

ATTACHMENT 3

Standardized Radiological Emergency Plan Revision

EP-AA-1010, Revision 11, *"Radiological Emergency Plan Annex for Oyster Creek Station"*

~~(Exelon Confidential/Proprietary Information Withhold Under 10 CFR 2.390)~~



EXELON NUCLEAR

RADIOLOGICAL EMERGENCY PLAN ANNEX FOR OYSTER CREEK STATION

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Section 1: Introduction

As required in the conditions set forth by the Nuclear Regulatory Commission (NRC) for the operating licenses for the Exelon Nuclear Stations, the management of Exelon recognizes its responsibility and authority to operate and maintain the nuclear power stations in such a manner as to provide for the safety of the general public.

The Oyster Creek Emergency Preparedness Program consists of the Oyster Creek Radiological Emergency Plan, the Oyster Creek Station Annex, Exelon emergency plan implementing procedures, and associated program administrative documents. The Oyster Creek Radiological Emergency Plan outlines the basis for response actions that would be implemented in an emergency.

This document serves as the Oyster Creek Station Annex and contains information and guidance that is unique to the station. This includes facility geography and location for a full understanding and representation of the station's emergency response capabilities. The Station Annex is subject to the same review and audit requirements as the Oyster Creek Radiological Emergency Plan per EP-AA-120, "Emergency Plan Administration".

1.1 Facility Description

General Information and Site Description

OCGS is operated by Exelon Nuclear and is a General Electric 1930 Mw Thermal Boiling Water Reactor steam supply system. Control rods and recirculation flow are used for reactivity control. Steam generated within the reactor housing is utilized to drive a turbine coupled to the main generator. The arrangement of the major OCGS facilities is shown in Figure OCGS 1-1: OCGS Site Arrangement.

The OCGS site is located near the Atlantic Ocean within the State of New Jersey. The Plant site, approximately 152 acres, is in Lacey and Ocean Townships, Ocean County. OCGS is about two miles inland from the shore of Barnegat Bay and seven miles west-northwest of Barnegat Light on the Atlantic shorefront. The site is approximately nine miles south of Toms River, New Jersey, about fifty miles east of Philadelphia, Pennsylvania, and sixty miles south of Newark, New Jersey.

The major transportation routes include the Garden State Parkway and U.S. Highway 9, running north and south; U.S. Highway 72, State Highways 37 and 70, New Jersey Routes 532, 530, 554 and Lacey Road running east and west, which serve primarily as feeder routes to the Garden State Parkway and U.S. Route 9. U.S. Highway 9 provides the eastern most site boundary. Exelon owns approximately 708 acres of property to the east of Route 9 extending to the Barnegat Bay. U.S. Highway 9 provides the only access routes to the site by land.

Water access to the site is provided by the Intercostals Waterway, which runs through Barnegat Bay. A general area map showing the relative location of the OCGS site is shown as Figure OCGS 1-2: OCGS Site Relative Location.

For more specific site location information, refer to the Updated Final Safety Analysis Report (UFSAR) for Oyster Creek Generating Station.

Owner Controlled Area, Exclusion Area and Low Population Zone

The Owner Controlled Area (OCA) for the OCGS includes all areas within the site perimeter security fence. At Oyster Creek, the minimum distance from the centerline of the OCGS Reactor Building to the eastern OCA fence is approximately 800 feet.

The Exclusion Area for the OCGS is a 1358 ft. radius as measured from the centerline of the Reactor Building. The licensee retains complete authority to determine and maintain sufficient control of all activities including the authority to exclude or remove personnel and property from land areas within the exclusion area.

The OCGS low population zone is shown in Figure OCGS 1-3: OCGS Site Exclusion Area and LPZ.

Population and Population Distribution

The nearest population center is Toms River in Dover Township, 9.5 miles north of the site. Specific information regarding population densities within the Plume Exposure Pathway EPZ (e.g., residential areas, typical school enrollment and typical hospital capacities) can be found in the Oyster Creek Evacuation Time Estimate Study.

An appreciable variance in population density occurs during June, July and August due to seasonal transient vacationers. The Oyster Creek area, particularly the bay and seashores, is a summer vacation area for the mid Atlantic states. This seasonal population fluctuation occurs primarily in the eastern sectors.

Local Industry and Military Facilities

Typical industries within 10 miles of the OCGS site are found in the Oyster Creek UFSAR.

The area within 40 miles of the site is comprised primarily of forest, vacant land, or farmland. Only about 25 percent of the land is developed. No major industry exists within a 10-mile radius of the site, although several small industrial concerns exist in the Toms River area.

The nearest military installations are Fort Dix, New Jersey (approximately 35 miles northwest), McGuire Air Force Base (on the Fort Dix Military Reserve), and Lakehurst Naval Air Station (14 miles north). There is also a military reserve approximately 12 miles west along U.S. Route 72, utilized as a practice bombing range.

There is one general aviation airport within the 10-mile radius, Robert J. Miller Airpark County Airport, approximately 9 miles northwest.

1.2 Emergency Planning Zones

OCGS has taken into consideration the information and data presented above, guidance provided by the Environmental Protection Agency, Nuclear Regulatory Commission, and the New Jersey Office of Emergency Management, as well as other important factors such as organizational capabilities, availability of emergency facilities and equipment, and the methods for implementing the OCGS Emergency Plan in defining the Emergency Planning Zones (EPZs) for the Oyster Creek site. As a result, an EPZ having an approximate radial distance of 10 miles from the sites has been defined as the Plume Exposure Pathway EPZ. An EPZ having a radial distance of 50 miles from the sites has been defined as the Ingestion Exposure Pathway EPZ. Figure OCGS 1-4: 10-Mile Plume Exposure Pathway and Figure OCGS 1-5: 50-Mile Ingestion Pathway illustrate the respective boundaries of these EPZs.

1.3 Participating Governmental Agencies

The overall responsibility for the management of the effects of accidental off-site releases of radioactivity resulting from either a nuclear power plant or a transportation accident rests with state and local governments.

The E-Plan recognizes the State of New Jersey, in cooperation with the local EPZ communities, as the overall authority responsible for protective action directives in order to protect the health and safety of the general public.

The development of the State of New Jersey Emergency Plan and the OCGS Emergency Plan were closely coordinated. In addition, specific State requirements for reporting of emergencies, providing information and data, and recommending protective actions, have been integrated directly into the Emergency Plan Implementing Procedures.

In considering the Plume Exposure Pathway EPZ, there are also county plans that have been considered in the development of the OCGS Emergency Plan. The State Plan designates the New Jersey State Police, Office of Emergency Management (OEM) as the lead state agency for radiological emergency response planning and the state agency through which the Governor will exercise coordination and control during an emergency. The State Plan is an integrated document setting forth the resources and responsibilities of all relevant state agencies. Significant plans from the State Departments of Agriculture, Environmental Resources, NJ and Health and Bureau of Nuclear Engineering, are included in the State Plans.

The organization having prime responsibility in matters of radiation hazards are the Bureau of Nuclear Engineering (BNE). County and local governments are responsible for the protection of public health and safety within their jurisdiction.

