geq 15$ minutes.<br><br>2. Grab sample analyses indicate unplanned gaseous release rate $\geq 3.42E-1$ $\mu\text{Ci/cc}$ ( $\geq 200$ times the REMODCM limit) for $\geq 15$ minutes. | <b>JA1 JUDGEMENT (D-HA2)</b><br><br>Any condition for which judgment indicates that the level of safety for the Reactor Building or other areas important for maintaining the integrity of the spent fuel is substantially degraded and which requires Station Emergency Response Organization (SERO) staffing. | <b>ALERT</b><br><br>CHARLIE ONE<br><br>Events are in progress or have occurred which indicate an actual or potential substantial degradation of the level of safety of the plant, to plant personnel, or to the safe storage of fuel in the spent fuel pool. |
| <b>RU1 REACTOR BUILDING RADIATION (D-AU2)</b><br><br>Area radiation monitor reading in Reactor Building or survey results indicate an UNCONTROLLED increase in radiation levels by 25 mR/hr that is not the result of a planned evolution.  | <b>TU1 SECURITY EVENT (D-HU1)</b><br><br>1. Security events as determined for Station Safeguards Contingency Plan and reported by Security Shift Supervision.<br><br>2. A credible site-specific security threat notification.<br><br><b>TU2 DESTRUCTIVE PHENOMENA (D-HU3)</b><br><br>1. Earthquake detected per ONP 514C, Earthquake.<br>2. Report of tornado striking within the Protected Area (PA) that has the potential to affect equipment needed to maintain spent fuel integrity.<br>3. On-Site sustained wind speed $>75$ mph.<br>4. Explosion or visible damage to structures, systems, or components within the Protected Area with the potential to affect equipment required to maintain the integrity of the spent fuel.<br>5. Flood Level $>19$ Feet Mean Sea Level.<br>6. Vehicle crash within the PA that could potentially affect equipment needed to maintain spent fuel integrity. | <b>GU1 FIRE (D-HU3)</b><br><br>Fire in the Reactor Building or other areas important to maintaining the integrity of the spent fuel NOT extinguished within 15 minutes of Control Room notification OR within 15 minutes of the fire alarm actuation in the Control Room.<br><br><b>GU2 TOXIC/FLAMMABLE GASES (D-HU3)</b><br><br>1. Life threatening toxic gases OR flammable gas concentrations as identified in C-OP 200.5, "Oil, Hazardous Material, Hazardous Waste and Mixed Waste Contingency Plan," affecting activities in areas needed to maintain spent fuel integrity.<br><br>2. Notification of a near-site release that may require evacuation of MPI. | <b>EU1 FUEL POOL LEVEL (D-SU1)</b><br><br>Uncontrolled decrease in fuel pool level indicated by a low level alarm actuation with all spent fuel assemblies remaining covered by water.<br><br><b>EU2 FUEL POOL TEMPERATURE (D-SU1)</b><br><br>Uncontrolled heatup of the spent fuel pool such that the bulk pool temperature exceeds $150^{\circ}\text{F}$ . | <b>OU1 UNPLANNED RELEASES (D-AU1)</b><br><br>1. Gaseous effluent monitor $\geq 3.42E-3$ $\mu\text{Ci/cc}$ ( $\geq 2$ times REMODCM limits) for $\geq 60$ minutes.<br><br>2. Grab sample analyses indicate unplanned gaseous release rate $\geq 3.42E-3$ $\mu\text{Ci/cc}$ ( $\geq 2$ times the REMODCM limit) for $\geq 60$ minutes.                                   | <b>JU1 JUDGEMENT (D-HU2)</b><br><br>Any condition for which judgement indicates the potential or actual degradation in the level of safety of the Reactor Building or other areas important to maintaining the integrity of the spent fuel.   | <b>UNUSUAL EVENT</b><br><br>DELTA TWO<br>OR<br>DELTA ONE<br><br>Events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant.  |

- AREAS NEEDED TO MAINTAIN SPENT FUEL INTEGRITY**

  - Reactor Building - 4<sup>th</sup> and 5<sup>th</sup> Floors
  - Reactor Building, Fuel Pool Pump Mezzanine - 2<sup>nd</sup> floor
  - H&V Room - Lower Level (DHR)
  - H&V Room - Roof - Coolers

1  
Millstone

\*Specific setpoints are contained in EPI-FAP06, "Classification and PARs."



# MILLSTONE UNIT 2 EMERGENCY ACTION LEVELS

GENERAL EMERGENCY ALPHA  
  GENERAL EMERGENCY BRAVO  
  SITE AREA EMERGENCY CHARLIE-TWO  
  ALERT CHARLIE-ONE  
  UNUSUAL EVENT DELTA-TWO  
  UNUSUAL EVENT DELTA-ONE

| BARRIER FAILURE  | LOSS OF POWER  | EQUIPMENT FAILURE  | OFFSITE RELEASES  | CLASSIFICATION   |
|--|--|--|---|--|
| <b>BG1</b> ALL THREE BARRIERS   Mode 1, 2, 3, 4<br>See Barrier Failure Reference Table   | <b>PG1</b> STATION BLACKOUT   Mode 1, 2, 3, 4<br>Loss of Voltage on Buses 24C AND 24D AND ANY of the Following: <ul style="list-style-type: none"> <li>Restoration of Power to AT LEAST One Vital Bus is NOT Likely Within Four Hours</li> <li>Core Exit Thermocouple Readings Indicate Superheat</li> <li>Inadequate SG Heat Removal Capability as Indicated by SG Water Level <math>\leq</math> 10% in BOTH SGs AND Inadequate Terry Turbine Feedwater Flow</li> </ul> | <b>EG1</b> ATWS/INADEQUATE COOLING   Mode 1<br>Functional Recovery of Reactivity Control Ineffective AND EITHER of the Following: <ul style="list-style-type: none"> <li>RCS Heat Removal by Steam Generator Heat Removal SFSC Criteria Can NOT Be Satisfied</li> <li>Core Exit TC Temperature Readings <math>&gt;</math> 800°F</li> </ul>   | <b>OG1</b> OFFSITE DOSE   Mode ALL<br>1. MP2 Kaman Vent Monitor (RM-8168) Reading $\geq$ 2 $\mu$ Ci/cc for $>$ 15 Minutes<br>2. MP2 WRGM Site Stack Effluent Activity (RM-8169) Reading $\geq$ 30 $\mu$ Ci/cc for $>$ 15 Minutes<br>3. MSL Monitor (RM-4299/A/B/C) Reading $\geq$ 2 R/hr for $>$ 15 Minutes<br>4. Measured Plume Dose Rate OnSite $\geq$ 1,000 mR/hr for $>$ 15 Minutes<br>5. Rad Assessment Determines Integrated Dose Offsite $\geq$ 1 Rem TEDE OR $\geq$ 5 Rem CDE Thyroid         | GENERAL EMERGENCY<br><b>ALPHA</b><br>OR<br><b>BRAVO</b><br>Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or security events that result in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.   |
| <b>BS1</b> ANY TWO BARRIERS   Mode 1, 2, 3, 4<br>See Barrier Failure Reference Table   | <b>PS1</b> STATION BLACKOUT   Mode 1, 2, 3, 4<br>Loss of Voltage on Buses 24C AND 24D $>$ 15 Minutes<br><br><b>PS2</b> LOSS OF DC   Mode 1, 2, 3, 4<br>Loss of Voltage on DC Buses 201A AND 201B $>$ 15 Minutes  | <b>ES1</b> ATWS   Mode 1<br>Manual Reactor Trip Attempted At Panel C04 AND Reactor Is NOT Shutdown<br><b>ES2</b> INABILITY TO MAINTAIN HOT S/D   Mode 1, 2, 3, 4<br>1. No RCS Heat Removal Via Steam Generators AND Once Through Cooling NOT Effective AND Shutdown Cooling is NOT In Service<br>2. RCS Boration Capability Unable to Eliminate Inadvertent Criticality<br><b>ES3</b> IN-VESSEL FUEL UNCOVERY   Mode 5, 6<br>Shutdown Cooling Has Been Lost AND ANY of the Following Conditions Exist: <ul style="list-style-type: none"> <li>Alternate Methods for Restoring RCS Inventory are NOT Effective</li> <li>RVLMS Reading = 0% with OPERABLE #8 string (NA if no OPERABLE #8 string)</li> <li>Core Exit TC Temperature Readings Indicate Superheat</li> </ul> <b>ES4</b> LOSS OF ANNUNCIATORS/TRANSIENT   Mode 1, 2, 3, 4<br>Loss of Most (75%) MCB Annunciators AND BOTH of the Following: <ul style="list-style-type: none"> <li>Significant Transient in Progress</li> <li>Loss of SPDS AND ICC Instrumentation</li> </ul>         | <b>OS1</b> OFFSITE DOSE   Mode ALL<br>1. MP2 Kaman Vent Monitor (RM-8168) Reading $\geq$ 0.2 $\mu$ Ci/cc for $>$ 15 Minutes<br>2. MP2 WRGM Site Stack Effluent Activity (RM-8169) Reading $\geq$ 10 $\mu$ Ci/cc for $>$ 15 Minutes<br>3. MSL Monitor (RM-4299A/B/C) Reading $\geq$ 0.3 R/hr for $>$ 15 Minutes<br>4. Measured Plume Dose Rate Onsite $\geq$ 50 mR/hr for $>$ 15 Minutes<br>5. Rad Assessment Determines Integrated Dose Offsite $\geq$ 0.05 Rem TEDE OR $\geq$ 0.25 Rem CDE Thyroid   | SITE AREA EMERGENCY<br><b>CHARLIE-TWO</b><br>Events are in process or have occurred which involve an actual or likely major failure of plant functions needed for protection of the public or security events that result in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) prevents effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels beyond the site boundary. |
| <b>BA1</b> FUEL CLAD OR RCS BARRIER   Mode 1, 2, 3, 4<br>See Barrier Failure Reference Table<br><br><b>BA2</b> STEAM LINE BREAK   Mode 1, 2, 3, 4<br>Unisolable Steam Line Break Outside CTMT  | <b>PA1</b> STATION BLACKOUT   Mode 5, 6, 0<br>Loss of Voltage on Buses 24C AND 24D $>$ 15 Minutes<br><br><b>PA2</b> SINGLE AC POWER SOURCE   Mode 1, 2, 3, 4<br>Only One AC Power Source Available to Supply Buses 24C AND/OR 24D $>$ 15 Minutes Such That Loss of That Power Source Would Result in a Station Blackout (Unit 3 Buses 34A/B CANNOT be Credited unless already aligned to Unit 2 Bus 24C or 24D)  | <b>EA1</b> AUTOMATIC RX TRIP FAILURE   Mode 1, 2<br>Failure of Automatic Reactor Trip AND Manual Trip Was Successful<br><b>EA2</b> INABILITY TO MAINTAIN COLD S/D   Mode 5, 6<br>1. Uncontrolled RCS Temperature Increase $>$ 10°F That Results in RCS Temperature $>$ 200°F<br>2. Inadvertent Criticality<br><b>EA3</b> LOSS OF ANNUNCIATORS/TRANSIENT   Mode 1, 2, 3, 4<br>Loss of Most (75%) MCB Annunciators $>$ 15 Minutes AND EITHER of the Following: <ul style="list-style-type: none"> <li>Significant Transient in Progress</li> <li>Loss of SPDS AND ICC Instrumentation</li> </ul>   | <b>OA1</b> OFFSITE DOSE   Mode ALL<br>1. MP2 Kaman Vent Monitor (RM-8168) Reading $\geq$ 0.02 $\mu$ Ci/cc for $>$ 15 Minutes<br>2. MP2 WRGM Site Stack Effluent Activity (RM-8169) Reading $\geq$ 1 $\mu$ Ci/cc for $>$ 15 Minutes<br>3. MSL Monitor (RM-4299A/B/C) Reading $\geq$ 0.03 R/hr for $>$ 15 Minutes<br>4. Measured Plume Dose Rate Onsite $\geq$ 5 mR/hr for $>$ 15 Minutes<br>5. Rad Assessment Determines Integrated Dose Offsite $\geq$ 0.005 Rem TEDE OR $\geq$ 0.025 Rem CDE Thyroid | ALERT<br><b>CHARLIE-ONE</b><br>Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of intentional malicious dedicated efforts of a hostile act. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.  |
| <b>BU1</b> CTMT BARRIER   Mode 1, 2, 3, 4<br>See Barrier Failure Reference Table<br><br><b>BU2</b> RCS LEAKAGE   Mode 1, 2, 3, 4<br>1. Pressure Boundary Leakage $>$ 10 GPM<br>2. Unidentified Leakage $>$ 10 GPM<br>3. Identified Leakage $>$ 25 GPM<br>4. Primary to Secondary Leakage $>$ 25 GPM<br><br><b>BU3</b> FUEL CLAD DEGRADATION   Mode ALL<br>1. RCS Activity $>$ 60 $\mu$ Ci/gm I-131 DEQ<br>2. Dose Rate at One Foot from Unpressurized RCS Sample $\geq$ 2 mR/hr/ml | <b>PU1</b> LOSS OF OFFSITE POWER   Mode ALL<br>Loss of all OFFSITE power to buses 24C AND 24D for $>$ 15 Minutes.<br><br><b>PU2</b> LOSS OF DC   Mode 5, 6<br>Loss of Voltage on DC Buses 201A AND 201B $>$ 15 Minutes   | <b>EU1</b> LOSS OF COLD S/D FUNCTION   Mode 5, 6<br>1. Loss of Shutdown Cooling $>$ 15 Minutes AND Refuel Pool Water Level $<$ 35 Ft., 6 In.<br>2. Uncontrolled RCS Temperature Increase $>$ 10°F<br>3. RCS Boron Concentration $<$ Minimum Required<br><b>EU2</b> REFUEL/SPENT FUEL POOL LEVEL   Mode 6, 0<br>1. Uncontrolled Spent Fuel Pool Water Level Decrease Causing Loss of Cooling Suction Flow<br>2. Uncontrolled Refuel Pool Water Level Decrease Requiring Containment Evacuation AND All Spent Fuel Assemblies in Safe Storage Locations<br><b>EU3</b> LOSS OF ANNUNCIATORS   Mode 1, 2, 3, 4<br>Loss of Most (75%) MCB Annunciators $>$ 15 Minutes AND SPDS OR ICC Instrumentation Available<br><b>EU4</b> LOSS OF COMMUNICATIONS   Mode ALL<br>1. Loss of ALL Onsite Electronic Communications Methods<br>2. Loss of ALL Electronic Communications Methods With Government Agencies<br><b>EU5</b> SHUTDOWN LCO EXCEEDED   Mode 1, 2, 3, 4<br>Unit NOT Brought To Required Mode Within Applicable LCO Action Statement Time Limits | <b>OU1</b> UNPLANNED RELEASE   Mode ALL<br>Effluent Monitors in Alarm OR Unplanned, Unmonitored or Uncontrolled Offsite Release AND DELTA-TWO Posture Code Limits as Determined from EPI-FAP06, "Classification and PARs," Exceeded.<br><br>Note: Effluent Monitors Indicate Release Above Alarm Setpoint Continuing $>$ 60 minutes and Reportability Evaluations NOT Complete  | UNUSUAL EVENT<br><b>DELTA-TWO</b><br>OR<br><b>DELTA-ONE</b><br>Events are in process or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.  |