Figure OCGS 1-1: OCGS Site Arrangement

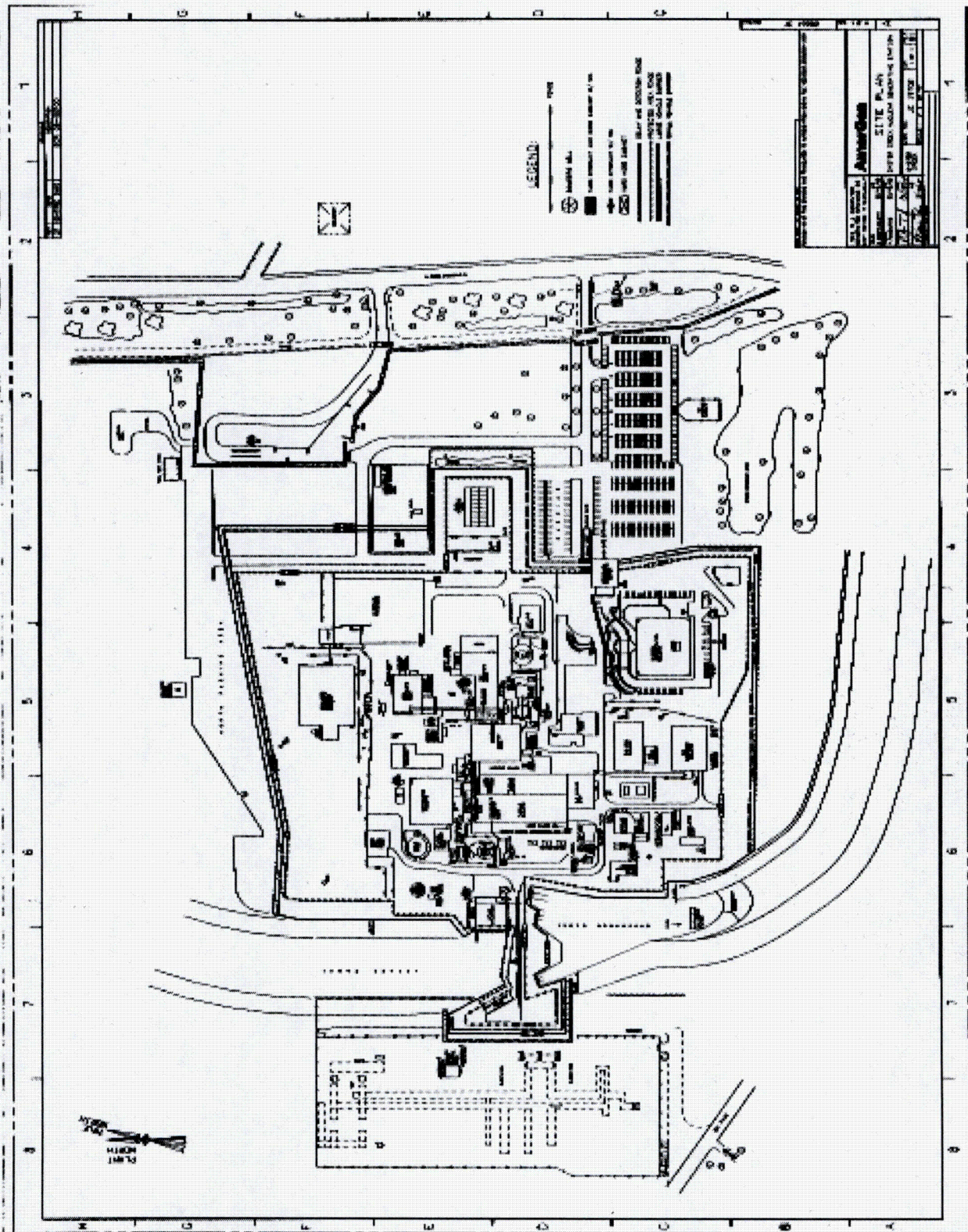


Figure OCGS 1-2: OCGS Site Relative Location

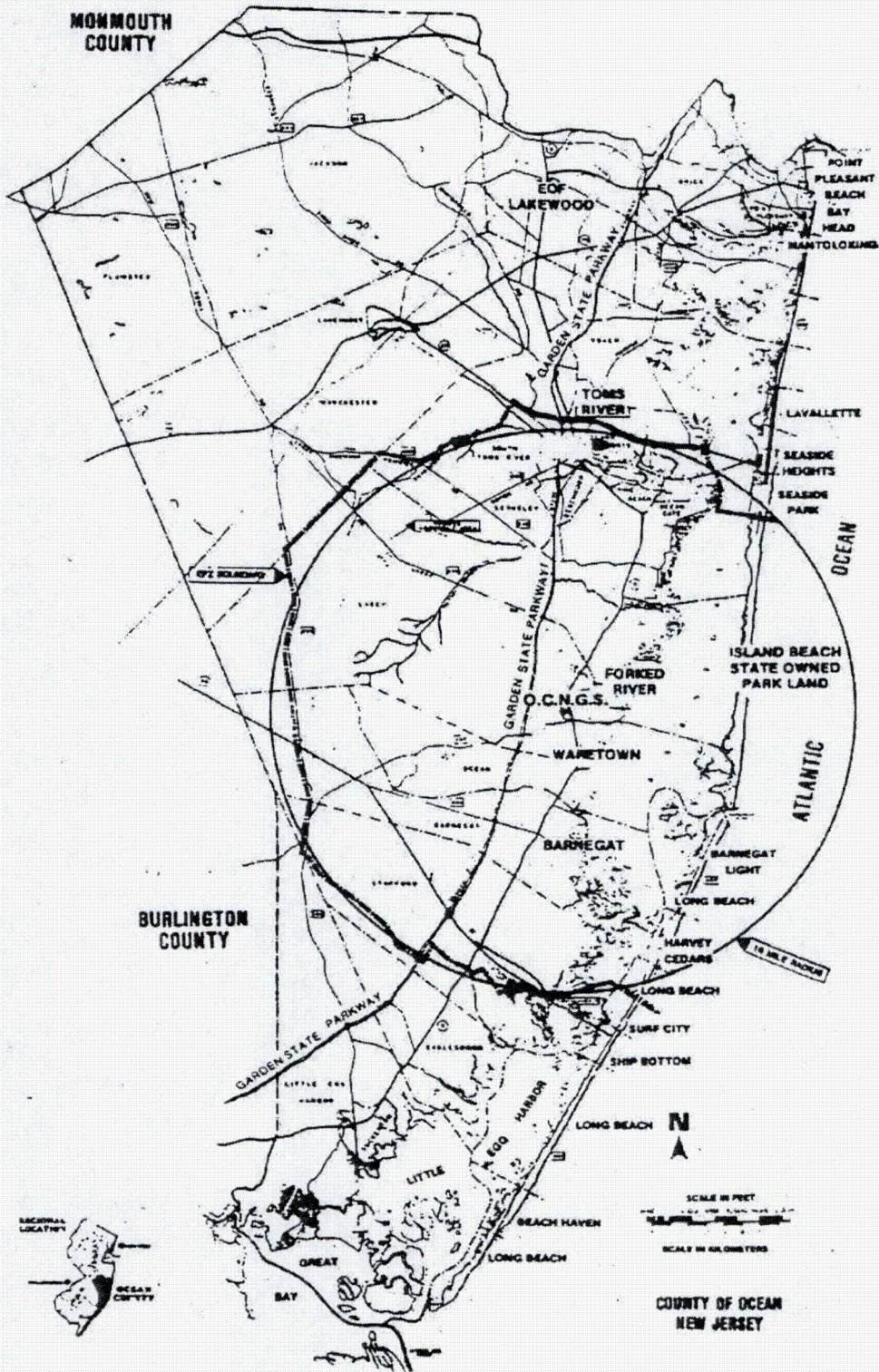


Figure OCGS 1-4: 10-Mile Plume Exposure Pathway

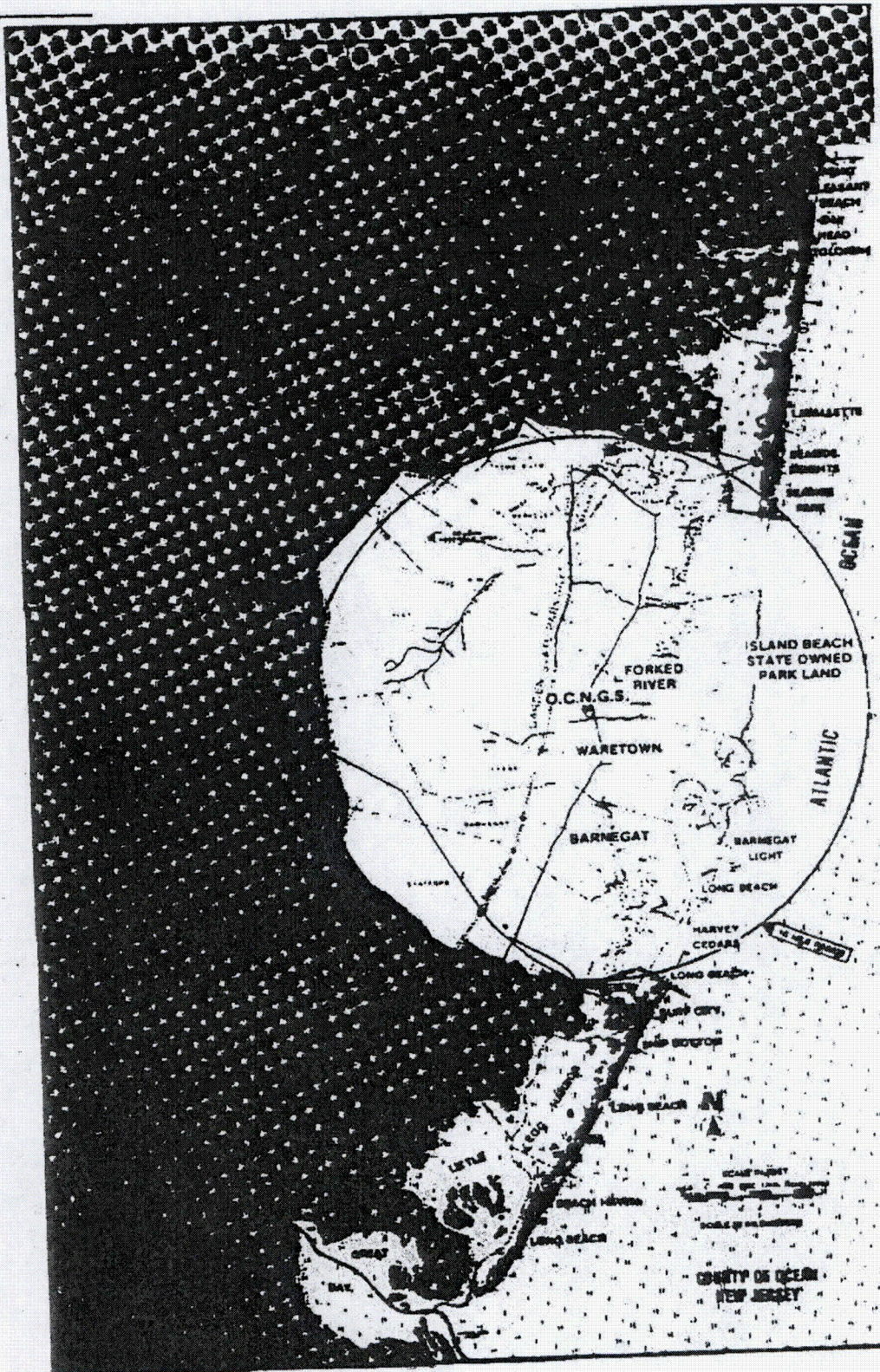
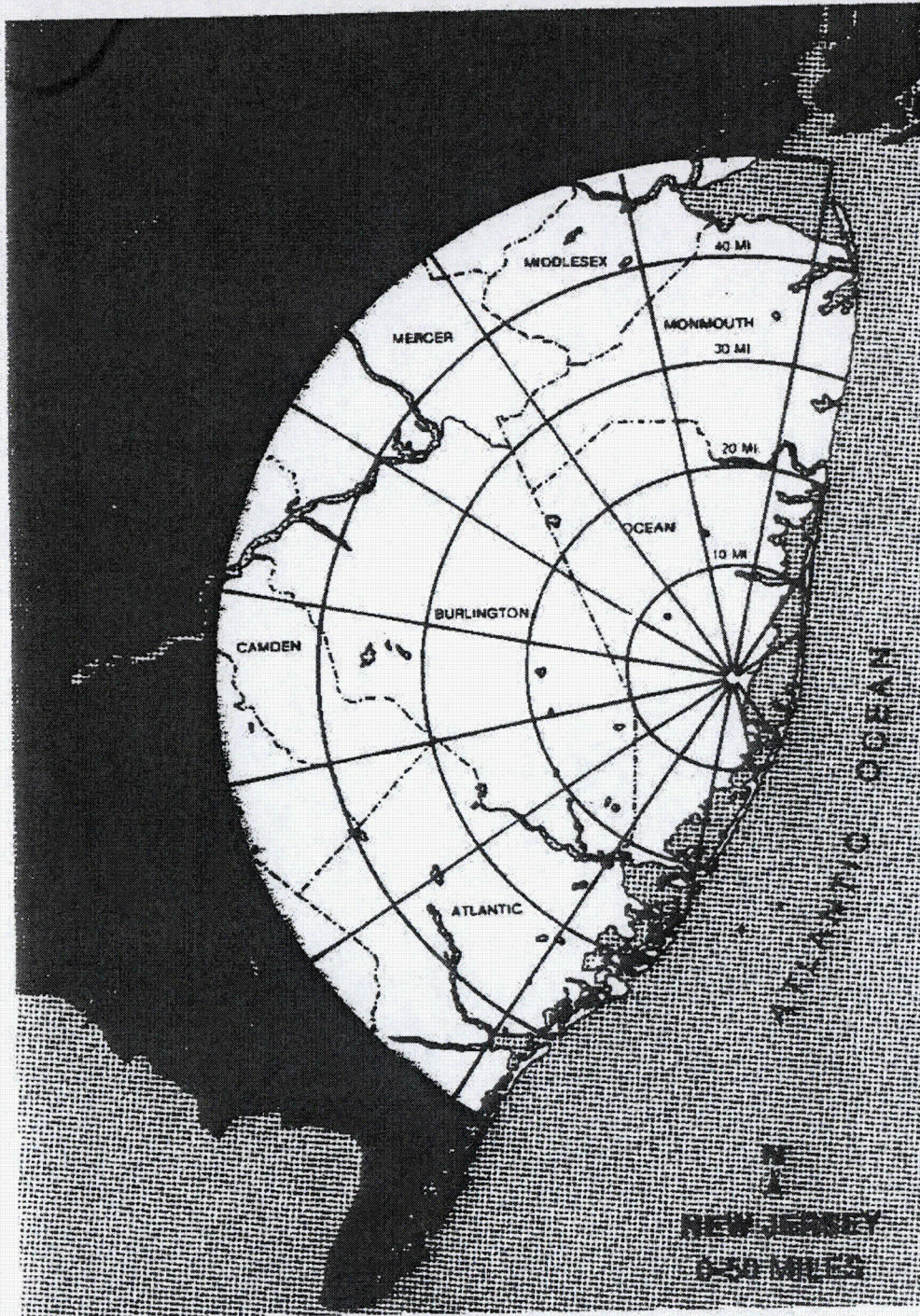


Figure OCGS 1-5: 50-Mile Ingestion Pathway



Section 2: Organizational Control of Emergencies

This section describes the Emergency Response Organization (ERO) and its key positions. It outlines the staffing requirements which provide initial emergency response actions and provisions for timely augmentation of on-shift personnel when required. It also describes interfaces among Exelon Nuclear emergency response personnel and specifies the offsite support available to respond to the nuclear generating stations.

At OGCS a goal of 60 minutes for minimum staffing, following notification of the declaration of an Alert or higher emergency classification, has been established for the ERO personnel responding to the station emergency facilities and the EOF.

The overall Emergency Plan staffing by positions and responsibilities is addressed in the Oyster Creek Radiological Emergency Plan. The list below includes additional position and responsibility descriptions for the OC ERO.

2.1 Shift Organization Staffing

Initial response to any emergency is by the normal plant organization present at the site. This organization includes positions that are onsite 24 hours per day and is described in Section B.1 of the Oyster Creek Radiological Emergency Plan. The Normal Shift Organization will be augmented, in an emergency, with designated/additional Emergency Response Organization (ERO) personnel within 60 minutes of notification as specified under Table OCGS 2-1. ERO activation is described in Section H.4 of the Oyster Creek Radiological Emergency Plan.

Table OCGS 2-1 outlines ERO positions required to meet minimum staffing and full augmentation of the on-shift complement at an Alert or higher classification, and the major tasks assigned to each position. Responsibilities for each position are described in Section B.5 of the Oyster Creek Radiological Emergency Plan.

2.1.1 Shift Technical Advisor (STA)

Each on duty shift shall include a Shift Technical Advisor as required per the OCGS Technical Specifications, Section 6.3.3. Any STA qualified individual may perform the position. The Shift Technical Advisor position may be filled by an on-shift Senior Reactor Operator (dual-role SRO/STA) provided the individual meets the requirements of the OCGS Technical Specifications.

2.1.2 Incident Assessor

Oyster Creek Generating Station has the option of using an Incident Assessor in these cases where the STA qualification is held by others such as the Shift Manager. Upon declaration of an emergency, the Incident Assessor fulfills the role of the on-shift technical advisor and reports to the Shift Emergency Director (Shift Manager). The Incident Assessor shall function as an advisor to the Shift Manager on matters of safety and act as an on-shift technical advisor. The Incident Assessor is an ERO position that can be filled by an individual who is qualified as the Shift Technical Advisor or Incident Assessor.

2.2 Emergency Response Organization (ERO) Staffing

Refer to the Oyster Creek Emergency Plan, Section B for ERO Staffing.

Emergency Offsite Organization (Figure OCGS 2-2)

2.3 Emergency Response Organization (ERO) Training

Training is conducted in accordance with Section O.5 of the Oyster Creek Radiological Emergency Plan per TQ-AA-113, "ERO Training and Qualification." Retraining is performed on an annual basis, which is defined as once per calendar year not to exceed 18 months between training sessions.

OCGS JIC/ENC staff will receive training on a periodic basis on their roles in responding to an emergency at the station per Section II.O.5.

2.4 Non-Exelon Nuclear Support Groups

Agreements exist on file with or are verified current annually by the MA Region Corporate Emergency Preparedness Group for the support agencies listed in Appendix 2.

Additionally, Exelon Nuclear has contractual agreements common within Exelon Nuclear with several companies whose services would be available in the event of a radiological emergency. These agencies are also listed in Appendix 3 of the Oyster Creek Radiological Emergency Plan.

Emergency response coordination with governmental agencies and other support organizations is discussed in Part II, Section A of the Oyster Creek Radiological Emergency Plan.

2.5 Nuclear Steam Systems Supplier (NSSS)

General Electric Company maintains an Emergency Response Organization, which can provide technical assistance from their home office or at the site.

2.6 Architect/Engineer

General Electric or other contractors may be involved in the technical analysis or construction activities associated with the emergency response or recovery operation. Each such organization will designate a lead representative who will have the same responsibilities, within their scope of work, as described for the NSSS Contractor.

Table OCGS 2-1: Minimum Staffing Requirements

Functional Area	Major Tasks	Emergency Positions	Minimum Shift Size	^(a) 60 Minute Augmentation	Full Augmentation	
1. Plant Operations/Safe Shutdown and Assessment of Operational Aspects	Control Room Staff	Shift Manager (CR)	1			
		Control Room Supervisor (CR)	1			
		Reactor Operator (CR)	2			
		Equipment Operator	1			
2. Emergency Direction and Control	Command and Control Emergency Operations	Shift Emergency Director (CR)	1 ^(c)			
		Station Emergency Director (TSC)		1		
		Corporate Emergency Director (EOF)		1		
3. Notification & Communication	Emergency Communications	Shift Communicator (CR)	1			
		TSC Director (TSC)		1		
		EOF Director (EOF)		1		
		State/Local Communicator ⁽ⁱ⁾		1 (EOF)	1 (TSC) ⁽ⁱ⁾	
		ENS Communicator		1 (TSC)	1 (EOF)	
		HPN Communicator		1 (EOF)	1 (TSC)	
		Plant Status	Operations Communicator (CR/TSC)		2	
		In-Plant Team Control	Damage Control Comm. (CR/TSC/OSC)		2	1 (TSC)
Technical Activities	Technical Communicator (TSC)			1		
	Governmental	Regulatory Liaison (EOF)		1	(e)	
4. Radiological Accident Assessment and Support of Operational Accident Assessment	Offsite Dose Assessment	RP Personnel	1			
		RP Group Lead (OSC)			(b)	
		Dose Assessment Coordinator (EOF)		1		
		Dose Assessor (EOF)		1		
	Offsite Surveys	Radiation Controls Coordinator (TSC)			1	
		Field Team Communicator (EOF)				1
	Off-Site Field Team Personnel ^(h)			4	(d)	
	Onsite Surveys	RP Personnel				(d)
In-plant Surveys		RP Technicians	2		(d)	
Chemistry	Chemistry Personnel	1			1	
RP Supervisory	Radiation Protection Manager(TSC/EOF)			2		

Table OCGS 2-1: Minimum Staffing Requirements (Cont'd)

Functional Area	Major Tasks	Emergency Positions	Minimum Shift Size	^(a) 60 Minute Augmentation	Full Augmentation
5. Plant System Engineering, Repair and Corrective Actions	Technical Support	STA / Incident Assessor ^(f) (CR)	1	1	
		Technical Manager (TSC)			
		Core/Thermal Hydraulics Engineer (TSC)			
		Mechanical Engineer ^(f) (TSC)			
		Electrical Engineer ^(f) (TSC)			
		SAMG Decision Maker (TSC)			
		SAMG Evaluator (TSC)			
		Operations Manager (TSC)			
		Radiation Controls Engineer (TSC)			
	Repair and Corrective Actions	Maintenance Personnel ^(f) (OSC)	2 ^(c)		(d)
		Maintenance Manager (TSC)	1 ^(c)	1	
OSC Director ^(k) (OSC)	1				
OSC Assistant Director (OSC)		1			
Accident Analysis	Technical Support Manager (EOF)		1		
	Operations Advisor (EOF)			1	
	Technical Advisor (EOF)			1	
6. In-Plant Protective Actions	Radiation Protection	RP Personnel	3 ^(c)		(d)
7. Fire Fighting	--	Fire Brigade ^(f)	5		
8. First Aid and Rescue Operations	--	Plant Personnel	2 ^(c)		(d)
9. Site Access Control and Personnel Accountability	Security & Accountability	Security Team Personnel	(g)	(g)	
	JIC Security	Security Coordinator (TSC) Access Control (JIC)			
10. Resource Allocation and Administration	Logistics / Administration	Logistics Manager (EOF)		1	
		Logistics Coordinator (TSC)			
		Clerical Staff (TSC/OSC/EOF)			
		Events Recorder (EOF/JIC)			
		Administrative Coordinator (EOF)			
		Computer Specialist (TSC)			

Table OCGS 2-1: Minimum Staffing Requirements (Cont'd)

Functional Area	Major Tasks	Emergency Positions	Minimum Shift Size	^(a) 60 Minute Augmentation	Full Augmentation	
11. Public Information	Media Interface Information Development Media Monitoring and Rumor Control	Corporate Spokesperson (JIC)			1	
		Technical Advisor / Spokesperson (JIC)			1	
		Public Information Director (JIC)			1	
		News Writer (JIC)		1		
	Facility Operation and Control	NJ OEM Conducts Rumor Control (JIC)				
		JIC Director (JIC)			1	
		JIC Coordinator (JIC)				1
		Administrative Coordinator (JIC)				1
	Clerical Support (JIC)				(d)	
TOTAL:			16	34	20+	

- (a) Response time is based on optimum travel conditions.
- (b) Position assumed by the Shift Dose Assessor when relieved by the Radiological Controls Coordinator.
- (c) May be provided by personnel assigned other functions. Personnel can fulfill multiple functions.
- (d) Personnel numbers depend on the type and extent of the emergency.
- (e) Staffing of the County EOC Liaison position is not required based on agreements with offsite agencies; however, every effort will be made to dispatch an Exelon Nuclear representative upon request from County EOC Director.
- (f) Fire Brigade per UFSAR / TRM, as applicable.
- (g) Function performed by on-shift security personnel.
- (h) Each Field Survey Team consists of a Lead and Driver.
- (i) Refer to Section 2.1.1 and 2.1.2 for description of on-shift STA and Incident Assessor staffing requirements.
- (j) State / Local communicator function in TSC assigned as collateral duty to either mechanical or electrical engineer (60-minute staff personnel)
- (k) On-shift OSC Director assumes role of OSC Operations Group Lead when relieved by ERO OSC Director
- (l) One position is filled by a Senior Maintenance Technician, the other position maybe filled by an equipment operator.

Section 3: Classification of Emergencies

The Oyster Creek Emergency Action Levels and supporting information
are located in EP-AA-1010, Addendum 3

Section 4: Emergency Measures

The planning for, and response to a radiological emergency at the OCGS is the joint responsibility of Exelon and the state/county/local governmental agencies. OCGS is responsible for onsite emergency response. In order to fulfill this responsibility, OCGS relies on various offsite agencies, both governmental and private, to provide assistance beyond that available onsite.

4.1 Notification of the Emergency Organization

Figure OCGS 4-1: OCGS Notification Network provides a visual representation of the notification process. A notification shall be made within fifteen (15) minutes of the following to the NJ-Office of Emergency Management (NJ-OEM):

- The initial emergency classification.
- Classification escalation.
- The issuance of or change to a Protective Action Recommendation (PAR) for the general public at the General Emergency classification, if the NJ EOC is not activated.
- Changes in radiological release status, occurring outside of an event classification or PAR notification, based on an agreement with the state(s).

The NJ-OEM will provide verification of an initial notification from OCGS.

A notification shall be made within fifteen (15) minutes of the classification of a General Emergency to **Ocean County, Ocean Township and Lacey Township**.

A notification of the OCGS protective action recommendation (PAR) for the general public, as described in OC Emergency Plan Section II.J.10.m, shall be made to the **designated NJ Senior State Official**. The initial PAR notification shall occur within 15 minutes of GE declaration. Subsequent or update PAR notifications shall occur within fifteen (15) minutes of PAR decision.

If the PAR is provided prior to State Emergency Operations Center (EOC) activation, the State Police Dispatcher (NJ-OEM) will be considered the "Senior State Official".

The designate State and local points of contact are notified using dedicated circuits or a commercial telephone line as backup, per Section II.F.

The emergency warning points are simultaneously notified using the Nuclear Accident Reporting System (NARS), or a commercial telephone line as backup.

- 1) This NARS process consists of:
 - a) New Jersey State Police Notification and Verification Line -- The New Jersey State Police Notification and Verification Lines are two separate circuits that connect the Control Room, the Technical Support Center (TSC) and the Emergency Operations Facility (EOF) with the State Police Communicator at the Division Headquarters Communications Center, West Trenton, N.J. The purpose of these lines is to provide a reliable means of prompt notification and verification of an emergency at OCGS.
 - b) Ocean County Notification and Verification Line -- The Ocean County Notification and Verification Line is separate and dedicated automatic ring circuits that directly connect the Control Room, the TSC and the EOF with the Sheriff's representatives in the Ocean County Communications Center, Toms River, N.J. The purpose of this line is to provide a reliable means of prompt notification and verification.
- 2) State Emergency Director's Hot Line: The State Emergency Director's Hot Line provides automatic communication between the Emergency Director position in the Control Room or EOF to the State Emergency Director at the state EOC.
- 3) Emergency Response Facility Communications System: The phone system used by the OCGS Emergency Response Organization includes a dedicated system with the normal site phone system as a back up. The dedicated system allows communications between the ERFs and is not normally connected with outside circuits. The system has its own uninterruptible power supply (rated at 8 hours) that is powered by one of the Station's Emergency Diesel Generator backed busses.

A notification will also be initiated to cognizant State/Local government agencies as soon as possible but within one hour of the termination of an event classification, or entry into Recovery Phase.

A separate form will be used to notify the designated NJ Senior State Official of Licensee protective action recommendations (PARs) for the general public in potentially affected Sectors (when a General Emergency is declared). These Licensee PARs include:

- Evacuation and shelter
- Prophylactic use of potassium iodide (KI)

The Disaster Field Office (DFO) will be established by FEMA at a location identified in conjunction with the State that serves as a focal point for Federal response team interactions with the State. The DFO will more than likely be established at Miller Airpark in Berkeley Township, N.J

During a radiation emergency at OCGS which could involve exposure to offsite personnel, the U.S. Coast Guard and NJ Marine Law Enforcement Bureau will provide assistance by notifying mariners, maintaining water traffic control, and implementing protective and parallel actions as directed. The N.J. State OEM will coordinate the emergency response activities of these agencies in support of OCGS.

In addition to the initial notification and verification, communication channels will be maintained between the facility and offsite emergency response organizations to allow for any further dissemination and update of information concerning the emergency. The communications network has been established at OCGS for notification requirements, information reporting, and decision-making.

Communicators have been assigned in each facility per OC Emergency Plan Section II.B.4, identifying responsibility for establishing and maintaining an open communications link with the NRC Duty Officer and Incident Response Center, as requested.

USNRC telephones are on the Corporate PBX System, which is powered locally and at the local central office.

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

- Location of incident and name and telephone number (or communications channel identification) of caller
- Date/time of incident
- Class of emergency, nature of emergency, and plant status
- Type of actual or projected release and identification of potentially affected areas
- Estimate of quantity of radioactive material released or being released and height of release
- Isotopic and physical form of released material, including estimates of the relative quantities and concentration of noble gases, iodines and particulates
- Prevailing weather conditions (e.g., wind velocity, direction, temperature, atmospheric stability data)
- Actual or projected dose rates and integrated dose at exclusion area boundary and at about 2, 5 and 10 mile radius, including sectors affected
- Surface radioactive contamination levels

- Emergency response actions underway
- Recommended actions, including protective measures
- Request for on-site support from off-site organizations
- Prognosis for future course of event based on current plant information

Upon notification of an event classification, the response by off-site agencies is as follows:

- Ocean County

The dispatcher at Ocean County shall notify the County Emergency Management Coordinator or his designated alternate. The County Office of Emergency Management shall then notify county and municipal personnel, as appropriate.

- State Emergency Management Agency (NJ State Police OEM)

Upon receiving notification of an emergency from the site, the Duty Officer at the Office of Emergency Management shall immediately notify the State Bureau of Nuclear Engineering.

The Office of Emergency Management Agency shall then notify the following personnel, organizations, and agencies as appropriate in accordance with their standard operating procedures:

- Ocean County
- Other affected County Emergency Management Agencies
- Selected State agencies
- Selected Federal agencies
- Bureau of Nuclear Engineering

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

- a. Call the site Control Room to:
 - Verify actual origin of the emergency message.
 - Determine the classification of the emergency.
 - Obtain and assess information and data pertaining to the emergency.
- b. Initiate activation of the BNE emergency response organization, if appropriate.

- c. Advise the State EMA Duty Officer or Operations Officer of the BNE initial assessment of the emergency.
- d. Notify selected Federal agencies, as appropriate.

4.2 Assessment Actions

Radiation Detectors are strategically located throughout the plant. These detectors indicate and alarm locally and in the Control Room. They serve the purpose of indicating current dose rates in those areas and are used for local evacuation action levels and re-entry operations.

Certain plant operating systems contain radiation monitors. These systems are described in the OCGS UFSAR.

Portable monitoring instruments and sampling equipment consist of such items that are utilized and maintained on-site by the Chemistry and Health Physics sections for normal day-to-day plant operations and are thus available for emergency operations.

Emergency personnel, including those involved in removal of injured persons, undertaking corrective actions, performing assessment actions, providing first aid, performing personnel decontamination, providing ambulance service, and providing medical treatment services, will have their dose minimized. This is accomplished through normal Radiation Protection Practices onsite.

When offsite emergency personnel are called to respond to Oyster Creek, qualified Radiation Protection Technicians (RPT) are provided to support these teams.

Risks are determined and decisions are made to expedite lifesaving activities based upon advance radiation surveys done at the affected areas to determine stay times, shielding requirements, or the possibility of dispatching a "scouting" team to assess actual conditions.

4.2.1 Core Damage Assessment Methodology

Core damage information is used to refine dose assessments and confirm or extend initial protective action recommendations. Oyster Creek Generating Station utilizes NEDC-33045P, "Methods of Estimating Core Damage in BWRs" (Revision 0, July 2001), as the basis for the methodology for post-accident core damage assessment. This methodology utilizes real-time plant indications. In addition, Oyster Creek Generating Station may use samples of plant fluids and atmospheres as inputs to the CDAM (Core Damage Assessment Methodology) program for core damage estimation.

4.3 Protective Actions for the Offsite Public

The Ocean County Office of Emergency Management (OEM) is the established emergency response organization that will serve each affected municipal OEM in a coordination and support capacity. It will assume the coordination of all inter-municipality communications and emergency operations. Upon receipt of notification of a radiological emergency at OCGS, which requires a County response, the Ocean County Emergency Operations Center (EOC) will be activated. The Ocean County EOC is located at the Miller Air Park in Berkeley Township, NJ.

The Ocean County EOC will serve as the focal point for County emergency operations and protective actions for the duration of the emergency. Personnel and resources of the County agencies employed in local emergency operations will be under the operational control of the Director of the Ocean County Board of Chosen Freeholders and will be coordinated by the Ocean County Emergency Management Coordinator in accordance with direction received from the State Office of Emergency Management.

Dose calculations and projections performed by the OCGS ERO are relayed to the BNE in NJ. In addition, the BNE liaison in the EOF makes independent assessments and maintains contact with BRP/BNE headquarters.

The NJ Dept. of Environmental Protection, BNE, is responsible for responding to radiological incidents within their respective state boundaries. The BNE maintains personnel, facilities and equipment to assist in assessing the hazard and provide technical guidance and recommendations regarding the implementation of protective actions for the general public. The BNE perform both routine and emergency environmental monitoring.

The Emergency Director in Command and Control approves PARs. Recommendations are developed when it is apparent that a release is possible or underway and dose projections indicate protective actions may be required for the public and within approximately 15 minutes of the declaration of a General Emergency.

OCGS ERO personnel normally do not have the necessary information to determine whether off site conditions would require sheltering instead of evacuation. When prior knowledge of offsite impediments to evacuate exist (such as severe weather or other travel restrictions), then sheltering shall be considered over evacuation recommendations.

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

The State Bureau of Nuclear Engineering (BNE) is the specific agency responsible for evaluating information from the OCGS staff and all other sources and recommending to NJ-OEM that protective actions be taken. The BNE has sheltering and evacuation as protective action options. The most appropriate protective action for a particular situation will depend on the magnitude of the release, duration of the

release, wind speed, wind direction, time of day and transportation constraints.

In the case of a General Emergency, circumstances may indicate the immediate need to initiate some precautionary protective action. This judgment is the responsibility of the BNE and should be based on an evaluation of the current plant conditions, dose projections relative to the PAG's and expected subsequent plant operations/evaluations.

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

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

The principal off-site local coordinating agency for providing response to radiological emergencies in the vicinity of OCGS is the Ocean County Office of Emergency Management. The population and land area within the Plume Exposure Pathway EPZ is wholly within Ocean County. Upon notification of a situation that may require protective actions by the offsite population, the Ocean County Emergency Management Coordinator will initiate appropriate actions in accordance with the Ocean County Radiological Emergency Response Plan and in coordination with the NJ-OEM.

The Ocean County Office of Emergency Management and NJ-OEM have prepared detailed plans for implementing protective actions including:

- Prompt notification of the population within a 10-mile radius of OCGS.
- Transmitting specific instructions to potentially affected populations.
- Providing assistance for evacuation of all specific segments of the population within the 10-mile Emergency Planning Zone.
- Providing reception and mass care centers for evacuated individuals.