NOTE: When two or more EALs apply, always choose the EAL of the highest incident classification; also always read from top to bottom in each category.

# MILLSTONE UNIT 2 EMERGENCY ACTION LEVELS

GENERAL EMERGENCY ALPHA    GENERAL EMERGENCY BRAVO    SITE AREA EMERGENCY CHARLIE-TWO    ALERT CHARLIE-ONE    UNUSUAL EVENT DELTA-TWO    UNUSUAL EVENT DELTA-ONE

| IN-PLANT RADIATION   | SECURITY THREAT/<br>DESTRUCTIVE PHENOMENA  | FIRE/GASES   | JUDGEMENT  | CLASSIFICATION  |
|--|--|--|--|---|
| <p><b>RG1</b>   MAJOR FUEL DAMAGE   Mode ALL</p> <ol style="list-style-type: none"> <li>RM-8240/8241 Reading &gt; 1,200 R/hr</li> <li>At Least 20% Fuel Clad Damage As Determined By Core Damage Estimate</li> <li>Spent Fuel is Exposed from Water Loss from Open Vessel, Cavity, Or SF Pool <b>AND</b> BOTH of the Following: <ul style="list-style-type: none"> <li>Spent Fuel Has Decayed &lt; 30 Days</li> <li>CTMT Integrity is <b>NOT</b> Established <b>OR</b> Exposed Spent Fuel is Outside CTMT</li> </ul> </li> </ol>   | <p><b>TG1</b>   SECURITY EVENT   Mode ALL</p> <p>A <b>HOSTILE FORCE</b> has taken control of plant equipment such that plant personnel are unable to operate equipment required to maintain safety functions. Any of the following meet this EAL:</p> <ol style="list-style-type: none"> <li>Loss of Control Room</li> <li>Loss of Hot Shutdown Panel (C-21) (West 480v SWGR Room)</li> <li>Loss of Cold Shutdown Panel (C-10) (Upper 4160v SWGR Room)</li> <li>Security reports the loss or imminent loss of a Target Set</li> </ol> <p><b>OR</b></p> <p>A <b>HOSTILE ACTION</b> has caused failure of Spent Fuel Cooling Systems and <b>IMMINENT</b> (for EALs) fuel damage is likely for a freshly off-loaded reactor core in pool.</p>   |  | <p><b>JG1</b>   JUDGEMENT   Mode ALL</p> <p>Other Conditions Exist For Which Judgement Indicates:</p> <ol style="list-style-type: none"> <li>Actual Or Imminent Substantial Core Degradation With Potential For Loss Of Containment, <b>OR</b></li> <li>Potential For Uncontrolled Radiological Releases. These Releases Can Be Reasonably Expected To Exceed EPA PAG Plume Exposure Levels Outside The Site Boundary</li> </ol> | <p>GENERAL EMERGENCY</p> <p><b>ALPHA</b></p> <p>OR</p> <p><b>BRAVO</b></p> <p>Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or security events that result in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.</p>   |
| <p><b>RS1</b>   SPENT FUEL DAMAGE   Mode ALL</p> <p>Spent Fuel is Exposed from Open Vessel or Cavity <b>AND</b> BOTH of the Following:</p> <ul style="list-style-type: none"> <li>Spent Fuel Has Decayed &lt; 30 Days</li> <li>CTMT Integrity Established</li> </ul>   | <p><b>TS1</b>   SECURITY EVENT   Mode ALL</p> <p>A notification from the site security force that an armed attack, explosive attack, airliner impact, or other <b>HOSTILE ACTION</b> is occurring or has occurred within the protected area.</p>   | <p><b>GS1</b>   CONTROL ROOM EVACUATION   Mode ALL</p> <p>Unit Control from Hot Shutdown Panel C-10 Or C-21 NOT Established Within 15 Minutes After Control Room Evacuation</p>  | <p><b>JS1</b>   JUDGEMENT   Mode ALL</p> <p>Other Conditions Exist For Which Judgement Indicates Actual Or Likely Major Failures of Plant Functions Needed For Protection Of The Public</p>  | <p>SITE AREA EMERGENCY</p> <p><b>CHARLIE-TWO</b></p> <p>Events are in process or have occurred which involve an actual or likely major failure of plant functions needed for protection of the public or security events that result in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) prevents effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels beyond the site boundary.</p> |
| <p><b>RA1</b>   SPENT FUEL ASSEMBLY DAMAGE   Mode ALL</p> <p>Spent Fuel is Exposed from Open Vessel, Cavity, or SF Pool <b>AND</b> Spent Fuel Has Decayed <math>\geq</math> 30 Days</p> <ol style="list-style-type: none"> <li>Fuel Handling Accident Causing Damage to Spent Fuel, Indicated by Fuel Building <b>OR</b> Containment Radiation Monitors Increasing</li> </ol> <p><b>RA2</b>   PLANT RADIATION   Mode ALL</p> <ol style="list-style-type: none"> <li>Radiation Readings &gt; 15 mR/hr in Control Room <b>OR</b> Central Alarm Station <b>OR</b> Secondary Alarm Station</li> <li>Radiation Reading &gt; 5 R/hr in Areas Requiring Access for Safe Shutdown</li> </ol> | <p><b>TA1</b>   SECURITY EVENT   Mode ALL</p> <ol style="list-style-type: none"> <li>Security Events as determined for Station Safeguards Contingency Plan and reported by Security Shift Supervision. (Addresses events that involve Actual or Potential Substantial degradation to the level of safety of the plant.)</li> <li>A notification from the site security force that an armed attack, explosive attack, airliner impact, or other <b>HOSTILE ACTION</b> is occurring or has occurred within the OCA.</li> <li>A validated notification from the NRC of an airliner attack threat less than 30 minutes away.</li> </ol> <p><b>TA2</b>   DESTRUCTIVE PHENOMENA   Mode ALL</p> <ol style="list-style-type: none"> <li>Seismic Event &gt; 0.09g ZPA</li> <li>Onsite Sustained Windspeed &gt; 90 MPH</li> <li>Visible Damage to Structures or Equipment <b>AND</b> Affecting Safe Shutdown</li> <li>Vessel or Vehicle Collision <b>AND</b> Affecting Safe Shutdown</li> <li>Missiles Affecting Safe Shutdown</li> <li>Flooding Affecting Safe Shutdown</li> </ol>  | <p><b>GA1</b>   CONTROL ROOM EVACUATION   Mode ALL</p> <p>Control Room Evacuation Initiated</p> <p><b>GA2</b>   FIRE/EXPLOSION   Mode ALL</p> <p>Fire or Explosion Affecting Safe Shutdown Area <b>AND</b> Damage to Structures <b>OR</b> Safe Shutdown Equipment Indicated.</p> <p><b>GA3</b>   TOXIC/FLAMMABLE GASES   Mode ALL</p> <p>Life Threatening Toxic Gases <b>OR</b> Flammable Gas Concentrations as Identified in C-OP 200.5, "Oil, Hazardous Material, Hazardous Waste and Mixed Waste Contingency Plan" Affecting Areas for Safe Shutdown</p>  | <p><b>JA1</b>   JUDGEMENT   Mode ALL</p> <p>Any Condition For Which Judgement Indicates That Safety Systems May Be Degraded <b>AND</b> Which Requires Emergency Response Organization Staffing</p>   | <p>ALERT</p> <p><b>CHARLIE-ONE</b></p> <p>Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of intentional malicious dedicated efforts of a hostile act. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.</p>  |
| <p><b>RU1</b>   RAD MONITORS   Mode ALL</p> <ol style="list-style-type: none"> <li>Uncontrolled Refuel Pool Water Level Decrease <b>AND</b> Rad Levels Require Evacuation of CTMT or Spent Fuel Pool Area</li> <li>Unexpected Area Rad Monitor Reading Offscale High <b>OR</b> &gt; 1000 Times Normal Reading</li> </ol>   | <p><b>TU1</b>   SECURITY EVENT   Mode ALL</p> <ol style="list-style-type: none"> <li>Security Condition as determined for Station Safeguards Contingency Plan and reported by Security Shift Supervision. (Addresses events that involve Potential degradation in the level of safety of the plant.)</li> <li>A credible site specific security threat notification.</li> <li>A validated notification from the NRC providing information of an aircraft threat.</li> </ol> <p><b>TU2</b>   DESTRUCTIVE PHENOMENA   Mode ALL</p> <ol style="list-style-type: none"> <li>Seismic Activity Detected Per AOP-2562, Earthquake</li> <li>Report by Plant Personnel of Tornado Striking Within Protected Area</li> <li>Visible Damage to Structures or Equipment Within the Protected Area</li> <li>Onsite Sustained Windspeed &gt; 75 MPH</li> <li>Explosion Within the Protected Area</li> <li>Turbine Failure Causing Observable Casing Damage</li> <li>Vessel or Vehicle Collision With Structures <b>OR</b> Equipment Required for Safe Shutdown or a loaded ISFSI Confinement Boundary</li> <li>Flood Level &gt; 19 Feet Mean Sea Level</li> <li>Flooding in Areas Containing Safe Shutdown Equipment</li> </ol> | <p><b>GU1</b>   FIRE   Mode ALL</p> <ol style="list-style-type: none"> <li>Fire in Building <b>OR</b> Areas Adjacent to Areas Needed for Safe Shutdown NOT Extinguished Within 15 Minutes of Notification <b>OR</b> Verification of Control Room Alarms</li> <li>Fire Affecting a Loaded ISFSI Confinement Boundary NOT Extinguished Within 15 Minutes of Notification.</li> </ol> <p><b>GU2</b>   TOXIC/FLAMMABLE GASES   Mode ALL</p> <ol style="list-style-type: none"> <li>Life Threatening Toxic Gases <b>OR</b> Flammable Gas Concentrations as Identified in C-OP 200.5, "Oil, Hazardous Material, Hazardous Waste and Mixed Waste Contingency Plan" Affecting Normal Operation</li> <li>Notification of a Near-Site Release That May Require Evacuation</li> </ol> | <p><b>JU1</b>   JUDGEMENT   Mode ALL</p> <p>Any Condition For Which Judgement Indicates Potential Degradation in the Level of Safety of the Plant</p>  | <p>UNUSUAL EVENT</p> <p><b>DELTA-TWO</b></p> <p>OR</p> <p><b>DELTA-ONE</b></p> <p>Events are in process or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.</p>  |