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

4.3.1 Alert and Notification System (ANS) Sirens

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

After state authorities have been notified, the ANS and EAS are the primary means of notifying the population within the Plume Exposure Pathway EPZ. Ocean County can activate the sirens located in the Plume Exposure Pathway EPZ. This siren signal is a three to five minute steady tone that alerts the population to tune their radio or television to the local EAS station.

The NJ-OEM and the Ocean County has the capability to broadcast emergency information messages advising the population of what actions should be taken, if any. These EAS messages will be repeated at frequent intervals to ensure proper dissemination. In addition to the Alert Notification System and the EAS message, the backup means of notification is achieved through Route Alerting, which is contained within the State and respective counties' Radiological Emergency Response Plans and procedures. The means consists of utilizing vehicles with public address (PA) systems in the event the primary method of alerting and notification is unavailable. The backup method has the capability to alert and notify the public within the plume exposure pathway EPZ within a reasonable time, but does not need to meet the 15-minute design objective for the primary prompt public alert and notification system.

The Oyster Creek Alert Notification System (ANS) meets the guidelines of Appendix 3 to NUREG-0654-FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants as identified in each site specific siren acoustical evaluation" (Revision 1).

The OCGS ANS is comprised of 42 sirens throughout portions of Ocean County that fall within the OCGS Plume Exposure Pathway EPZ.

A complete description of the siren system to include siren ratings, siren coverage, and location is located with the Emergency Preparedness Department.

The ANS will be activated by the Ocean County Sheriff's department upon receipt of notification of an emergency situation that would require the dissemination of pertinent information to the public. The emergency situation that could require the sounding of the warning systems may be a natural catastrophe, industrial accident, or fixed nuclear facility emergency which may require protective action. The siren sounding is intended as an alerting mechanism to have the public monitor a designated Emergency Alert System radio station for emergency information. If an incident at the plant warrants the activation of the ANS, the initial notification will be made to NJ-OEM. NJ-OEM will in turn notify the BNE and Ocean County.

Ocean County will activate the sirens via radio signal, which is received and translated by the individual sirens, causing the siren to sound. The preventive maintenance program for the system insures a high degree of reliability. The sirens are inspected and tested in accordance with NUREG-0654 guidance on a continuous schedule.

Sirens are sounded annually for three minutes by Ocean County. Exelon retains system ownership and maintenance responsibilities.

The Siren Communications Testing occurs weekly with a Silent Test which includes a Quiet/Growl (Equipment) Test monthly. The Quiet/Growl Test is also performed during preventive or corrective maintenance. The Quiet/Growl testing is more frequent than the quarterly requirement stated in the Standard Plan.

4.3.2 Evacuation Time Estimates

The ETE study used population data from the 2010 census which includes Ocean County, New Jersey. The evacuation times are based on a detailed consideration of the EPZ roadway network and population distribution. The ETE Study, contained in EP-AA-1010 Addendum 2, Evacuation Time Estimates for the Oyster Creek Plume Exposure Pathway Emergency Planning Zone, presents evacuation times for daytime and nighttime scenarios under various weather conditions for the evacuation of various areas around the Oyster Creek Station, once a decision has been made to evacuate.

4.3.3 Potassium Iodide (KI)

OCS ERO personnel will recommend to offsite officials the issuance of KI for the general public within the EPZ.

4.3.4 Public Information

a. Publications

Annually in conjunction with NJ-OEM and Ocean County, emergency-related information containing educational information on radiation, contact points for additional information and protective measures is disseminated to all residents, business establishments, hotels, motels and parks within the Plume Exposure Pathway EPZ. In addition, a means is provided for individuals requiring special assistance to be identified and accommodated.

b. News Media Education

Information kits are available to news media personnel. These kits include information on a variety of nuclear power plant related subjects.

4.3.5 Protective Action Recommendations (PARs) for the General Public

To aid the Emergency Response Organization during a developing emergency situation, EP-AA-111, "Emergency Classification and Protective Action Recommendations" has been developed based on Section J.10.m of the OC Emergency Plan.

4.4 Protective Actions for Onsite Personnel

4.4.1 Plant Evacuation

Exelon Nuclear personnel and contractors filling emergency response organization positions are considered essential personnel. As such, they will report to their emergency response locations. They will not evacuate unless specifically directed by the Emergency Director. All other personnel are considered non-essential.

In-plant evacuation is initiated primarily by area radiation monitor alarms and continuous air monitor alarms, but is also applicable for fire alarms, explosions, toxic material conditions, as well as radiation, contamination, and airborne radioactivity surveys which indicate conditions above applicable limits. Notification for personnel to proceed with in-plant evacuation will be via a local alarm or an announcement on the plant PA system. The affected area and evacuation assembly areas (if appropriate) will be announced. The immediate response by individuals in the vicinity of such an alarm or announcement is evacuation to an unaffected area or designed assembly area. In the absence of readily available radiological survey information or other logical assessment of conditions, evacuation will be, at least, to a point where other area radiation monitors, continuous air monitors, or observation of local conditions show that the area is not affected.

Assigned plant personnel report to the scene to evaluate conditions, to provide information to the Control Room, and to perform other emergency functions such as personnel accountability, decontamination, medical assistance, and control of the hazard.

Notification of a Site Evacuation is accomplished by activating the Evacuation Alarm System followed by an announcement over the plant PA system. Non-essential personnel will exit via the security exit points and will proceed to the parking lot for transportation. Evacuees are expected to use their personal vehicles in evacuating to the designated location. Plant access roads are maintained clear during the winter months, travel on these roads is expected to be possible at all times.

Plant visitors who have not completed the required training program are escorted at all times. This ensures proper response under emergency conditions. Visitors at the station shall follow the lead of their escorts to the assembly areas.

4.4.2 Personnel Accountability

The Security personnel shall follow security procedures for personnel accountability. For evacuations, information from evacuees is an important means of accounting for plant personnel. For Site Evacuations, non-essential personnel are accounted for at the security exit point. Emergency response personnel are accounted for by badging into their assembly areas.

4.4.3 Monitoring of Evacuees

Evacuees from the Oyster Creek Site are checked for contamination.

Necessary personnel and vehicle decontamination efforts are initiated at the decontamination centers. Priority for decontamination shall be given to personnel found to have the highest levels of contamination. Any personnel suspected, or known, to have ingested or inhaled radioactive material shall be given a whole body count, as soon as conditions permit, to assess their internal exposure.

The registering and monitoring of the general public evacuating from the Plume Exposure Pathway EPZ, as described in Section II.J.12 of the Oyster Creek Radiological Emergency Plan, will occur at designated facilities per the respective State and County Radiological Emergency Response Plans.

Personnel and equipment decontamination will be initially accomplished at the Radiological Controls Access Control Point where specialized equipment and supplies are available using Radiation Protection procedures. For personnel within the Protected Area, emergency situations that require decontamination will be handled in accordance with these procedures and the Emergency Plan implementing procedures.

All personnel leaving a Radiologically Controlled Area will be monitored for contamination. Any individual found to have contamination levels in excess of RP Practices at the site will be considered contaminated. Personnel found to be contaminated will undergo decontamination by Radiation Protection personnel (or other designated personnel as specified in Emergency Plan implementing procedures). Measures will be taken to prevent the spread of contamination that include isolating affected areas, placing contaminated personnel in "clean" protective clothing before moving, and decontaminating in accordance with Radiation Protection Procedures.

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

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

Equipment for decontamination personnel will be stored in Emergency Supply Lockers. Portable survey instruments are available and routinely calibrated for use in decontamination operations. All skin contamination problems will be treated using accepted Radiation Protection practices.

For contaminated personnel inside the Protected Area, the preferred decontamination facility will be the onsite Monitor and Control Station if

accessible; otherwise offsite facilities will be used.

4.5 Severe Accident Management

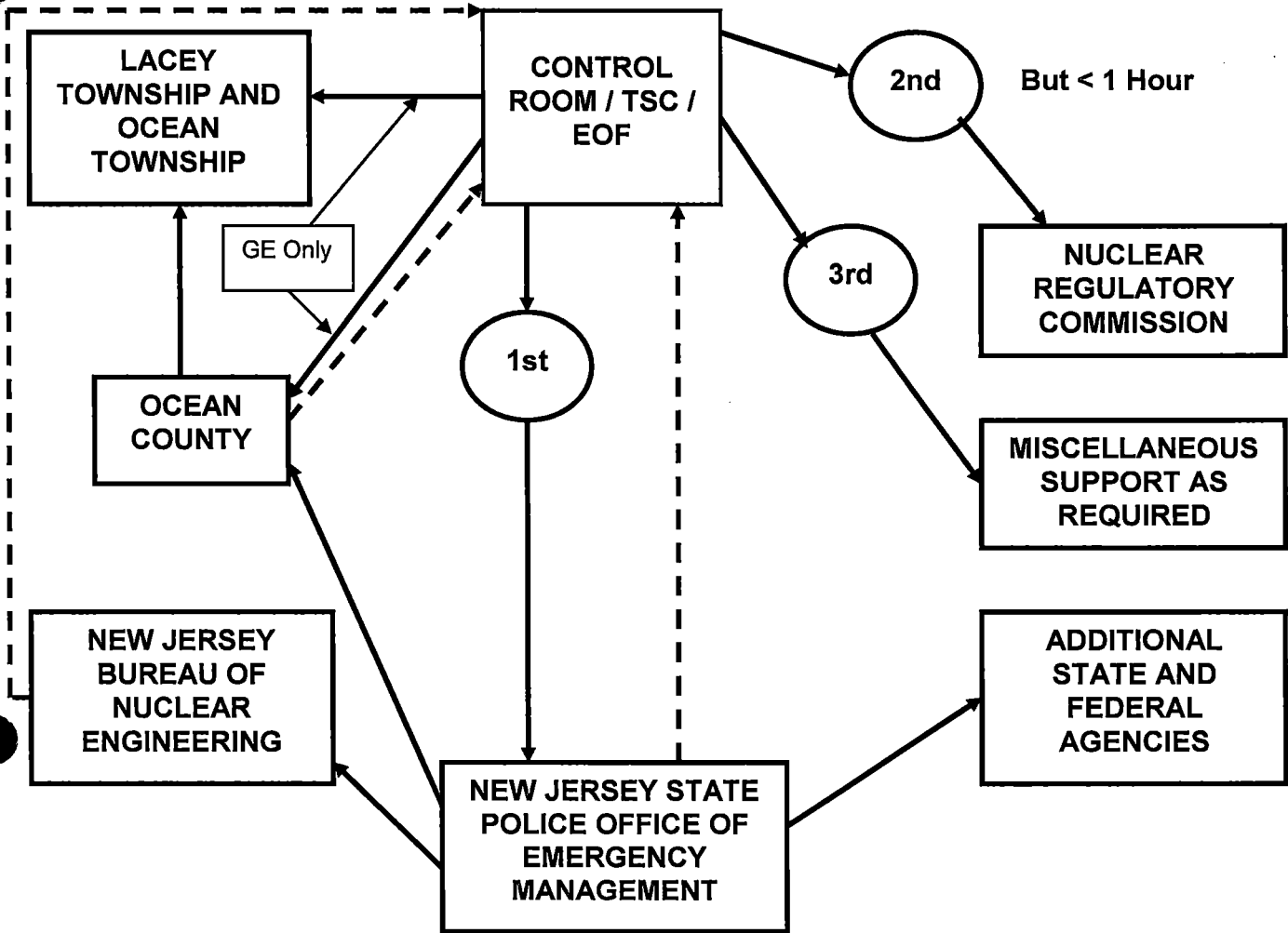
Accident management consists of those actions taken during the course of an accident, by the Emergency Response Organization (ERO), specifically: plant operations, technical support, and plant management staff in order to:

- Prevent the accident from progressing to core damage;
- Terminate core damage once it begins;
- Maintain the capability of the containment as long as possible; and
- Minimize on-site and off-site releases and their effects.

The later three actions constitute a subset of accident management, referred to as Severe Accident Management (SAM) or severe accident mitigation. The Severe Accident Management Guidelines (SAMGs) provide sound technical strategies for maximizing the effectiveness of equipment and personnel in preventing, mitigating and terminating severe accidents.

Implementation of SAMG procedures is a collaborative effort between the Shift Manager and the Station Emergency Director in the TSC (once activated). The Station Emergency Director maintains ultimate responsibility for direction of mitigating strategies. Designated TSC Technical and Operations Support personnel are also trained to assist with decision-making by evaluating plant conditions using the SAM Technical Support Guidelines (TSG).

Figure OCGS 4-1: OCGS Notification Network



Notifications are sequenced as shown, with the order of notifications designated by 1st, 2nd, and 3rd. If the event is a General Emergency, then the NJ-OEM, Ocean County, Ocean Township and Lacey Township must be notified within 15 minutes. The NRC is notified after State and Local notifications are complete but within 1 hour.

Section 5: Emergency Facilities and Equipment

5.1 Emergency Response Facilities

5.1.1 Station Control Room

The Control Room is the centralized onsite area, located on the 46' elevation of the Turbine Building, from which the reactor and major plant systems are operated. The Control Room is equipped with instrumentation to supply detailed information on the reactor and major plant systems, and meteorological, radiological and plant system parameter readouts integrated with assessment aids for all critical plants systems and provide access to all station communication systems. The Control Room is continuously staffed with qualified licensed operators.

The Control Room, which includes the Shift Manager's office areas for EP purposes, is the first onsite facility to become involved with the response to emergency events. Control Room personnel must evaluate and effect control over the emergency and initiate activities necessary for coping with the emergency until such time that support centers can be activated. These activities shall include:

- Reactor and plant control.
- Initial direction of all plant related operations.
- Accident recognition, classification, mitigation and initial corrective actions.
- Alerting of onsite personnel.
- Notification of appropriate individuals and activation of the Emergency Response Data System (ERDS).
- Activation of emergency response facilities and ERO notification.
- Notification of offsite agencies.
- Continuous evaluation of the magnitude and potential consequences of an incident.
- Initial dose projections.
- Recommendations for immediate protective actions for the public.

As other ERFs become activated, they will supply support to the Control Room, although overall Command and Control of the emergency will transfer to the SED (TSC) or the CED (EOF). Throughout all emergencies, the Control Room maintains its emergency activation status until its normal operational status may be resumed.