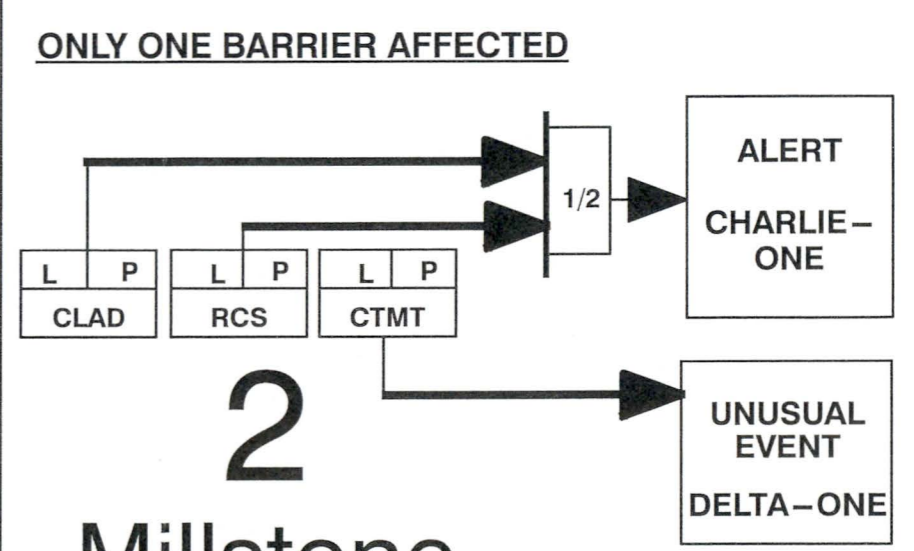
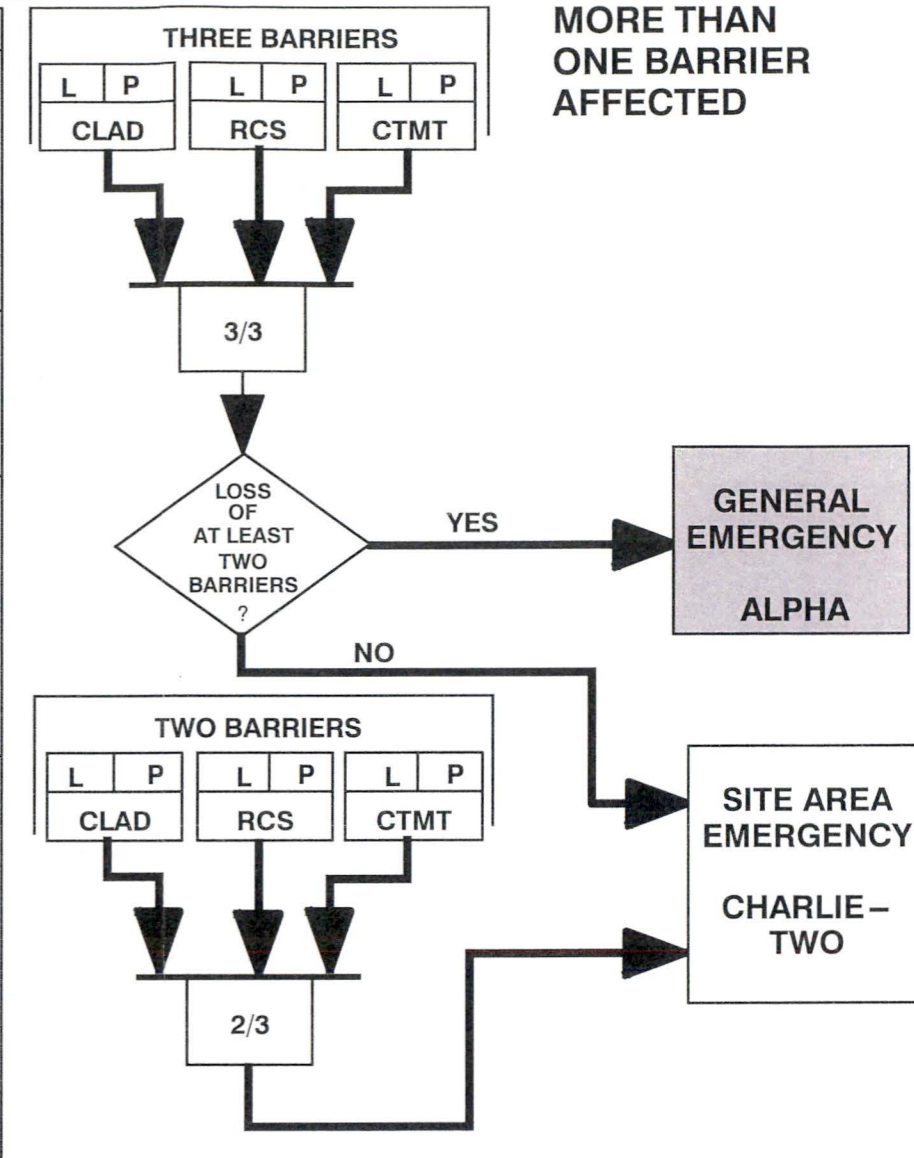
| AREAS OF CONCERN FOR SAFE SHUTDOWN |                                |
|------------------------------------|--------------------------------|
| Control Room                       | Switchgear Rooms               |
| Cable Vaults                       | Intake Structure               |
| Turbine Building                   | Switchgear Area                |
| Penetration Areas                  | Coolant Tanks Area             |
| RBCCW Rooms                        | Containment                    |
| Diesel Generator Room              | DC Equipment and Battery Rooms |
| Charging Pump Cubicles             | Safety Injection Pump Rooms    |
| Switchyard                         |                                |

NOTE: When two or more EALs apply, always choose the EAL of the highest incident classification; also always read from top to bottom in each category.

# MILLSTONE 2 EMERGENCY ACTION LEVELS BARRIER FAILURE REFERENCE TABLE

IMMINENT - No Turnaround in Safety System Performance is Expected AND Escalation to General Emergency Conditions Will Occur Within 2 Hours

| INDICATORS                                     | FUEL CLAD BARRIER  | RCS BARRIER  | CTMT BARRIER   |
|--|--|--|--|
| SAFETY FUNCTION STATUS/<br>FUNCTIONAL RECOVERY | <p>FCB1</p> <p>LOSS</p> <p>Not Applicable</p> <p>POTENTIAL LOSS</p> <p>P No RCS Heat Removal Via Steam Generators AND Once Through Cooling NOT Effective AND Shutdown Cooling System Is NOT In Service</p>   | <p>RCB1</p> <p>LOSS</p> <p>Not Applicable</p> <p>POTENTIAL LOSS</p> <p>P Uncontrolled RCS Cooldown AND RCS Pressure-Temperature To the Left Of the PTS Limit 200°F Subcooling Maximum Curve</p> <p>P No RCS Heat Removal Via Steam Generators AND Once Through Cooling NOT Effective AND Shutdown Cooling System Is NOT In Service</p>   |  |
| CORE EXIT TC TEMPERATURES                      | <p>FCB2</p> <p>LOSS</p> <p>L Core Exit Thermocouple Readings &gt; 1200 °F</p> <p>POTENTIAL LOSS</p> <p>P Core Exit Thermocouple Readings &gt; 700 °F</p>   | <p>RCB2</p> <p>LOSS</p> <p>L RCS Subcooling &lt; 30°F</p> <p>POTENTIAL LOSS</p> <p>Not Applicable</p>  | <p>CNB1</p> <p>LOSS</p> <p>Not Applicable</p> <p>POTENTIAL LOSS</p> <p>P Core Exit TC Temperature Readings &gt; 1200°F AND Do NOT Decrease Within 15 Minutes</p>   |
| PRESSURE                                       |  | <p>RCB3</p> <p>LOSS</p> <p>Not Applicable</p> <p>POTENTIAL LOSS</p> <p>P Uncontrolled RCS Pressure Decrease and Increasing Containment Radiation Monitors</p>  | <p>CNB2</p> <p>LOSS</p> <p>L Rapid Unexplained CTMT Pressure Decrease Following Initial Increase</p> <p>L No CTMT Pressure Increase When Expectation Exists</p> <p>POTENTIAL LOSS</p> <p>P CTMT Pressure &gt; 10 PSIG AND Increasing AND No Containment Spray Pump</p> <p>P CTMT H<sub>2</sub> Concentration ≥ 4%</p>  |
| COOLANT LEAKAGE                                |  | <p>RCB4</p> <p>LOSS</p> <p>L Reactor Coolant Leak &gt; CVCS Capacity AND Entry Into EOP-2534, Steam Generator Tube Rupture or EOP 2540, Functional Recovery, to Address Steam Generator Tube Rupture</p> <p>POTENTIAL LOSS</p> <p>P Reactor Coolant Leak &gt; CVCS Capacity AND Entry Into EOP-2525, Standard Post Trip Actions</p> <p>P Reactor Coolant Leak Rate ≤ CVCS Capacity AND EITHER of the following:</p> <ul style="list-style-type: none"> <li>Entry Into EOP 2534, Steam Generator Tube Rupture</li> <li>Entry Into EOP 2540, Functional Recovery, to Address Steam Generator Tube Rupture</li> </ul> | <p>CNB3</p> <p>LOSS</p> <p>L Primary to Secondary &gt; Tech Spec Limits and EITHER exists:</p> <ul style="list-style-type: none"> <li>Nonisolable Steam Release from Affected S/G to environment</li> <li>Prolonged Release From Affected S/G to Environment When Used for Cooldown (see basis for description of prolonged release)</li> </ul> <p>L Leakage Through BOTH Isolation Valves AND a Pathway to the Environment Exists Requiring Actions Outside the Control Room to Isolate</p> <p>POTENTIAL LOSS</p> <p>P Leakage Exists Outside CTMT Requiring Isolation From inside the Control Room AND EITHER of the following:</p> <ul style="list-style-type: none"> <li>Entry Into EOP 2532, Loss of Coolant Accident</li> <li>Entry Into EOP 2540, Functional Recovery, to Address Loss of Coolant Accident</li> </ul> |
| RADIATION                                      | <p>FCB3</p> <p>LOSS</p> <p>L RM-8240/8241 Reading &gt; 300 R/hr</p> <p>L RM-8240/8241 Reading &gt; 5 R/hr Without RCS Release Inside CTMT</p> <p>L At Least 5% Fuel Clad Damage As Determined By Core Damage Estimate OR Sample System Dose Rates Obtained Using CP 2802N, "Primary System Sampling Analysis"</p> <p>L Dose Rate at One Foot from Unpressurized RCS Sample ≥ 28 mR/hr/ml</p> <p>POTENTIAL LOSS</p> <p>Not Applicable</p> | <p>RCB5</p> <p>LOSS</p> <p>L RM-8240/8241 Reading &gt; 5 R/hr Without Fuel Clad Barrier Loss</p> <p>POTENTIAL LOSS</p> <p>Not Applicable</p>   | <p>CNB4</p> <p>LOSS</p> <p>L Offsite Dose Plume Rate ≥ 10<sup>-6</sup> Times RM-8240/8241 Reading if Release is to CTMT</p> <p>POTENTIAL LOSS</p> <p>P RM-8240/8241 Reading &gt; 1,200 R/hr</p> <p>P At Least 20% Fuel Clad Damage As Determined By Core Damage Estimate</p>   |
| WATER LEVEL                                    | <p>FCB4</p> <p>LOSS</p> <p>Not Applicable</p> <p>POTENTIAL LOSS</p> <p>P RVLMS Reading = 0% with OPERABLE #8 string (NA if no OPERABLE #8 string)</p>  |  | <p>CNB5</p> <p>LOSS</p> <p>L No CTMT Sump Level Increase When Expectation Exists</p> <p>POTENTIAL LOSS</p> <p>Not Applicable</p>   |
| JUDGEMENT                                      | <p>FCB5</p> <p>Any Condition For Which Judgement Indicates Loss or Potential Loss of Fuel Clad Barrier Due to:</p> <ul style="list-style-type: none"> <li>Imminent Barrier Degradation Based On Current Safety System Performance</li> <li>Degraded Fission Barrier Monitoring Capability Making Barrier Status Indeterminate</li> </ul>   | <p>RCB6</p> <p>Any Condition For Which Judgement Indicates Loss or Potential Loss of RCS Barrier Due to:</p> <ul style="list-style-type: none"> <li>Imminent Barrier Degradation Based On Current Safety System Performance</li> <li>Degraded Fission Barrier Monitoring Capability Making Barrier Status Indeterminate</li> </ul>   | <p>CNB6</p> <p>Any Condition For Which Judgement Indicates Loss or Potential Loss of CTMT Barrier Due to:</p> <ul style="list-style-type: none"> <li>Imminent Barrier Degradation Based On Current Safety System Performance</li> <li>Degraded Fission Barrier Monitoring Capability Making Barrier Status Indeterminate</li> </ul>  |



# MILLSTONE UNIT 3 EMERGENCY ACTION LEVELS

GENERAL EMERGENCY ALPHA  
  GENERAL EMERGENCY BRAVO  
  SITE AREA EMERGENCY CHARLIE-TWO  
  ALERT CHARLIE-ONE  
  UNUSUAL EVENT DELTA-TWO  
  UNUSUAL EVENT DELTA-ONE