The Control Room, including the Shift Manager's Office, is designed to be habitable under accident conditions and will serve as the primary onsite Emergency Response Facility. These areas are located in seismically rated structures and have adequate shielding to permit safe occupation for extended periods of time.

The OCGS control room ventilation system can be operated in an emergency mode with 100 percent outside air to prevent recirculation of smoke in the control room and to clear the areas of smoke and fumes. This system has been modified to prevent smoke from other areas from entering the control room.

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

5.1.2 Technical Support Center (TSC)

The OCGS has established a TSC in the Site Emergency Building for use during emergency situations by station management, technical, and engineering support personnel. The TSC is activated for all emergencies classified as Alert or higher. Activation for other events is optional. When activated the TSC functions include:

- Support for the Control Room's emergency response efforts.
- Performance of the non-delegable functions when in Command & Control.
- Continued evaluation of event classification.
- Assessment of the plant status and potential offsite impact.
- Coordination of emergency response actions.
- Notification of appropriate corporate and station management.

- Notification and update of the NRC via Emergency Notification System (ENS) including verifying activation of ERDS by the Control Room.

The TSC is the onsite location utilized to support the Control Room for assessment of plant status and potential offsite impact, and for implementation of emergency actions. The TSC provides technical data and information to the EOF.

Figure OCGS 2-1: Emergency Onsite Organization illustrates the staffing and organization of the TSC.

The TSC provides reliable voice communications to the Control Room, the OSC, the EOF, the NRC, and state and local Emergency Operations Centers. In addition, they provide facsimile transmissions capability (see Section F.1).

A HEPA and charcoal-filtered ventilation system, continuous air monitors and an area radiation monitor shall protect personnel in the TSC from radiological hazards. In addition, protective breathing apparatus and KI are available for use as required.

Records and drawings, which describe conditions and layout of structures, systems, and components, are contained in filing cabinets inside the TSC.

5.1.3 Operational Support Center (OSC)

OCGS has established an Operations Support Center (OSC) in the Drywell Processing Center. The OSC is the onsite location to where station support personnel report during an emergency and from which they will be dispatched for assignments or duties in support of emergency operations. The OSC shall be activated whenever the TSC is activated, but need not remain activated at the Alert level if the Station Emergency Director judges its use unnecessary. At the Site Area and General Emergency levels, the OSC or an alternate OSC shall be activated at all times. Activation for other events is optional. Station disciplines reporting to the OSC include, but are not limited to:

- Operating personnel not assigned to the Control Room,
- Radiation Protection Personnel,
- Chemistry Personnel,
- Maintenance Personnel (mechanical, electrical and I&C).

Figure OCGS 2-1: Emergency Onsite Organization illustrates the staffing and organization for the OSC.

5.1.4 Emergency Operations Facility (EOF)

The OCGS EOF is co-located with the JIC in Toms River, New Jersey and is approximately 12 miles from the OCGS site. The facility is equipped with data transmission links with the plant, status boards and dedicated communication links with the CR, TSC, OSC, NRC, State Bureau of Nuclear Engineering (BNE), and the JIC. Drawings that describe the as-built conditions and layout of the structures, systems, and components and applicable operating procedures are available at the OCGS.

Space and telephone provisions have been made for BNE and NRC liaison representatives.

5.1.5 Joint Information Center (JIC)

OCGS has a designated JIC/ENC, located in Toms River NJ, which is co-located with the EOF.

Rumor Control at Oyster Creek is handled by the NJ Office of Emergency Management.

5.1.6 Evacuation Locations

If a Site Evacuation is required, nonessential personnel are directed to immediately evacuate the site. Personnel will be directed to either proceed to their homes or to reassemble at the designated offsite Remote Assembly Area as designated by the Station Emergency Director in accordance with station procedures. Visitors to the station will assemble with and follow the instructions of their escorts. Nonessential personnel within the Protected Area will normally exit through the Main Processing Center. Personal transportation (if available) will normally be used and established evacuation routes will be followed. Personnel without transportation will be identified and provided transportation as necessary.

5.1.7 Alternative Facility

The Alternative Facility maintains the capability for staging the TSC/OSC emergency response organization personnel in the event of a hostile action. This alternative facility has the capability for communications with the emergency operations facility, control room, and plant security and the capability for engineering assessment activities, including damage control team planning and preparation. Consistent with NRC EPFAQ No. 2013-005, the EOF will satisfy the offsite notification responsibilities for the Alternative Facility. The Alternative Facility is co-located with the EOF at 1268 Rt. 37 West Toms River, NJ. (CM-1, ref. AR 1362747.44)

5.2 Assessment Resources

5.2.1 Geophysical Monitors

a. Onsite Meteorological Monitoring Program

The Onsite Meteorological Monitoring Program is covered in the contractor specification and vendor procedures of the meteorological monitoring contractor. These data are used to generate wind roses and to provide estimates of airborne concentrations of gaseous effluents. Meteorological data is provided to the station Control Room from Meteorological Towers. Data include wind speed, wind direction, and temperature. Meteorological monitoring is described in the OCGS UFSAR.

Meteorological data have been collected onsite since February of 1966. The current meteorological tower is 400 ft. high and located 2529 feet (0.48 miles) west-northwest of the OCGS stack. The tower is instrumented with complete redundant sensors at all three levels, 33 feet, 150 feet, and 380 feet. A back-up electrical power supply is available, if necessary.

The instrumentation and meteorological variables measured at each level are as follows:

Approximate Height Above Tower Base (ft.)	Parameter
380 ft.	wind speed, wind direction, temperature, DT 380 33
150 ft.	wind speed, wind direction, temperature, DT 150-33
33 ft.	wind speed, wind direction, and temperature
Ground Level	rainfall

The variables are measured every 10 seconds and are averaged for 15 minute periods before being archived using a computer.

There are redundant wind speed, wind direction, and temperature sensors at the 33 feet, 150 feet, and 380 feet levels to insure efficient data recovery and to comply with U.S. Nuclear Regulatory Commission Regulatory Guide 1.23 requirements. In addition, a processor calculates vertical temperature differentials between the 150 and 33 ft. and the 380 and 33 ft. levels.

The meteorological tower sensors, chart recorders, and processors are calibrated at least semi-annually as per Regulatory Guide 1.23. Periodic tower inspections are made to insure maximum data integrity.

A full description of the Onsite Meteorological Measurement Program is included in the UFSAR.

Meteorological data can be remotely interrogated by telephone by the NRC and New Jersey State agencies.

b. Offsite Meteorological Monitoring Program

The **National Weather Service (NWS)** can provide backup meteorological information (e.g., wind speed, temperature, and wind direction) from several locations in the vicinity of the Oyster Creek site. The information for various locations is available through the Mt. Holly, NJ office.

Air stability determinations are also provided, with information received from weather stations in Pittsburgh; Washington, D.C.; Binghamton, NY; and Mt. Holly, NJ.

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

c. Seismic Monitoring

Although OCGS currently does not have seismic or hydrologic instrumentation installed onsite, offsite hydrologic information can be obtained from the Hydrologic Division of the United States Geological Survey and offsite seismic information can be obtained from the Lamont Doherty Geological Observatory, the New Jersey State Geological Survey or the United States Geological Survey.

5.2.2 Radiation Monitoring Equipment

The onsite Radiation Monitoring System contributes to personnel protection, equipment monitoring, data gathering, and accident assessment by measuring and recording radiation levels and concentrations of radioactive material at selected locations within the plant. The Radiation Monitoring System alarms and initiates required emergency actions when radiation levels or radionuclide concentrations exceed predetermined levels. Area, liquid, and atmospheric monitoring subsystems are required to perform these functions.

Specific details regarding radiation monitoring and effluent monitoring systems can be found in system design descriptions (SDDs) and Updated Final Safety Analysis Report.

The data from these subsystems are displayed by readout in the Control Room. Recorders and/or the plant process computer located in the Control

Room record selected channels.

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

- Each monitoring station has adjustable alarm, alert, and power supply failure alarms.
 - Solid-state circuitry is used except for primary detectors.
 - Most AC operated radiation monitoring equipment, except for the pump assemblies, is provided with power from the battery-backed, inverter-fed vital power supply bus.
 - Each radiation monitor is capable of being checked periodically with solenoid actuated check sources.
 - A pulse generator or solid sources are used for electrically checking each monitor or subsystem.
 - The modules are designed so that an alarm and/or indication are initiated when failure occurs anywhere in the channel.
- a) **Area Radiation Monitors (ARMs)** -- Plant areas are provided with area radiation monitors in the Augmented Off-Gas (AOG), Turbine, Reactor, old Radwaste and new Radwaste buildings.

In-plant ARMs (turbine, reactor and old radwaste buildings) are the Geiger-Mueller type. The AOG building and the new Radwaste building utilize ionization chambers.

Each in-plant monitor has a remote indicator, an alarm and is recorded on one of two multi-channel recorders in the Control Room.

The monitors are provided with an upscale alarm which is set using past plant operating experience and warns of an abnormally high radiation level and each monitor is provided with a downscale alarm which warns of instrument channel failure. The individual detectors and associated instrumentation for the AOG and the new Radwaste buildings are provided with local indication and alarm, range indication on the respective AOG and new Radwaste control panels, high and high-high alarm for concerned level and limit level respectively.

- b) **Atmospheric Radiation Monitoring** -- Atmospheric Radiation Monitoring is provided by Main Stack RAGEMS, Turbine Building RAGEMS, Air Ejector Off-Gas Monitoring, Reactor Building Ventilation Monitoring, and AOG Building monitoring.

RAGEMS (Radioactive Gas Effluent Monitoring System) has been installed to comply with NUREG-0737. These systems will provide for a continuous monitoring of noble gas releases, continuous particulate and iodine samplers are included in the RAGEMS. The systems are designed to detect noble gas.

Iodine and particulate samples from both systems must be manually analyzed to provide isotopic concentrations of halogens and particulates. RAGEMS data is accessible from recorders in the control room and/or by accessing the RAGEMS system computers, or the plant computer system.

The Air Ejector Off-Gas Monitoring Subsystem draws a sample of the condenser off-gas downstream of the steam jet air ejectors. A 2-minute delay line is provided to allow for the decay of N-16 and O-19 before passing through the sample chamber.

The sample chamber is provided with two detectors. Output is recorded on a recorder located in the Control Room. The count-rate meters have adjustable downscale trip and upscale trips. The upscale trips are set in accordance with Station procedures not to exceed Technical Specification requirements while the downscale trip is set to indicate instrument failure. Any combination of either two "Hi-Hi" upscale trips or one "Hi-Hi" upscale and one downscale trip will initiate a 15 minute timed closure of the off-gas exhaust valve at the stack or isolate the augmented Off-Gas system if in operation. The recorders have an adjustable upscale "Hi" alarm set at a value equivalent to the maximum allowable stack gas release rate.

The Reactor Building Ventilation Monitoring Subsystem provides continuous monitoring of the gaseous discharges from the Reactor Building ventilation systems through the use of two Geiger-Mueller detectors located upstream of the ventilation outlet isolation valves. The downscale alarm indicates instrument failure, while the upscale trip is set at an acceptable radiation concentration. The activation of the upscale trip will close the Reactor Building ventilation inlet and outlet isolation valves, trip the ventilation fans and energize the standby gas treatment system.

However its usefulness is limited due to its sensitivity to other external radiation sources.

- c) The **Main Steam Line Radiation Monitoring System** utilizes detectors mounted next to each of the primary steam lines. This subsystem provides continuous monitoring of the primary steam lines, which gives an immediate indication of a gross release of fission products from the fuel to the reactor coolant and subsequently to the turbine.

The detectors located immediately upstream of the outer isolation valves at the drywell penetration provide an output to a meter and a recorder located in the Control Room.

Each monitor has a downscale alarm and an adjustable upscale alarm set at less than or equal to five times normal. If the indicated value on two or more monitors reaches ten times normal, station procedures direct the scrambling of the reactor and the closure of all four main steam isolation valves.

- d) The **Augmented Off-Gas (AOG) Building Ventilation Exhaust Monitoring System** is designed to monitor and sample the effluent for iodine, gas, and particulates. The data from these subsystems are displayed by local readouts on the AOG control panel and are recorded by strip chart recorders displayed locally.
- e) The **Containment High-Range Radiation Monitors (CHRRMS)** have been installed at OCGS to monitor containment radiation levels.
- f) The **Process Liquid Monitoring Subsystem** provides the continuous monitoring of three process liquid streams: the radwaste discharge, the reactor building closed cooling-water system and the reactor service-water discharge. The radwaste monitor is located in the radwaste discharge line external to the radwaste building, downstream of the flow control valves. The reactor building closed cooling-water probe is located at the discharge header of the cooling water pumps. The reactor service-water monitor is located in the service water discharge of the closed cooling-water heat exchanger.

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

- g) The **Post-Accident Sampling System (PASS)** was designed to sample five separate post-accident media from eight separate sampling points.

Liquid samples may be taken of the reactor water from "A" recirc loop, the liquid poison system or the shutdown cooling system and of torus water from the core spray system.

Gaseous samples may be taken of the drywell atmosphere from the hydrogen monitoring system and from the ring header. Gaseous samples may be taken of torus atmosphere and secondary containment from the TIP room.

h) **Continuous Radiological Environmental Surveillance Telemetry System (CREST)**

The NJDEP Bureau of Nuclear Engineering operates the CREST system, comprised of Reuter Stokes radiation monitors located in all sixteen compass sectors. The monitors transmit ambient gamma radiation levels and meteorological data back to the central processor via leased telephone lines every minute. The central processor creates hourly and daily reports and automatically sends them to designated printers. Two types of monitors are used, ranging from 0 to 100mR/hr and 10R/hr. Alarm thresholds can be determined, triggering reports when radiation levels are elevated and set points are exceeded.

If the instrumentation used for radiological assessment is off-scale or inoperative, in-plant sample data may be utilized from the affected ventilation pathway and utilize contingency calculations utilized based on plant conditions. Concurrently, radiological/environmental survey teams are sent to these locations of interest to take actual field measurements in order to verify the projections and to correlate projected versus actual results.

5.2.3 Data Acquisition Methods

Plant Process Computer System (PPC)

The OCGS Main Control Room (MCR) and Technical Support Center (TSC) use an emergency facility data system to aid in assessing plant response and status during emergencies. PPC is a computer-based real-time data acquisition and display system, which gathers and records, selected plant parameters for display.

The system displays are designed to aid the Control Room operator in the performance of emergency response procedures. These displays provide information pertinent to reactor core cooling, reactor coolant system integrity, reactivity control, containment integrity and power system status. These displays are also available to personnel in the TSC.

PPC also provides concise displays of parameters selected for post-accident monitoring. These displays are designed to aid TSC personnel in assessing plant conditions and in assisting Main Control Room personnel in recovering from abnormal or accident conditions and in mitigating their consequences. The displays include parameter versus time and parameter versus parameter trending.

PPC utilizes high-speed data recording, long-term data storage and a transient analysis program package to aid the Technical Support Center staff in reconstructing the accident sequence as well as tracking the plant steady state and dynamic behavior prior to and through the course of an event.

PPC displays are available in the Main Control Room and TSC, and EOF through EPDS interactive color graphic display consoles. Hardcopy output devices are available at each location. Provisions have been made to share data with State Liaisons located in the EOF.

5.2.4 Onsite Fire Detection Instrumentation

The Fire Service Water System, the Halogenated Fire Suppression Systems, the CO₂ Fire Extinguishing System, and the Fire Detection/Alarm System provide fire Protection at OCGS.

The Fire Service Water System is a full-loop, piped system that supplies water for sprinklers, deluge water spray, fire hydrants and hose connections that are located to provide fire protection for all major areas of the plant. A man-made pond containing approximately 7 million gallons of water supplies a water source for this system. This system is maintained in a pressurized condition by an electric drive pond pump.

In the event a fire occurs, and either an automatic or manual system is initiated, the Fire Service Water System piping pressure will decrease which will sequentially start two diesel fire pumps to meet system flow requirements. The backup supply of Fire Service water consists of a 350,000-gallon tank and electric pump, which may manually be initiated to supply the loop should the primary source of water be inoperable.

Automated Halogenated Fire Suppression Systems are provided in the Control Room panels, the station battery A and B room and the 480-volt switchgear room to quickly suppress any fires that may occur.

The CO₂ Fire Extinguishing System provides fire protection for the 4160 Switchgear Vault. When a manual pushbutton is depressed, the CO₂ is discharged into the 4160 Switchgear Vault after a time delay.

5.2.5 Facilities and Equipment for Offsite Monitoring

Emergency kits contain radiation survey equipment, which enables the Field Survey Teams to obtain dose rates, surface contamination, and airborne contamination. These emergency kits are located at facilities outside the plant for ready accessibility. The equipment in these kits is dedicated for emergency use only.

The services of Normandeau Associates Inc. (NAI) are contracted to provide for the collection of environmental media samples (e.g., water, grass vegetation, etc.) under emergency conditions and their transport to an offsite laboratory for analysis.

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

Personnel in the EOF will designate the location to be used for the receipt and analysis of radiological field monitoring samples. Typically, this is a location on the Oyster Creek site. Arrangements will then be made for the transportation of collected samples to the on-site lab or contracted facility. Sampling and analysis equipment is available on-site for activity determination of these samples.

The Shift Dose Assessor, if required, may dispatch off-site Field Monitoring Teams. If not required as part of initial event response, responsibility for the mobilization of Field Monitoring Teams will be assumed by the TSC, upon facility activation.

These teams will consist of one to two persons per team, trained in the use of portable radiation monitoring equipment. When dispatched, the teams will pick up portable radios, and emergency kits containing portable monitoring equipment.

After an operational check of the equipment, including a radio operability check, they will proceed in an emergency vehicle to their first monitoring location. They will be controlled by the TSC Radiation Controls Coordinator and will report directly to him/her. The site has the capability to dispatch up to two field-monitoring teams within one-half hour of the emergency declaration, if necessary.

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

Based on dose projections and meteorological conditions, the Field Monitoring Teams can be directed to the location of interest to take readings and confirm the projection. Field Monitoring Team data lend credence to the dose projection process; better quantify ground receptor dose rates and alert plant personnel of any unmonitored release pathways or potential problems in the dose projection process.

When the Emergency Operations Facility (EOF) is ready (typically within one hour of the declaration of an Alert or higher classification), the responsibility for offsite radiological and environmental monitoring will be transferred to the Dose Assessment Coordinator. (NOTE: The Radiation Controls Coordinator will maintain control of the onsite survey team(s) and onsite radiological controls assessment.)

Two (2) Field Monitoring Teams can be dispatched during an emergency situation. This can be backed-up with two additional teams, should it become necessary. Communications with the field teams is generally performed using two-way radios.

The EOF Dose Assessment Coordinator, and his/her staff, can obtain additional monitoring teams from the OCGS and other Exelon sites.

Typical environmental/radiological monitoring equipment includes:

- Air Samplers -- Analysis for airborne radioiodine and particulates
- Environmental Sampling Equipment -- environmental media sampling
- Pressurized Ionization Chamber (PIC) -- gamma radiation
- Dosimeter of Legal Record (DLR) -- beta, gamma radiation
- Geiger Mueller Detectors -- beta, gamma radiation

Vendor/contractor support can be used to perform collection and analysis. Oyster Creek Generating Station will ship collected environmental samples offsite for analysis.

5.2.6 Site Hydrological Characteristics

Although OCGS currently does not have seismic or hydrologic instrumentation installed onsite, offsite hydrologic information can be obtained from the Hydrologic Division of the United States Geological Survey and offsite seismic information can be obtained from the Lamont Doherty Geological Observatory, the New Jersey State Geological Survey or the United States Geological Survey.

5.3 Protective Facilities and Equipment

5.3.1 Emergency Supplies

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

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

The site also maintains an inventory of protective clothing, respiratory equipment, survey instruments and supplies to provide adequate contamination control for all personnel expected to be onsite who might be affected in the event of an emergency. The supplies are maintained, updated, inventoried and calibrated, as appropriate, on a regular basis in accordance with applicable procedures. Storage locations of emergency supplies can be found in the site implementing documents.

5.4 First Aid and Medical Facilities

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

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

First aid facilities are designed to support a wide range of immediate care requirements ranging from simple first aid to procedures requiring a physician. Small kits placed throughout the plant provide the most readily available first aid. These kits contain items typically needed to care for minor injuries. The next level of first aid equipment is found at first aid stations. Trained personnel can also provide Advanced Life Support and routine trauma care.

First Aid kits are located in designated areas and are checked and replenished as necessary. Stretchers are also provided at designated locations.

Additionally, the site Medical Department maintains a current prescription and adequate supplies of potassium iodide for issue to personnel exposed or suspected of exposure to radioactive iodine.

5.4.1 Decontamination and Medical Response

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

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

Arrangements for hospital and medical services are provided by Community Medical Center and Southern Ocean Medical Center, NJ. Both hospitals agree in the event of a Radiological Event, including a hostile action based event, to provide hospital and medical services for injured and/or contaminated/overexposed personnel. These hospitals have agreed to accept contaminated patients for emergency medical and surgical treatment or observation. Detailed plans and procedures are in place for decontamination and treatment of contaminated patients.

5.4.2 Medical Transportation

Letters of Agreement are established for the Local Ambulatory Services to provide Emergency Medical Services in response to Radiological Event, including a Hostile Action Based Event, to the Oyster Creek Generating Station. This includes transportation of patients from the Oyster Creek Generating Station, including those who may have been exposed to radiation or may have injuries complicated by radioactive contamination, for medical treatment to Community Medical Center or Southern Ocean Medical Center upon dispatch by the Ocean County 911 Dispatch System.

Ambulance personnel will be certified in accordance with State regulations. OCGS will offer training to the squad members in the treatment and transportation of contaminated injured individuals. OCGS will provide

radiological control technicians if available to assist the squads enroute to the hospital. Local first aid squads provide ambulance service for the facility.

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

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

5.5 Communications

Refer to Section F.1 of the Oyster Creek Radiological Emergency Plan for a description of dedicated communications lines to support both offsite and inter-facility communications.

- 1) Telephone Systems: The OCGS site is served by the Private Phone System (PBX) and direct commercial lines. These systems are expected to function during emergencies as they do during normal plant operations. Site telephone communications to other Exelon sites are provided via dedicated T-1 lines provided by commercial carrier. Access to this system is through the plant telephone system that bypasses potentially congested public-use circuits. Backup to these routes are commercial business lines.

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

OCGS has direct offsite Commercial Phone system lines in each ERF and are supplied by phone company backup power. PBX power supplies support in-plant lines in each ERF as follows: 12.5KV offsite power, 19.9KV backup offsite power and backup battery power for 8 hours. In plant emergency circuits are also on the PBX and have an additional 8-hour battery backup. Offsite emergency circuits are carried by both dedicated T-1 lines and commercial business phone systems. The Commercial Phone system circuits have the same backup power as other such circuits.

Company tie lines are utilized to route NRC communications (e.g., ENS, HPN and counterpart circuits) from between Exelon Nuclear emergency response facilities for Oyster Creek Generating Station.

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

OCGS, base stations are located in the Control Room and the Emergency Operations Facility. The EOF has the capability of transmitting and receiving

on the State Emergency Radio (EMRAD) Network that provides a communication path with the N.J State and Ocean County Emergency Management Centers.

3) Station Warning System

In addition, station communication links exist to ensure appropriate information transfer capabilities during an emergency. The station may also utilize its Station Warning System, station radios and pagers to augment its emergency communications. The Station Warning System consists of the following:

- a) Alarms: Audible alarms are a quick and effective means of communicating emergency warnings on the site. Alarms currently installed at Oyster Creek include:
- Station Emergency Alarm
 - Fire Alarm
 - Reactor Building Evacuation Alarm

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

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

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

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

5.6 Law Enforcement Agencies

A Letter of Agreement is established for Local Law Enforcement to support the Oyster Creek Generating Station to respond to a Radiological Event, including a Hostile Action Based Event, in conjunction with the National Incident Management System upon notification by the station in accordance with the established communications protocol.

5.7 Fire Fighting Organizations

A Letter of Agreement is established for local volunteer fire departments to respond to a Radiological Event, including a Hostile Action Based Event, in conjunction with the Mutual Aid System as requested via the 911 Dispatch System.

APPENDIX 1: NUREG-0654 CROSS-REFERENCE

<u>Annex Section</u>	<u>NUREG-0654</u>
1.0	Part I, Section A
1.1	Part I, Section B
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1.3	Part I, Section F
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2.6	Part II, Section A.3
3.0	Part II, Section D
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4.3.5	Part II, Section J.7
4.4.1	Part II, Sections J.1 & 2
4.4.2	Part II, Section J.5
4.4.3	Part II, Section J.3
EP-AA-111	Part II, Section J.7
5.1	Part II, Section H.1-2, & G.3.a
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5.2.2	Part II, Section H.5.b, H.6.b & I.2
5.2.3	Part II, Section H.5
5.2.4	Part II, Section H.5.d
5.2.5	Part II, Section H.6.c & 7, I.9-10
5.2.6	Part II, Section H.5.a & 6.a
5.3	Part II, Section H.9-10
5.4	Part II, Section L.1 & 2
5.5	Part II, Section F.1
Appendix 1	Part II, Section P.8
Appendix 2	Part II, Section A.3

APPENDIX 2: SITE-SPECIFIC LETTERS OF AGREEMENT

The following is a listing of letters of agreement and contracts specific to emergency response activities in support of Oyster Creek Generating Station. Letters of agreement and contracts common to the multiple Exelon Nuclear stations are listed under Appendix 3 to the Oyster Creek Radiological Emergency Plan.

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

1. Medical Support Organizations and Personnel

- Community Medical Center
- Southern Ocean Medical Center
- Lacey Township First Aid Squad
- Lanoka Harbor First Aid Squad
- Waretown First Aid Squad

2. Firefighting Organizations

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

- Lanoka Harbor Fire Department
- Forked River Volunteer Fire Company
- Bayville Fire Department

3. Law Enforcement Agencies

- New Jersey State Police/Office of Emergency Management
- Lacey Township Police Department

ATTACHMENT 4

Standardized Radiological Emergency Plan Revision

EP-OC-1000, Revision 0, *"Oyster Creek Emergency Plan"*

~~(Exelon Confidential/Proprietary Information Withhold Under 10 CFR 2.390)~~



Exelon Generation®

EP-OC-1000
Revision 0

EXELON NUCLEAR

OYSTER CREEK RADIOLOGICAL EMERGENCY PLAN

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STATION ANNEX

The Station Annex subject to the requirements of this plan are as follows:

EP-AA-1010: Radiological Emergency Plan Annex for Oyster Creek Station

REVISION HISTORY

<u>REVISION</u>	<u>EFFECTIVE DATE</u>	<u>REVISION</u>	<u>EFFECTIVE DATE</u>
0	November 2015		

Part I: Introduction

Exelon Nuclear

Section A: Purpose

As required in the conditions set forth by the Nuclear Regulatory Commission (NRC) for the operating licenses for the Exelon Nuclear Stations, the management of Exelon recognizes its responsibility and authority to operate and maintain the nuclear power stations in such a manner as to provide for the safety of the general public. This document describes the Oyster Creek Nuclear Plant Emergency Preparedness Program. The philosophy that guides the development and maintenance of this program is the protection of the health and safety of the general public in the communities around Oyster Creek and the personnel who work at the plant.

The Oyster Creek Nuclear Radiological Emergency Plan (E-Plan) establishes the concepts, evaluation and assessment criteria, and protective actions that are necessary in order to limit and mitigate the consequences of potential or actual radiological emergencies. It has been prepared to establish the procedures and practices for management control over unplanned or emergency events that may occur at Oyster Creek. It also provides the necessary pre-arrangements, directions and organization so that all nuclear emergencies can be effectively and efficiently resolved.

The Oyster Creek Emergency Preparedness Program consists of the E-Plan, Station Annex, emergency plan implementing procedures, and associated program administrative documents. The Oyster Creek E-Plan outlines the basis for response actions that would be implemented in an emergency. This document is not intended to be used as a procedure.

The Oyster Creek Station Annex contains information and guidance that is unique to the station. The annex addresses site-specific criteria, including:

- Emergency Action Levels (EALs) located in Addendum 3 to the Annex,
- Deviations from the E-Plan (such as station specific on-shift staffing, unique aspects of ERO augmentation, and so forth).
- Facility geography and location for a full understanding and representation of the station's emergency response capabilities.
- Plant specific facilities and equipment associated with the Emergency Preparedness Program.

The Station Annex and its Addendums become a part of the plan and is subject to the same review and audit requirements as the plan. In the areas where a Station Annex deviates from the general requirements of the E-Plan, the Station Annex shall serve as the controlling document.