| BARRIER FAILURE   |   | LOSS OF POWER  |  | EQUIPMENT FAILURE   |  | OFFSITE RELEASES |  | CLASSIFICATION |  |
|---|---|--|--|---|--|------------------|--|----------------|--|
| BG1    ALL THREE BARRIERS    Mode 1, 2, 3, 4<br>See Barrier Failure Reference Table   | PG1    STATION BLACKOUT    Mode 1, 2, 3, 4<br>Loss of Voltage on Buses 34C AND 34D (Station Blackout Diesel cannot be credited) AND ANY of the Following:<br>• Restoration of Power to AT LEAST One Bus is NOT Likely Within Four Hours<br>• Core Cooling - RED<br>• Heat Sink - RED AND Required Feedwater Flow Can NOT be Established Within 15 minutes | EG1    ATWS/INADEQUATE COOLING    Mode 1<br>Reactor Power > 5% Following Entry into FR-S.1 AND EITHER of the Following:<br>• Core Cooling - RED<br>• All SG Wide Range Levels < 21% (24% Adverse CTMT)   | OG1    OFFSITE DOSE    Mode ALL<br>1. MP3 Ventilation Vent Monitor (3HVR*RE10) Reading $\geq 0.8 \mu\text{Ci/cc}$ for > 15 Minutes<br>2. MP3 SLCRS Monitor (3HVR*RE19) Reading $\geq 30 \mu\text{Ci/cc}$ for > 15 Minutes<br>3. MP3 Safeties or Steam Dump Monitor (3MSS-RE75/76/77/78) Reading $\geq 20 \mu\text{Ci/cc}$ for > 15 Minutes<br>4. Terry Turbine Monitor (3MSS-RE79) Reading $\geq 5 \mu\text{Ci/cc}$ for > 15 Minutes<br>5. Measured Plume Dose Rate Onsite $\geq 1,000 \text{ mR/hr}$ for > 15 Minutes<br>6. Rad Assessment Determines Integrated Dose Offsite $\geq 1 \text{ Rem TEDE OR } \geq 5 \text{ Rem CDE Thyroid}$            | GENERAL EMERGENCY<br>ALPHA<br>OR<br>BRAVO<br>Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or security events that result in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.  |  |                  |  |                |  |
| BS1    ANY TWO BARRIERS    Mode 1, 2, 3, 4<br>See Barrier Failure Reference Table   | PS1    STATION BLACKOUT    Mode 1, 2, 3, 4<br>Loss of Voltage on Buses 34C AND 34D > 15 Minutes (Station Blackout Diesel cannot be credited)<br>PS2    LOSS OF DC    Mode 1, 2, 3, 4<br>Loss of Voltage on DC Buses 1, 2, 3 AND 4 > 15 Minutes  | ES1    ATWS    Mode 1<br>FR-S.1 is Entered Directly From E-0<br>ES2    INABILITY TO MAINTAIN HOT S/D    Mode 1, 2, 3, 4<br>1. Heat Sink - RED AND BOTH of the Following:<br>• Required Feedwater Flow Can NOT Be Established Within 15 Minutes<br>• RCS Bleed and Feed Can NOT Be Established<br>2. RCS Boration Capability Unable to Eliminate Inadvertent Criticality<br>ES3    IN-VESSEL FUEL UNCOVERY    Mode 5, 6<br>RHR Has Been Lost AND ANY of the Following Conditions Exist:<br>• Alternate Methods for Restoring RCS Inventory Are NOT Effective<br>• RVLMS Reading Decreasing Toward 19% Level (Plenum) with OPERABLE 19% sensor (NA if no OPERABLE 19% sensor)<br>• CET Readings Indicate Superheat Conditions<br>ES4    LOSS OF ANNUNCIATORS/TRANSIENT    Mode 1, 2, 3, 4<br>Loss of Most (75%) MCB Annunciators AND BOTH of the Following:<br>• Significant Transient in Progress<br>• Loss of SPDS AND ICC Instrumentation                             | OS1    OFFSITE DOSE    Mode ALL<br>1. MP3 Ventilation Vent Monitor (3HVR*RE10) Reading $\geq 0.1 \mu\text{Ci/cc}$ for > 15 Minutes<br>2. MP3 SLCRS Monitor (3HVR*RE19) Reading $\geq 10 \mu\text{Ci/cc}$ for > 15 Minutes<br>3. MP3 Safeties or Steam Dump Monitor (3MSS-RE75/76/77/78) Reading $\geq 0.8 \mu\text{Ci/cc}$ for > 15 Minutes<br>4. Terry Turbine Monitor (3MSS-RE79) Reading $\geq 1 \mu\text{Ci/cc}$ for > 15 Minutes<br>5. Measured Plume Dose Rate Onsite $\geq 50 \text{ mR/hr}$ for > 15 Minutes<br>6. Rad Assessment Determines Integrated Dose Offsite $\geq 0.05 \text{ Rem TEDE OR } \geq 0.25 \text{ Rem CDE Thyroid}$        | SITE AREA EMERGENCY<br>CHARLIE-TWO<br>Events are in process or have occurred which involve an actual or likely major failure of plant functions needed for protection of the public or security events that result in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) prevents effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels beyond the site boundary. |  |                  |  |                |  |
| BA1    FUEL CLAD OR RCS BARRIER    Mode 1, 2, 3, 4<br>See Barrier Failure Reference Table<br>BA2    STEAM LINE BREAK    Mode 1, 2, 3, 4<br>Unisolable Steam Line Break Outside CTMT   | PA1    STATION BLACKOUT    Mode 5, 6, 0<br>Loss of Voltage on Buses 34C AND 34D > 15 Minutes<br>PA2    SINGLE AC POWER SOURCE    Mode 1, 2, 3, 4<br>Only One AC Power Source Available to Supply Buses 34C AND/OR 34D > 15 Minutes Such That Loss of That Power Source Would Result in a Station Blackout (Station Blackout Diesel CANNOT be Credited)    | EA1    AUTOMATIC RX TRIP FAILURE    Mode 1, 2<br>Failure of Automatic Reactor Trip AND Manual Trip Was Successful<br>EA2    INABILITY TO MAINTAIN COLD S/D    Mode 5, 6<br>1. Uncontrolled RCS Temperature Increase > 10 °F That Results in RCS Temperature > 200 °F<br>2. Inadvertent Criticality<br>EA3    LOSS OF ANNUNCIATORS/TRANSIENT    Mode 1, 2, 3, 4<br>Loss of Most (75%) MCB Annunciators > 15 Minutes AND EITHER of the Following:<br>• Significant Transient in Progress<br>• Loss of SPDS AND ICC Instrumentation   | OA1    OFFSITE DOSE    Mode ALL<br>1. MP3 Ventilation Vent Monitor (3HVR*RE10) Reading $\geq 0.01 \mu\text{Ci/cc}$ for > 15 Minutes<br>2. MP3 SLCRS Monitor (3HVR*RE19) Reading $\geq 1 \mu\text{Ci/cc}$ for > 15 Minutes<br>3. MP3 Safeties or Steam Dump Monitor (3MSS-RE75/76/77/78) Reading $\geq 0.08 \mu\text{Ci/cc}$ for > 15 Minutes<br>4. Terry Turbine Monitor (3MSS-RE79) Reading Of $\geq 0.1 \mu\text{Ci/cc}$ for > 15 Minutes<br>5. Measured Plume Dose Rate Onsite $\geq 5 \text{ mR/hr}$ for > 15 Minutes<br>6. Rad Assessment Determines Integrated Dose Offsite $\geq 0.005 \text{ Rem TEDE OR } \geq 0.025 \text{ Rem CDE Thyroid}$ | ALERT<br>CHARLIE-ONE<br>Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of intentional malicious dedicated efforts of a hostile act. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.  |  |                  |  |                |  |
| BU1    CTMT BARRIER    Mode 1, 2, 3, 4<br>See Barrier Failure Reference Table<br>BU2    RCS LEAKAGE    Mode 1, 2, 3, 4<br>1. Pressure Boundary Leakage > 10 GPM<br>2. Unidentified Leakage > 10 GPM<br>3. Identified Leakage > 25 GPM<br>BU3    FUEL CLAD DEGRADATION    Mode ALL<br>1. RCS Activity > 60 $\mu\text{Ci/gm}$ I-131 DEQ<br>2. Dose Rate at One Foot from Unpressurized RCS Sample $\geq 1 \text{ mR/hr/ml}$ | PU1    LOSS OF OFFSITE POWER    Mode ALL<br>Loss of all OFFSITE power to buses 34C AND 34D for > 15 Minutes<br>PU2    LOSS OF DC    Mode 5, 6<br>Loss of Voltage on DC Buses 1, 2, 3 AND 4 > 15 Minutes   | EU1    LOSS OF COLD S/D FUNCTION    Mode 5, 6<br>1. Loss of RHR Cooling > 15 Minutes AND Valid PZR Water Level (LT 462) Reading < 40%<br>2. Uncontrolled RCS Temperature Increase > 10 °F<br>3. RCS Boron Concentration < Minimum Required<br>EU2    CAVITY SEAL FAILURE    Mode 6, 0<br>Refueling Cavity Seal Failure AND EITHER of the Following:<br>• Valid PZR Level (LT 462) Reading < 40%<br>• Valid SFP Level (LI 26) Reading = 0%<br>Applies in Mode 0 when transfer gate is open.<br>EU3    LOSS OF ANNUNCIATORS    Mode 1, 2, 3, 4<br>Loss of Most (75%) MCB Annunciators > 15 Minutes AND SPDS OR ICC Instruments Available<br>EU4    LOSS OF COMMUNICATIONS    Mode ALL<br>1. Loss of ALL Onsite Electronic Communications Methods<br>2. Loss of ALL Electronic Communications Methods With Government Agencies<br>EU5    SHUTDOWN LCO EXCEEDED    Mode 1, 2, 3, 4<br>Unit NOT Brought To Required Mode Within Applicable LCO Action Statement Time Limits | OU1    UNPLANNED RELEASE    Mode ALL<br>Effluent Monitors in Alarm OR Unplanned, Unmonitored or Uncontrolled Offsite Release AND DELTA-TWO Posture Code Limits as Determined from EPI-FAP06, "Classification and PARS," Exceeded.<br>Note: Effluent Monitors Indicate Release Above Alarm Setpoint Continuing > 60 minutes AND Reportability Evaluations NOT Complete  | UNUSUAL EVENT<br>DELTA-TWO<br>OR<br>DELTA-ONE<br>Events are in process or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.   |  |                  |  |                |  |

NOTE: When two or more EALs apply, always choose the EAL of the highest incident classification; also always read from top to bottom in each category.

# MILLSTONE UNIT 3 EMERGENCY ACTION LEVELS

GENERAL EMERGENCY ALPHA    GENERAL EMERGENCY BRAVO    SITE AREA EMERGENCY CHARLIE-TWO    ALERT CHARLIE-ONE    UNUSUAL EVENT DELTA-TWO    UNUSUAL EVENT DELTA-ONE