Detailed E-Plan implementing procedures are maintained separately and are used to guide those responsible for implementing emergency actions.

Part I: Introduction

Exelon Nuclear

Section B: Background

The primary hazard consideration at Oyster Creek is the potential unplanned release of radioactive material resulting from an accident. The probability of such a release is considered very low due to plant design and strict operational guidelines enforced by the NRC. Notwithstanding, federal regulations require that a solid emergency preparedness program exist for each commercial nuclear power station. A detailed description of Oyster Creek is given in the Updated Final Safety Analysis Reports (UFSAR).

In order to minimize the number of ad-hoc decisions made during an emergency and to ensure that necessary equipment, supplies, and essential services are available to meet the needs of an emergency, Exelon Nuclear has developed this E-Plan for Oyster Creek. The E-Plan considers the consequences of radiological emergencies, as required by 10 CFR 50, Paragraph 50.47 and Appendix E.

Additionally, the E-Plan addresses guidance and adheres to the intent of the criteria established and provided within NUREG-0654. The E-Plan also considers the consequences of non-radiological emergencies.

Section C: Scope

This document describes actions to be taken in the event of a radiological accident that may impact the health and safety of the general public or station employees. It also serves to limit the damage to facilities and property, and provide for the restoration of such facilities in the event of an emergency. If such an accident were to occur, the Emergency Response Organization (ERO) would be put in place and maintained until such time where the plant is returned to a stable condition and the threat to the general public or station personnel no longer exists. This plan describes the functions and operation of the ERO, including assignments of authority and responsibility. It does not, nor is it intended to, provide guidance for actual plant equipment manipulations. These instructions are contained in site-specific normal and emergency operating procedures as required by Technical Specifications and other regulatory guidance. The E-Plan provides for: identification and evaluation of emergency situations, protective measures, communications, coordination and notification of governmental authorities, document review and control, emergency preparedness assessment, and training of all emergency personnel. An emergency recovery phase is also described in this E-Plan.

Section D: Planning Basis

The E-Plan, in conjunction with the Station Annex and implementing and administrative procedures, documents the methods by which the Exelon Emergency Preparedness Program meets the planning standards set forth in 10 CFR 50.47(b) and the requirements of 10 CFR 50 Appendix E. Development of the E-Plan was based on NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants".

Part I: Introduction

Exelon Nuclear

Acceptable alternate methods, which deviate from NUREG-0654, are allowed under Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors." However, deviations will be documented in the respective Station Annex and evaluated as continuing to meet the Planning Standards of 10 CFR 50.47(b) and Appendix E to 10 CFR 50 under the 10 CFR 50.54(q) process to ensure the continued effectiveness of the E-Plan and respective Station Annex.

Other applicable regulations, publications, and guidance were used (see Appendix 1, "References") along with site-specific documents to ensure consistency in the planning effort.

Section E: Contiguous-Jurisdiction Governmental Emergency Planning

The E-Plan recognizes the state, in cooperation with the local EPZ communities, as the overall authority responsible for protective action directives in order to protect the health and safety of the general public.

Section F: Integrated Emergency Planning

State and local (county level) emergency response plans were utilized in the development of this plan to ensure a consistent and integrated response to a classified event.

Section G: Funding and Technical Assistance

Exelon Nuclear is dedicated to providing the level of support necessary, as dictated by federal regulation, to ensure appropriate integration of the state, county, and utility radiological emergency programs.

Section H: Emergency Response Organization

Exelon Nuclear acknowledges its primary responsibility for planning and implementing emergency measures within the site boundary and for overall plant accident assessment. These emergency measures include corrective actions, protective measures, and aid for personnel onsite. To accomplish these responsibilities, advance arrangements have been made with offsite organizations for special emergency assistance such as ambulance, medical, hospital, fire, and police services.

Section I: Federal Response

Provisions are made within the E-Plan for the integration of appropriate elements of the federal assistance activities. Arrangements have been made to accommodate a federal response organization presence at Oyster Creek as well as support communications between utility and federal emergency facilities. NRC response as described in NUREG-1471, "Concept of Operations: NRC Incident Response", was used in the development of the E-Plan as guidance to ensure coordination between Exelon Nuclear and NRC EROs.

Section J: Form and Content of Plan

As required by federal regulations, the E-Plan is governed by and contained (or referenced) in the Station UFSARs. The E-Plan is administratively maintained as a separate document. The E-Plan has been formatted similar to NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants." The use of this format lends itself to uncomplicated comparison with the criteria set forth in NUREG-0654/FEMA-REP-1.

Appendix 2, "Procedure Cross-Reference to NUREG-0654", provides a cross-reference between the NUREG-0654 evaluation criteria and the E-Plan implementing procedures and applicable administrative documents.

Required Content of the Station Annex

Information that is in the plan need not be restated in the Annex. The Annex shall address what means, methods, and resources are used to satisfy the requirements and responsibilities set forth in the E-Plan.

Annex Format and Specific Content: As a minimum, the Oyster Creek Annex shall address the areas described as follows:

1. Section 1: Introduction

The station and surrounding area are described by the inclusion of maps, drawings and/or diagrams. A summary statement describes the Annex's interface with the E-Plan.

2. Section 2: Organizational Control of Emergencies

The agencies with which the station has independent agreements for support during an emergency are provided.

3. Section 3: Classification of Emergencies

The Classification levels are described in this Section. Note that the Site Specific EALs are located in Addendum 3 to the Annex and are included for all emergency classes for the purpose of event classification.

4. Section 4: Emergency Measures

Maps indicating the location of Assembly Areas, site evacuation routes, and centers for the monitoring of evacuated nonessential personnel are included. Roadway/traffic control measures of roads under control of the station are addressed.

5. Section 5: Emergency Facilities and Equipment

- Descriptions of the station Control Room, Technical Support Center and Operational Support Center are provided.
- A description of the specific equipment is provided.
- A description of the capability and resources available to categorize accidents.

Section A: Assignment of Responsibility

This section describes the primary responsibilities and organizational control of Exelon, federal, state, county, and other emergency response organizations within the Plume Exposure Pathway and the Ingestion Pathway Emergency Planning Zones (EPZs). Various supporting organizations are also described as well as staffing for initial and continuous response.

1. Concept of Operations

The relationships and the concept of operations for the organizations and agencies who are a part of the overall ERO are as follows:

a. Identified below are federal, state, and county organizations that are involved in a response to an emergency at Oyster Creek.

1) Federal Agencies: The National Response Framework (NRF), Nuclear/Radiological Incident Annex outlines the statutory and regulatory responsibilities. The primary federal response for supporting an emergency at an Exelon station include:

a) Nuclear Regulatory Commission (NRC): The NRC is responsible for licensing and regulating nuclear facilities and materials and for conducting research in support of the licensing and regulatory process. These responsibilities include protecting the public health and safety, protecting the environment, protecting and safeguarding materials and plants in the interest of national security and assuring conformity with antitrust laws.

The NRC Regional Office has the responsibility for auditing of nuclear power stations. It is responsible for ensuring that such activities are conducted in accordance with the terms and conditions of such NRC licenses and that as a result of such operations, there is no undue risk to the health and safety of the public.

The NRC Office of Nuclear Reactor Regulation, established by the Energy Reorganization Act of 1974, as amended, performs licensing functions associated with the construction and operation of nuclear reactors and with the receipt, possession, ownership, and use of special nuclear and byproduct materials used at reactor facilities.

With regard to emergency preparedness, the NRC shall:

- Assess licensee emergency plans for adequacy;
- Review the Federal Emergency Management Agency findings and determinations on the adequacy and capability of implementation of state and local plans; and
- Make decisions with regard to the overall state of emergency preparedness and issuance of operating licenses.

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The NRC shall respond to incidents at licensed facilities or vehicular accidents involving licensed materials, including radionuclides, in transit. The NRC shall act as the lead Federal agency with regard to technical matters during a nuclear incident including radiological assistance. The NRC shall be prepared to recommend appropriate protective actions for the public and technical actions to the licensee. FEMA shall act as the lead Federal agency for offsite, non-technical concerns.

During an incident, the Chairman of the Commission is the senior NRC authority for all aspects of a response. The Chairman shall transfer control of emergency response activities to the Director of Site Operations when deemed appropriate by the Chairman.

All NRC Regions as well as Headquarters are prepared to respond to potential emergencies. All Regions and Headquarters have developed plans and procedures for responding to radiological incidents involving NRC licensees. Headquarters has developed the NRC Incident Response Plans and Implementing Procedures. Each NRC Region has developed Regional Supplements that detail how the Region will fulfill all of the responsibilities assigned in the NRC Incident Response Plan. All NRC organizations are responsible for maintaining an effective state of preparedness through periodic training, drills and exercises.

Each Region and Headquarters has established and maintains an Incident Response Center designed to centralize and coordinate the emergency response function. Adequate communications are established to link the licensee, Headquarters and the Region. The NRC has established lines of communications with local government, state government, other Federal agencies, Congress and the White House. Public information will be disseminated in a timely manner and periodically.

Each Region is prepared to send a team of qualified specialists to the scene expediently. All of the necessary supplies and equipment needed for emergency response will be provided and maintained by the NRC.

The NRC Incident Response Plan objectives are to provide for protection of the public health and safety, property, and the environment, from the effects of radiological incidents that may occur at licensed facilities or which involve licensed materials, including radio-nuclides in transit.

The objectives of the agency plan set forth the organizational and management concepts and responsibilities needed to assure that NRC has an effective emergency response program.

The plan is intended to ensure NRC preparedness:

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- To receive and evaluate notification information of incidents, accidents and unusual events and determine the extent of NRC response necessary to meet NRC responsibilities for mitigating the consequences of these events;
 - To determine the cause of incidents, accidents, and unusual events in order to ensure that appropriate corrective actions are taken by the licensee to minimize the consequences of these events;
 - To provide onsite expertise in a timely manner, to evaluate the nature and extent of the incident, ascertain plant status (for reactors and fuel facilities), monitor licensee activities, determine compliance, make recommendations, and, if necessary, issue orders relative to the event;
 - To inform the public and others of plant status and technical details concerning the incident;
 - To recommend adequate protective actions to the responsible local and/or state agencies;
 - To provide technical assistance;
 - To ensure the plant is returned to a safe condition; and
 - To return the NRC Headquarters and Regional office to normal operations.
- b) Federal Emergency Management Agency (FEMA): Per the National Response Framework (NRF), FEMA is responsible for the overall coordination of a multi-agency Federal response to a significant radiological incident. The primary role of FEMA is to support the state by coordinating the delivery of Federal non-technical assistance. FEMA coordinates state requests for Federal assistance, identifying which Federal agency can best address specific needs. If deemed necessary by FEMA, it will establish a Federal Response Center from which it will manage its assistance activities.
- c) Federal Radiological Preparedness Coordinating Committee (FRPCC): The FRPCC consists of the Federal Emergency Management Agency, which chairs the Committee, the Nuclear Regulatory Commission, the Environmental Protection Agency, the Department of Health and Human Services, the Department of Energy, the Department of Transportation, the Department of Defense, the Department of Agriculture, the Department of Commerce, and where appropriate and on an ad hoc basis, other Federal departments and agencies. The FRPCC shall assist FEMA in providing policy direction for the program of Federal assistance to state and local governments in their radiological emergency planning and preparedness activities.

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- d) U.S. Department of Energy (DOE): The Department of Energy (DOE) has extensive radiological monitoring equipment and personnel resources that it can assemble and dispatch to the scene of a radiological incident. The Department of Energy (DOE) local operations office can assist Exelon Nuclear following a radiological incident as outlined in the Federal Radiological Monitoring and Assessment Plan (FRMAP). If Exelon Nuclear, the NRC or the affected states deem that assistance from DOE is necessary or desirable, the affected state(s) would notify the appropriate DOE operations office.
- e) Environmental Protection Agency (EPA): Assists with field radiological monitoring/sampling and non-plant related recovery and reentry guidance.
- f) The U.S. Coast Guard (USCG): The USCG patrols and ensures the safety of navigable waterways in the United States. The USCG is promptly notified of any oil or hazardous substance discharges into rivers or lakes or radioactive contamination of rivers or lakes under its jurisdiction at levels requiring assistance to effect protective actions. The USCG is contacted by the appropriate state agencies in the event of an incident at an applicable nuclear power plant. The USCG is responsible for officially closing the waterways to all commercial traffic [Refer to the appropriate State Plan].
- g) U.S. Army Corps of Engineers: The U.S. Army Corps of Engineers control barge and boat traffic at locks and dams on navigable waterways in the United States. The Corps of Engineers will be contacted by the appropriate state agencies in the event of an incident at an applicable nuclear power plant. The Corps will be responsible for closing their locks and dams to all waterway traffic leading to the affected area, allowing only traffic leaving the area [Refer to the appropriate State Plan].
- h) Federal Bureau of Investigation (FBI): Support from the FBI is available through its statutory responsibility based in Public Law and the US code, and through a memorandum of understanding for cooperation with the NRC. Notification to the FBI of emergencies in which they would have an interest will be through provisions of the Nuclear Station's Security Plan, or by the NRC.
- i) National Weather Service (NWS): Provides meteorological information during emergency situations, if required. Data available will include existing and forecasted wind directions, wind speed, and ambient air temperature.

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2) State Agencies

- a) State of New Jersey: The state of New Jersey, through the various state, county and local agencies, is responsible for offsite emergency response. In order to fulfill this responsibility, the state relies on OCGS to provide necessary information on plant status and radiation releases. Recognizing the joint nature of their responsibilities, OCGS and the relevant governmental agencies have coordinated their emergency planning and have provided for adequate and redundant communication systems to coordinate their response during an emergency event.

The New Jersey State Police, Office of Emergency Management, is responsible to coordinate emergency services in the State of New Jersey.

- New Jersey Office of Emergency Management: The New Jersey Office of Emergency Management (OEM) has been assigned the responsibility for developing a statewide radiation emergency response plan. Annex B to the State of New Jersey Radiological Emergency Response Plan serves as a reference document incorporating the policy, the concept of operation, the rationale for chosen guidelines, and the relevant statutory documents.

The OEM is the lead agency and coordinates the efforts of all state support agencies, including actions and operations involving public response and furnishes resources required to support decisions affecting exposure control.

This agency initiates communications with county and municipal authorities through the County Emergency Management Coordinator. Ocean County and each municipality have contingency plans indicating actions to be taken upon notification of an emergency condition by the OEM.