| IN-PLANT RADIATION  | SECURITY THREAT/<br>DESTRUCTIVE PHENOMENA   | FIRE/GASES  | JUDGEMENT  | CLASSIFICATION   |
|---|---|---|--|--|
| <p>RG1 MAJOR FUEL DAMAGE Mode ALL</p> <ol style="list-style-type: none"> <li>Sustained Valid RE04A/05A Reading &gt; * R/hr. Reading is Considered Sustained Valid When the Effects of TIC have dissipated.</li> <li>At Least 20% Fuel Clad Damage As Determined By Core Damage Estimate</li> <li>Spent Fuel is Exposed from Water Loss from Open Vessel, Cavity, Or SF Pool AND BOTH of the Following: <ul style="list-style-type: none"> <li>Spent Fuel Has Decayed &lt; 30 Days</li> <li>Release Can Bypass CTMT</li> </ul> </li> </ol> <p>*See Table 1 Page 3</p>  | <p>TG1 SECURITY EVENT Mode ALL</p> <p>A HOSTILE FORCE has taken control of plant equipment such that plant personnel are unable to operate equipment required to maintain safety functions. Any of the following meet this EAL:</p> <ol style="list-style-type: none"> <li>Loss of Control Room</li> <li>Loss of Remote Shutdown Panel</li> <li>Security reports the loss or imminent loss of a Target Set</li> </ol> <p>OR</p> <p>A HOSTILE ACTION has caused failure of Spent Fuel Cooling Systems and IMMEDIATE (for EALs) fuel damage is likely for a freshly off-loaded reactor core in pool.</p>  |   | <p>JG1 JUDGEMENT Mode ALL</p> <p>Other Conditions Exist For Which Judgement Indicates:</p> <ol style="list-style-type: none"> <li>Actual Or Imminent Substantial Core Degradation With Potential For Loss Of Containment, OR</li> <li>Potential For Uncontrolled Radiological Releases. These Releases Can Be Reasonably Expected To Exceed EPA PAG Plume Exposure Levels Outside The Site Boundary</li> </ol> | <p>GENERAL EMERGENCY</p> <p>ALPHA</p> <p>OR</p> <p>BRAVO</p> <p>Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or security events that result in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.</p>  |
| <p>RS1 SPENT FUEL DAMAGE Mode ALL</p> <p>Spent Fuel is Exposed from Open Vessel, or Cavity AND BOTH of the Following:</p> <ul style="list-style-type: none"> <li>Spent Fuel Has Decayed &lt; 30 Days</li> <li>CTMT Integrity Established</li> </ul>   | <p>TS1 SECURITY EVENT Mode ALL</p> <p>A notification from the site security force that an armed attack, explosive attack, airliner impact, or other HOSTILE ACTION is occurring or has occurred within the protected area.</p>  | <p>GS1 CONTROL ROOM EVACUATION Mode ALL</p> <p>Unit Control from Auxiliary Shutdown Panel NOT Established Within 15 Minutes After Control Room Evacuation</p>   | <p>JS1 JUDGEMENT Mode ALL</p> <p>Other Conditions Exist For Which Judgement Indicates Actual Or Likely Major Failures of Plant Functions Needed For Protection Of The Public</p>   | <p>SITE AREA EMERGENCY</p> <p>CHARLIE-TWO</p> <p>Events are in process or have occurred which involve an actual or likely major failure of plant functions needed for protection of the public or security events that result in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) prevents effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels beyond the site boundary.</p> |
| <p>RA1 SPENT FUEL ASSEMBLY DAMAGE Mode ALL</p> <ol style="list-style-type: none"> <li>Spent Fuel is Exposed from Open Vessel, Cavity OR SF Pool AND Spent Fuel Has Decayed <math>\geq</math> 30 Days</li> </ol> <p>Fuel Handling Accident Causing Damage to Spent Fuel, Indicated by Fuel Building OR Containment Radiation Monitors Increasing</p> <p>RA2 PLANT RADIATION Mode ALL</p> <ol style="list-style-type: none"> <li>Radiation Readings &gt; 15 mR/hr in Control Room OR Central Alarm Station OR Secondary Alarm Station</li> <li>Radiation Reading &gt; 5 R/hr in Areas Requiring Access for Safe Shutdown</li> </ol> | <p>TA1 SECURITY EVENT Mode ALL</p> <ol style="list-style-type: none"> <li>Security Events as determined for Station Safeguards Contingency Plan and reported by Security Shift Supervision. (Addresses events that involve Actual or Potential Substantial degradation to the level of safety of the plant.)</li> <li>A notification from the site security force that an armed attack, explosive attack, airliner impact, or other HOSTILE ACTION is occurring or has occurred within the OCA.</li> <li>A validated notification from the NRC of an airliner attack threat less than 30 minutes away.</li> </ol> <p>TA2 DESTRUCTIVE PHENOMENA Mode ALL</p> <ol style="list-style-type: none"> <li>Seismic Event &gt; 0.09g ZPA</li> <li>Onsite Sustained Windspeed &gt; 90 MPH</li> <li>Visible Damage to Structures or Equipment AND Affecting Safe Shutdown</li> <li>Vessel or Vehicle Collision AND Affecting Safe Shutdown</li> <li>Missiles Affecting Safe Shutdown</li> <li>Flooding Affecting Safe Shutdown</li> </ol>  | <p>GA1 CONTROL ROOM EVACUATION Mode ALL</p> <p>Control Room Evacuation Initiated</p> <p>GA2 FIRE/EXPLOSION Mode ALL</p> <p>Fire or Explosion Affecting Safe Shutdown Area AND Damage to Structures OR Safe Shutdown Equipment Indicated.</p> <p>GA3 TOXIC FLAMMABLE GASES Mode ALL</p> <p>Life Threatening Toxic Gases OR Flammable Gas Concentrations as Identified in C-OP 200.5, Oil, Hazardous Material, Hazardous Waste and Mixed Waste Contingency Plan Affecting Areas for Safe Shutdown</p>   | <p>JA1 JUDGEMENT Mode ALL</p> <p>Any Condition For Which Judgement Indicates That Safety Systems May Be Degraded And Which Requires Emergency Response Organization Staffing</p>   | <p>ALERT</p> <p>CHARLIE-ONE</p> <p>Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of intentional malicious dedicated efforts of a hostile act. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.</p>  |
| <p>RU1 RAD MONITORS Mode ALL</p> <ol style="list-style-type: none"> <li>Containment OR Fuel Building Area Rad Monitor Alarms Indicate Cavity Seal Failure</li> <li>Unexpected Rad Monitor Reading Offscale High OR &gt; 1000 Times Normal Reading</li> </ol>  | <p>TU1 SECURITY EVENT Mode ALL</p> <ol style="list-style-type: none"> <li>Security Condition as determined for Station Safeguards Contingency Plan and reported by Security Shift Supervision. (Addresses events that involve Potential degradation in the level of safety of the plant.)</li> <li>A credible site specific security threat notification.</li> <li>A validated notification from the NRC providing information of an aircraft threat.</li> </ol> <p>TU2 DESTRUCTIVE PHENOMENA Mode ALL</p> <ol style="list-style-type: none"> <li>Seismic Activity Detected Per AOP-3570, Earthquake</li> <li>Report by Plant Personnel of Tornado Striking Within Protected Area</li> <li>Visible Damage to Structures or Equipment Within the Protected Area</li> <li>Onsite Sustained Windspeed &gt; 75 MPH</li> <li>Explosion Within the Protected Area</li> <li>Turbine Failure Causing Observable Casing Damage</li> <li>Vessel or Vehicle Collision With Structures or Equipment Required for Safe Shutdown or a Loaded ISFSI Confinement Boundary</li> <li>Flood Level &gt; 19.7 Feet Mean Sea Level</li> <li>Flooding in Areas Containing Safe Shutdown Equipment</li> </ol> | <p>GU1 FIRE Mode ALL</p> <ol style="list-style-type: none"> <li>Fire in Buildings OR Areas Adjacent to Areas Needed for Safe Shutdown NOT Extinguished Within 15 Minutes of Control Room Notification OR Verification of Control Room Alarms</li> <li>Fire affecting a loaded ISFSI confinement boundary NOT extinguished within 15 minutes of notification.</li> </ol> <p>GU2 TOXIC/FLAMMABLE GASES Mode ALL</p> <ol style="list-style-type: none"> <li>Life Threatening Toxic Gases OR Flammable Gas Concentrations as Identified in C-OP 200.5, Oil, Hazardous Material, Hazardous Waste and Mixed Waste Contingency Plan Affecting Normal Operation</li> <li>Notification of a Near-Site Release That May Require Evacuation</li> </ol> | <p>JU1 JUDGEMENT Mode ALL</p> <p>Any Condition For Which Judgement Indicates Potential Degradation in the Level of Safety of the Plant</p>   | <p>UNUSUAL EVENT</p> <p>DELTA-TWO</p> <p>OR</p> <p>DELTA-ONE</p> <p>Events are in process or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.</p>   |

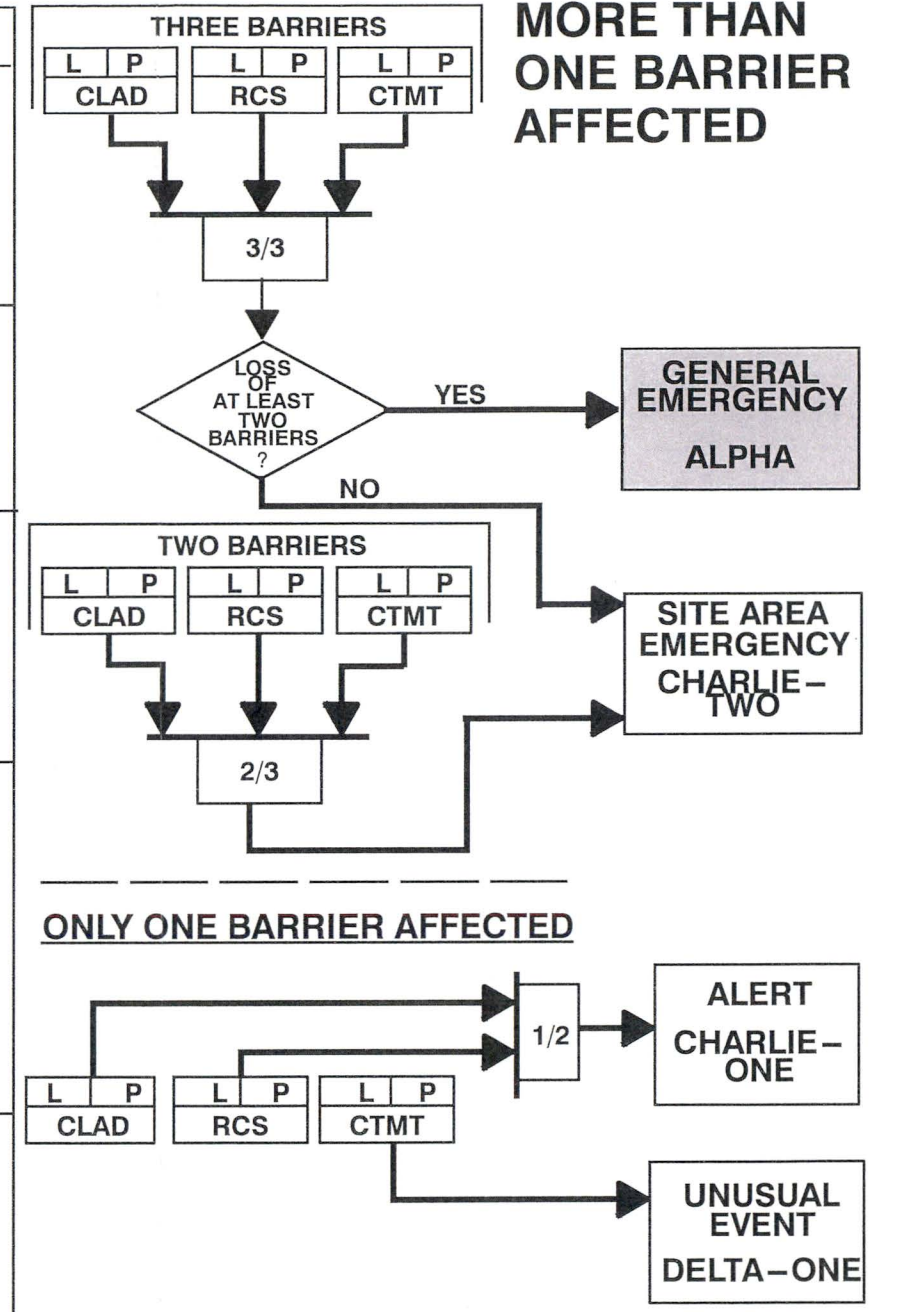
NOTE: When two or more EALs apply, always choose the EAL of the highest incident classification; also always read from top to bottom in each category.

| AREAS OF CONCERN FOR SAFE SHUTDOWN |                               |
|------------------------------------|-------------------------------|
| Containment Building               | Intake Structure              |
| Auxiliary Building                 | Station Transformers          |
| Control Building                   | Emergency Generator Enclosure |
| Main Steam Valve Building          | Fuel Building                 |
| Deminerlized Water Storage Tank    |                               |
| ESF Building                       |                               |

# MILLSTONE 3 EMERGENCY ACTION LEVELS BARRIER FAILURE REFERENCE TABLE

IMMINENT - No Turnaround in Safety System Performance is Expected AND Escalation to General Emergency Conditions Will Occur Within 2 Hours

| INDICATORS                | FUEL CLAD BARRIER   | RCS BARRIER   | CTMT BARRIER  |
|---------------------------|---|---|---|
| STATUS TREES              | FCB1<br>L Core Cooling - RED<br>POTENTIAL LOSS<br>P Core Cooling - ORANGE<br>P Heat Sink - RED AND BOTH of the Following:<br>• Required Feedwater Flow Can NOT Be Established Within 15 Minutes<br>• RCS Bleed and Feed Can NOT Be Established  | RCB1<br>LOSS<br>Not Applicable<br>POTENTIAL LOSS<br>P RCS Integrity - RED<br>P Heat Sink - RED AND Required Feedwater Flow Can NOT Be Established Within 15 Minutes   | CNB1<br>LOSS<br>Not Applicable<br>POTENTIAL LOSS<br>P Containment - RED   |
|                           | FCB2<br>L Core Exit TC Temperatures > 1200 °F<br>POTENTIAL LOSS<br>P Core Exit TC Temperatures > 718 °F   | RCB2<br>LOSS<br>L RCS Subcooling < 32 °F Due to RCS Leak (115°F Adverse CTMT)<br>POTENTIAL LOSS<br>Not Applicable   | CNB2<br>LOSS<br>Not Applicable<br>POTENTIAL LOSS<br>P Entry Into FR-C.1, Response to Inadequate Core Cooling, or FR-C.2, Response to Degraded Core Cooling with RVLMS < 19% (Plenum) with OPERABLE 19% sensor (NA if no OPERABLE 19% sensor) AND Core Exit TC Temperatures Do NOT Decrease Within 15 Minutes  |
| CORE EXIT TC TEMPERATURES |   | RCB3<br>LOSS<br>Not Applicable<br>POTENTIAL LOSS<br>P Uncontrolled RCS Pressure Decrease and Increasing Containment Radiation Monitors  | CNB3<br>LOSS<br>L Rapid Unexplained CTMT Pressure Decrease Following Initial Increase<br>L No CTMT Pressure Increase When Expectation Exists<br>POTENTIAL LOSS<br>P CTMT Pressure ≥ 60 PSIA AND Increasing<br>P CTMT H <sub>2</sub> Concentration ≥ 4%  |
|                           |   | RCB4<br>LOSS<br>L Entry Into E-3, "Steam Generator Tube Rupture" AND Reactor Coolant Leak > Capacity of One Charging Pump<br>POTENTIAL LOSS<br>P Reactor Coolant Leak > Capacity of One Charging Pump AND ANY of the following:<br>• Entry into E-0, "Reactor Trip or Safety Injection"<br>• Entry into AOP 3555, "Reactor Coolant Leak"<br>• Entry into AOP 3576, "Steam Generator Tube Leak"<br>P Entry into E-3, "Steam Generator Tube Rupture" AND Reactor Coolant Leak ≤ Capacity of One Charging Pump | CNB4<br>LOSS<br>L Primary to Secondary > Tech Spec Limits AND EITHER exists:<br>• Nonisolable Steam Release from Affected S/G to environment.<br>• Prolonged Release From Affected S/G to Environment When Used for Cooldown. (see basis for description of prolonged release)<br>L Failure of BOTH Isolation Valves AND a Pathway to the Environment Exists<br>L Entry Into ECA-1.2, LOCA Outside Containment, Is Required AND Reactor Coolant Leakage is Verified<br>POTENTIAL LOSS<br>P Entry Into ECA-1.2, LOCA Outside Containment |
| PRESSURE                  |   | RCB5<br>LOSS<br>L Sustained Valid RE-04/05A Reading > 5 R/hr Without Fuel Clad Barrier Loss. Readings are considered sustained valid when the effects of TIC have dissipated.<br>POTENTIAL LOSS<br>Not Applicable   | CNB5<br>LOSS<br>L Offsite Dose Plume Rate ≥ 5x10 <sup>-6</sup> Times RE-04A/RE-05A Reading if Coolant Loss is to CTMT<br>POTENTIAL LOSS<br>P Sustained Valid RE-04A/05A Reading > * R/hr. Readings are considered sustained valid when the effects of TIC have dissipated.<br>P At Least 20% Fuel Clad Damage As Determined By Core Damage Estimate<br>*See Table 1   |
| COOLANT LEAKAGE           | FCB3<br>LOSS<br>L Sustained Valid RE-04A/05A Reading > * R/hr. Readings are considered sustained valid when the effects of TIC have dissipated.<br>L Sustained valid RE-04A/05A Reading > 5 R/hr Without RCS Release Inside Containment. Readings are considered sustained valid when the effects of TIC have dissipated.<br>L At Least 5% Fuel Clad Damage As Determined By Core Damage Estimate<br>L Dose Rate at One Foot from Unpressurized RCS Sample ≥ 50 mR/hr/ml<br>L RE-41/42 Reading > 0.040 R/hr S/D or > 0.060 R/hr Full Power for > 15 Min. Without RCS Release Inside Containment<br>POTENTIAL LOSS<br>Not Applicable<br>*See Table 1 | RCB6<br>LOSS<br>Any Condition For Which Judgement Indicates Loss or Potential Loss of RCS Barrier Due to:<br>• Imminent Barrier Degradation Based On Current Safety System Performance<br>• Degraded Fission Barrier Monitoring Capability Making Barrier Status Indeterminate  | CNB6<br>LOSS<br>L No CTMT Sump Level Increase When Expectation Exists<br>POTENTIAL LOSS<br>Not Applicable   |
|                           | FCB4<br>LOSS<br>Not Applicable<br>POTENTIAL LOSS<br>P RVLMS ≤ 19% (Plenum) with OPERABLE 19% sensor (NA if no OPERABLE 19% sensor)  | RCB7<br>LOSS<br>Any Condition For Which Judgement Indicates Loss or Potential Loss of RCS Barrier Due to:<br>• Imminent Barrier Degradation Based On Current Safety System Performance<br>• Degraded Fission Barrier Monitoring Capability Making Barrier Status Indeterminate  | CNB7<br>LOSS<br>Any Condition For Which Judgement Indicates Loss or Potential Loss of CTMT Barrier Due to:<br>• Imminent Barrier Degradation Based On Current Safety System Performance<br>• Degraded Fission Barrier Monitoring Capability Making Barrier Status Indeterminate   |
| RADIATION                 |   | RCB8<br>LOSS<br>Any Condition For Which Judgement Indicates Loss or Potential Loss of RCS Barrier Due to:<br>• Imminent Barrier Degradation Based On Current Safety System Performance<br>• Degraded Fission Barrier Monitoring Capability Making Barrier Status Indeterminate  | CNB8<br>LOSS<br>Any Condition For Which Judgement Indicates Loss or Potential Loss of CTMT Barrier Due to:<br>• Imminent Barrier Degradation Based On Current Safety System Performance<br>• Degraded Fission Barrier Monitoring Capability Making Barrier Status Indeterminate   |
| WATER LEVEL               |   | RCB9<br>LOSS<br>Any Condition For Which Judgement Indicates Loss or Potential Loss of RCS Barrier Due to:<br>• Imminent Barrier Degradation Based On Current Safety System Performance<br>• Degraded Fission Barrier Monitoring Capability Making Barrier Status Indeterminate  | CNB9<br>LOSS<br>Any Condition For Which Judgement Indicates Loss or Potential Loss of CTMT Barrier Due to:<br>• Imminent Barrier Degradation Based On Current Safety System Performance<br>• Degraded Fission Barrier Monitoring Capability Making Barrier Status Indeterminate   |
| JUDGEMENT                 |   | RCB10<br>LOSS<br>Any Condition For Which Judgement Indicates Loss or Potential Loss of RCS Barrier Due to:<br>• Imminent Barrier Degradation Based On Current Safety System Performance<br>• Degraded Fission Barrier Monitoring Capability Making Barrier Status Indeterminate   | CNB10<br>LOSS<br>Any Condition For Which Judgement Indicates Loss or Potential Loss of CTMT Barrier Due to:<br>• Imminent Barrier Degradation Based On Current Safety System Performance<br>• Degraded Fission Barrier Monitoring Capability Making Barrier Status Indeterminate  |



**Table 1**

| Time After Shutdown (hrs) | FCB3 Fuel Clad Loss Threshold (R/hr) | CNB5/RG1 Containment Loss Threshold (R/hr) |
|---------------------------|--------------------------------------|--|
| ≤ 2                       | 200                                  | 800  |
| > 2 to 4                  | 125                                  | 500  |
| > 4 to 12                 | 50                                   | 200  |
| > 12                      | 25                                   | 100  |

**APPENDIX J**

**EVACUATION TIME ESTIMATE PLUME EXPOSURE PATHWAY**

## Appendix J

### Estimates for Evacuation of the Plume Exposure EPZ

The following tables summarize the results of the Evacuation Time Estimate (ETE) prepared for the Millstone Power station in 2012, to reflect the 2010 U.S. Census and the current EPZ evacuation zones. The population estimates are based on the 2010 U.S. Census block level population and housing data.

The ETE statistics provide the elapsed times for 90 and 100 percent, respectively, of the population within the impacted region, to evacuate from within the impacted region.

The various population components are presented for fourteen basic scenarios. The road network for evacuation planning consists of designated routes plus additional roadways needed to accurately simulate conditions during an evacuation.

An analytical tool DYNEV 11, was used to generate the ETEs. The model accounts for road and intersection capacity, variable vehicle loading rates, and the geographic distribution of vehicles entering the network.



Table J-1 – Time to Clear the Indicated Area of 90 Percent of the Affected Population

|   |                | Summer       |      | Summer       |      | Summer          | Winter       |      |      | Winter       |      |      | Winter          | Summer          | Summer         |
|---|----------------|--------------|------|--------------|------|-----------------|--------------|------|------|--------------|------|------|-----------------|-----------------|----------------|
|   |                | Midweek      |      | Weekend      |      | Midweek Weekend | Midweek      |      |      | Weekend      |      |      | Midweek Weekend | Midweek Weekend | Midweek        |
| Scenario:   |                | (1)          | (2)  | (3)          | (4)  | (5)             | (6)          | (7)  | (8)  | (9)          | (10) | (11) | (12)            | (13)            | (14)           |
| Region  | Affected Zones | Midday       |      | Midday       |      | Evening         | Midday       |      |      | Midday       |      |      | Evening         | Evening         | Midday         |
|   |                | Good Weather | Rain | Good Weather | Rain | Good Weather    | Good Weather | Rain | Snow | Good Weather | Rain | Snow | Good Weather    | Special Event   | Roadway Impact |
| <b>Entire 2-Mile Region, 5-Mile Region, and EPZ</b>             |                |              |      |              |      |                 |              |      |      |              |      |      |                 |                 |                |
| R01   | A              | 2:30         | 2:40 | 2:30         | 2:40 | 2:10            | 2:35         | 2:45 | 3:10 | 2:25         | 2:40 | 3:05 | 2:10            | 2:15            | 2:35           |
| R02   | AB             | 2:45         | 2:55 | 2:40         | 2:50 | 2:20            | 2:45         | 3:00 | 3:20 | 2:40         | 2:50 | 3:15 | 2:20            | 3:00            | 2:55           |
| R03   | ABCDEF         | 3:40         | 4:00 | 3:25         | 3:40 | 2:55            | 3:45         | 4:05 | 4:35 | 3:20         | 3:40 | 4:05 | 2:55            | 3:55            | 4:35           |
| <b>5-Mile Region and Keyhole to EPZ Boundary</b>                |                |              |      |              |      |                 |              |      |      |              |      |      |                 |                 |                |
| R04   | ABD            | 2:55         | 3:10 | 2:50         | 3:00 | 2:25            | 3:00         | 3:10 | 3:40 | 2:50         | 3:00 | 3:25 | 2:25            | 3:00            | 3:10           |
| R05   | ABCD           | 3:15         | 3:35 | 3:10         | 3:25 | 2:40            | 3:15         | 3:35 | 4:05 | 3:05         | 3:15 | 3:50 | 2:45            | 3:20            | 3:45           |
| R06   | ABC            | 3:10         | 3:25 | 3:00         | 3:20 | 2:40            | 3:10         | 3:25 | 3:50 | 3:00         | 3:15 | 3:40 | 2:40            | 3:25            | 3:35           |
| R07   | ABCE           | 3:45         | 4:05 | 3:25         | 3:45 | 3:00            | 3:45         | 4:05 | 4:35 | 3:20         | 3:35 | 4:00 | 3:00            | 3:55            | 4:30           |
| R08   | ABE            | 3:30         | 3:40 | 2:55         | 3:20 | 2:45            | 3:35         | 3:50 | 4:15 | 2:55         | 3:15 | 3:45 | 2:45            | 3:20            | 4:05           |
| R09   | ABEF           | 3:30         | 3:40 | 2:55         | 3:20 | 2:45            | 3:35         | 3:50 | 4:15 | 2:55         | 3:15 | 3:45 | 2:45            | 3:20            | 4:05           |
| R10   | ABF            | 2:45         | 2:55 | 2:40         | 2:50 | 2:20            | 2:45         | 3:00 | 3:20 | 2:40         | 2:50 | 3:15 | 2:20            | 3:00            | 2:55           |
| <b>Staged Evacuation - 2-Mile Region and Keyhole to 5 Miles</b> |                |              |      |              |      |                 |              |      |      |              |      |      |                 |                 |                |
| R11   | AB             | 3:25         | 3:30 | 3:25         | 3:30 | 3:05            | 3:25         | 3:30 | 4:05 | 3:25         | 3:25 | 4:10 | 3:05            | 3:25            | 3:25           |

Table J-2 – Time to Clear the Indicated Area of 100 Percent of the Affected Population

|  |                   | Summer          |      | Summer          |      | Summer             | Winter          |      |      | Winter          |      |      | Winter             | Summer             | Summer            |
|--|-------------------|-----------------|------|-----------------|------|--------------------|-----------------|------|------|-----------------|------|------|--------------------|--------------------|-------------------|
|  |                   | Midweek         |      | Weekend         |      | Midweek<br>Weekend | Midweek         |      |      | Weekend         |      |      | Midweek<br>Weekend | Midweek<br>Weekend | Midweek           |
| Scenario:  |                   | (1)             | (2)  | (3)             | (4)  | (5)                | (6)             | (7)  | (8)  | (9)             | (10) | (11) | (12)               | (13)               | (14)              |
| Region   | Affected<br>Zones | Midday          |      | Midday          |      | Evening            | Midday          |      |      | Midday          |      |      | Evening            | Evening            | Midday            |
|  |                   | Good<br>Weather | Rain | Good<br>Weather | Rain | Good<br>Weather    | Good<br>Weather | Rain | Snow | Good<br>Weather | Rain | Snow | Good<br>Weather    | Special<br>Event   | Roadway<br>Impact |
| Entire 2-Mile Region, 5-Mile Region, and EPZ             |                   |                 |      |                 |      |                    |                 |      |      |                 |      |      |                    |                    |                   |
| R01  | A                 | 4:30            | 4:30 | 4:30            | 4:30 | 4:30               | 4:30            | 4:30 | 6:05 | 4:30            | 4:30 | 6:05 | 4:30               | 4:30               | 4:30              |
| R02  | AB                | 4:35            | 4:35 | 4:35            | 4:35 | 4:35               | 4:35            | 4:35 | 6:05 | 4:35            | 4:35 | 6:05 | 4:35               | 4:35               | 4:35              |
| R03  | ABCDEF            | 4:55            | 5:30 | 4:40            | 4:45 | 4:40               | 5:25            | 5:50 | 6:25 | 4:40            | 4:45 | 6:10 | 4:40               | 5:00               | 7:10              |
| 5-Mile Region and Keyhole to EPZ Boundary                |                   |                 |      |                 |      |                    |                 |      |      |                 |      |      |                    |                    |                   |
| R04  | ABD               | 4:40            | 4:40 | 4:40            | 4:40 | 4:40               | 4:40            | 4:40 | 6:10 | 4:40            | 4:40 | 6:10 | 4:40               | 4:40               | 4:40              |
| R05  | ABCD              | 4:40            | 4:40 | 4:40            | 4:40 | 4:40               | 4:40            | 4:45 | 6:10 | 4:40            | 4:40 | 6:10 | 4:40               | 4:40               | 4:50              |
| R06  | ABC               | 4:40            | 4:40 | 4:40            | 4:40 | 4:40               | 4:40            | 4:45 | 6:10 | 4:40            | 4:40 | 6:10 | 4:40               | 4:40               | 4:40              |
| R07  | ABCE              | 4:55            | 5:30 | 4:40            | 4:45 | 4:40               | 5:20            | 5:50 | 6:25 | 4:40            | 4:45 | 6:10 | 4:40               | 5:00               | 7:10              |
| R08  | ABE               | 4:55            | 5:30 | 4:40            | 4:45 | 4:40               | 5:15            | 5:30 | 6:15 | 4:40            | 4:40 | 6:10 | 4:40               | 4:45               | 6:55              |
| R09  | ABEF              | 4:55            | 5:30 | 4:40            | 4:45 | 4:40               | 5:15            | 5:30 | 6:15 | 4:40            | 4:40 | 6:10 | 4:40               | 4:45               | 6:55              |
| R10  | ABF               | 4:35            | 4:35 | 4:35            | 4:35 | 4:35               | 4:35            | 4:35 | 6:05 | 4:35            | 4:35 | 6:05 | 4:35               | 4:35               | 4:35              |
| Staged Evacuation - 2-Mile Region and Keyhole to 5 Miles |                   |                 |      |                 |      |                    |                 |      |      |                 |      |      |                    |                    |                   |
| R11  | AB                | 4:40            | 4:40 | 4:40            | 4:40 | 4:40               | 4:40            | 4:40 | 6:10 | 4:40            | 4:40 | 6:10 | 4:40               | 4:50               | 4:40              |

Table J-3 – Summary of Population Demand

| Zone         | Residents      | Transit-Dependent | Transients    | Employees     | Special Facilities | Schools       | Shadow Population | External Traffic | Total          |
|--------------|----------------|-------------------|---------------|---------------|--------------------|---------------|-------------------|------------------|----------------|
| A            | 19,379         | 781               | 9,734         | 1,313         | 2,119              | 4,270         | 0                 | 0                | 37,596         |
| B            | 33,573         | 1,229             | 1,419         | 2,804         | 871                | 9,770         | 0                 | 0                | 49,666         |
| C            | 14,618         | 519               | 426           | 61            | 52                 | 3,954         | 0                 | 0                | 19,630         |
| D            | 8,731          | 311               | 2,118         | 38            | 0                  | 1,669         | 0                 | 0                | 12,867         |
| E            | 45,456         | 1,617             | 4,836         | 6,747         | 483                | 8,552         | 0                 | 0                | 67,691         |
| F            | 236            | 0                 | 3,500         | 0             | 0                  | 0             | 0                 | 0                | 3,736          |
| Shadow       | 0              | 0                 | 0             | 0             | 0                  | 0             | 14,414            | 0                | 14,414         |
| <b>Total</b> | <b>121,993</b> | <b>4,457</b>      | <b>22,033</b> | <b>10,963</b> | <b>3,525</b>       | <b>28,215</b> | <b>14,414</b>     | <b>0</b>         | <b>205,600</b> |

## NOTES:

- Inmate population at York Correctional has been included within the special facilities population. For this reason, 1,685 people have been removed from the residential population in Zone A to avoid double counting.
- United States Coast Guard Academy students are included in total school enrollment. For this reason, 1,100 students have been removed from the residential population in Zone B to avoid double counting.
- Shadow Population has been reduced to 20%. Refer to Figure 2-1 for additional information.
- Special Facilities include both medical facilities and correctional facilities.

Appendix K

APPENDIX K

**SERO PERSONNEL TRAINING SUMMARY**

## Appendix K

The following table provides a summary of training, for the qualification of SERO personnel. Detailed lesson plans and administrative controls are maintained in EP Training Program Guide TR-AA-TPG-2400. In addition, EPA-FAP01 defines specific training requirements. See Reference #4 below

| <b>Training Summary</b>   | <b>Table 5-1<br/>Ref. #</b> |
|---|-----------------------------|
| Provide an overview of responsibilities and actions that occur during an emergency. This includes classification system, notifications, communications, Station Emergency Response Organization, Emergency Response Facilities and equipment. This lesson may be computer based training and is used for initial and continuing training. | 1                           |
| Provide hands-on instruction for the operation of the OFIS computer program.  | 2                           |
| Provide instruction on the function and operation of the Emergency Notification and Response System, in addition to providing instruction on the various reports available.   | 3                           |
| Provide practical application of specific emergency duties and responsibilities as well as hands-on experience with emergency equipment during the conduct of a training drill, facility walk-through or on-the-job training.   | 4<br>MP-26-<br>EPA-FAP01    |
| Provide overview of meteorological conditions and their impact during an emergency, including equipment and resources available to access this data.  | 5                           |
| Provide training on the event based EAL tables, including structure and practical applications using scenarios.   | 6                           |
| Provide familiarization training on the event based EAL tables.   | 7                           |
| Identify NRC initiatives in the area of accident management and familiarize students with types of severe accident phenomena.   | 8                           |
| Provide SERO position specific duties and responsibilities as delineated in the Emergency Plan and procedures.  | 9                           |
| Explain basic principles of meteorological analysis and forecasting, including interpretation and communication of data.  | 10                          |
| Provide methods for performing containment curie level estimation and for assessing core uncover projections.   | 11                          |
| Provide methods for performing radiological dose calculations.  | 12                          |
| Demonstrate operation of the applicable computer programs for radiological dose assessments.  | 13                          |
| Provide training on process for preparing protective action recommendations to the State of Connecticut.  | 14                          |
| Provide training for performance of on-shift radiological dose calculations using computer programs.  | 15                          |