Primary contact with state authorities is through the New Jersey State Police OEM and the Headquarters Communications Bureau. This office is responsible for notifying other State and federal agencies and for providing assistance to state and local authorities in implementing emergency actions.

The Emergency Operations Center (EOC) for the New Jersey State Police is located at the State Police Division Headquarters in West Trenton, NJ.

- New Jersey Department of Environmental Protection, Bureau of Nuclear Engineering: The Bureau of Nuclear Engineering (BNE) is responsible for responding to a radiation incident within state boundaries. They will assess the radiological hazard and provide technical guidance and recommendations concerning the execution of protective actions for the general public.

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The BNE maintains personnel, facilities and equipment to assist in assessing the hazard and provide technical guidance and recommendations regarding the implementation of protective actions for the general public. The BNE perform both routine and emergency environmental monitoring.

The State of New Jersey's border is located within the 50-mile Ingestion Pathway Zone for Limerick, and Peach Bottom Stations. The State will be notified if protective actions are required within that area. No direct support is provided to Limerick or Peach Bottom Stations.

3) County Government Agencies

Exelon and the surrounding communities that comprise the Plume Exposure Pathway EPZs have developed integrated emergency response programs that call upon the resources of their community. The community organizations are responsible for implementing and coordinating the community response to an emergency.

The County Emergency Operations Centers (EOCs) serve as the primary coordinating center for local government response within the county's jurisdiction and for coordination between counties.

b. During an event classified as an Alert, Site Area Emergency, or General Emergency, the Oyster Creek ERO replaces the normal plant organization. The ERO consists of three major response sub-organizations:

1) The Station Organization, directed by the Station Emergency Director, provides for:

- Control and operation of the plant.
- Mitigation of the emergency condition.
- Protection of station personnel.
- Emergency event classification.
- Notification of the appropriate individuals and agencies prior to EOF taking Command and Control.
- Emergency support for operations, engineering, maintenance, fire fighting, material acquisition, security, and first aid.

2) The EOF Organization, directed by the Corporate Emergency Director, provides for:

- Emergency notifications to Federal, state and local agencies.

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- Offsite radiological accident assessment and Protective Action Recommendations to offsite authorities.
 - The primary interface between Exelon Nuclear and outside organizations responsible for the protection of the public.
- 3) The Public Information Organization, directed by the Corporate Spokesperson, coordinates with public information officers from other organizations to provide information to the public through the news media.
- c. Interrelationships between major Exelon Nuclear organizations and sub-organizations in the total response effort are illustrated in a block diagram in Figures A-1 and A-2. For a more detailed diagram of the Exelon Nuclear ERO, see Figures B-1a to B-1d.
- d. The Corporate Emergency Director is a senior Exelon employee with overall responsibility for coordinating emergency response actions in support of the affected Exelon Nuclear station, Emergency Public Information Organization, and affected state(s) and local agencies.
- e. Procedures for training and maintenance of the emergency organization are in place to ensure 24-hour per day staffing for emergency response, including established communication links.

2. State and County Functions and Responsibilities

The state and counties have emergency response plans that specify the responsibilities and functions for the major agencies, departments, and key individuals of their emergency response organizations. This information is located in their respective plans.

3. Agreements in Planning Effort

Written agreements establishing the concept of operations developed between Exelon Nuclear and other support organizations having an emergency response role within the EPZs have been developed. These agreements identify the emergency measures to be provided, the mutually accepted criteria for implementation, and the arrangements for exchange of information. Agreement letters are not necessary with Federal Agencies who are legally required to respond based on Federal law; however, agreements are necessary if the agency was expected to provide assistance not required by law. Letters of Agreement with private contractors and others who provide services in support of a specific nuclear station shall be obtained by the respective nuclear station. Letters of Agreement are referenced in the Station Annex and the actual letters are maintained on file at each station respectively. Letters of Agreement, as a minimum, state that the cooperating organization will provide their normal services in support of an emergency at the affected station. A contract/purchase order with a private contractor is considered acceptable in lieu of a Letter of Agreement for the specified duration of the contract.

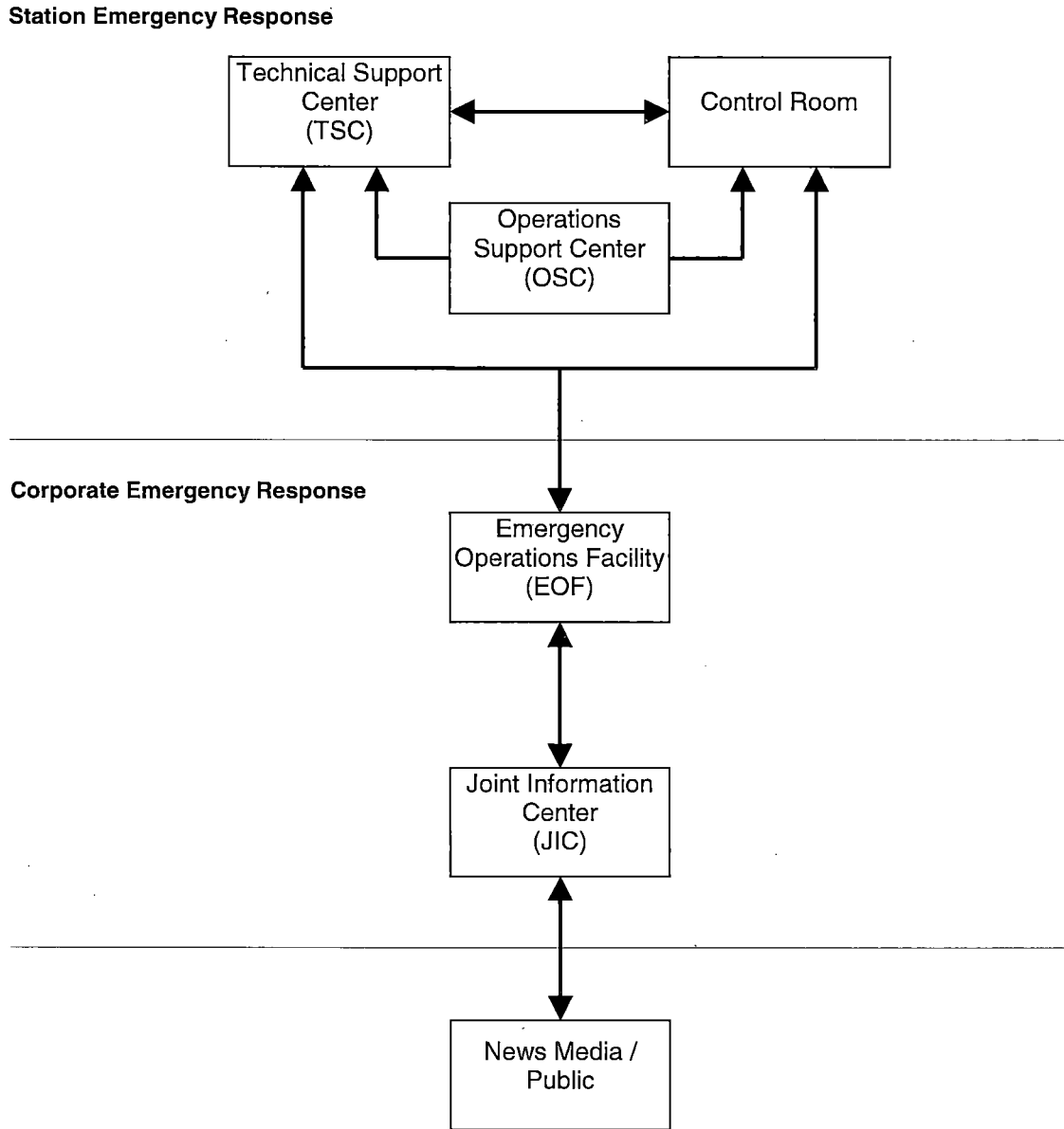
4. Continuous Coverage

Exelon Nuclear maintains 24-hour emergency response capability at Oyster Creek. The normal on-shift complement provides the initial response to an emergency. This group is trained to handle emergency situations (e.g. initiate implementation of the E-Plan, make initial accident assessment, emergency classification, notifications, communications, and protective action recommendations) until the augmented ERO arrives. The ERO is composed of a broad spectrum of personnel with specialties in operations, maintenance, engineering, radiochemistry, health physics, material control, fire protection, security, and emergency planning and are available and trained to augment on-shift personnel in an emergency. Procedures for training and maintenance of the emergency organization are in place to provide the capability of continuous (24-hour) operations.

The Corporate Emergency Director, located in the EOF, has the authority and responsibility for assuring continuity of resources (technical, administrative, and material) in the event of the activation of the ERO.

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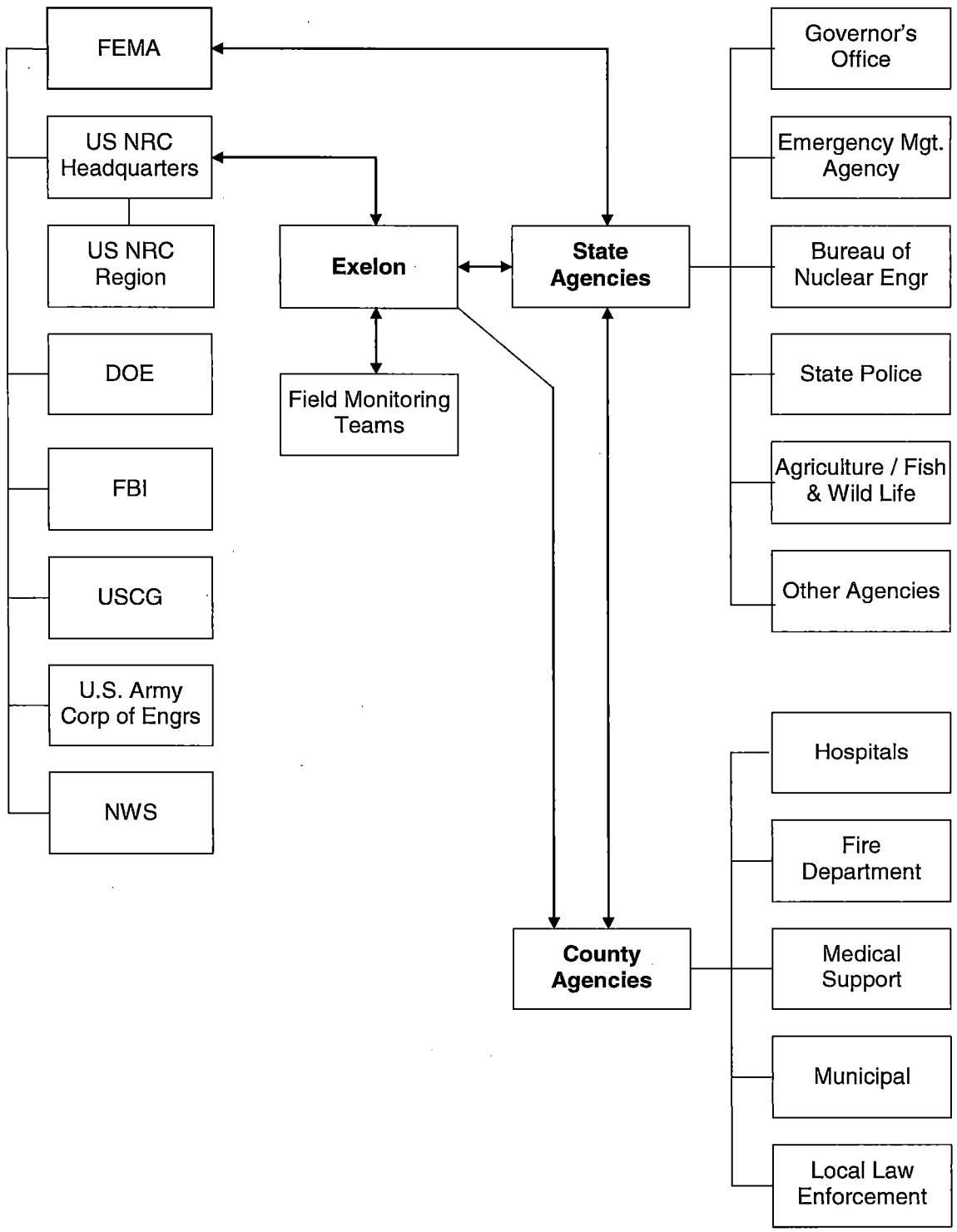
Figure A-1: Exelon Emergency Response Organization Interrelationships



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Figure A-2: Agency Response Organization Interrelationships



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Section B: Exelon Nuclear Emergency Response Organization

This section describes the Exelon Nuclear Emergency Response Organization (ERO), its key positions and associated responsibilities. It outlines the staffing requirements which provide initial emergency response actions and provisions for timely augmentation of on-shift personnel when required. It also describes interfaces among Exelon Nuclear emergency response personnel and specifies the offsite support available to respond to Oyster Creek.

1. On-Shift Emergency Response Organization Assignments

The normal plant personnel complement is established with the Station Vice President having overall authority for station operations. The Station Vice President directs the site organization in the management of the various departments while the Shift Manager retains the responsibility for actual operation of plant systems. Emergency Preparedness must consider the capabilities of the normal plant organization, the Station and Corporate Emergency Response Organizations of Exelon Nuclear, and the non-Exelon Nuclear Emergency Response agencies. The initial phases of an emergency situation at a nuclear station will most likely involve a relatively small number of individuals. These individuals must be capable of (1) determining that an emergency exists; (2) providing initial classification and assessment; and (3) promptly notifying other groups and individuals in the emergency organization. The subsequent phases of the emergency situation may require an increasing augmentation of the emergency organization.

Oyster Creek has personnel on shift at all times that can provide an initial response to an emergency event. ERO staffing tables contained within the Oyster Creek Annex, outline the plant on-shift emergency organization and its relation to the normal staff complement. Members of the on-shift organization are trained on their responsibilities and duties in the event of an emergency and are capable of performing all response actions in an Unusual Event or the initial actions of higher classifications.

On Shift Personnel

Oyster Creek has the capability at all times to perform detection, mitigation, classification, and notification functions required in the early phases of an emergency. Shift augmentation and further ERO involvement will be determined by the extent and magnitude of the event. When a transition to Severe Accident Management Guidelines (SAMG) is initiated, the shift crew assumes the duties and responsibilities of the SAMG Implementers.

Shift Manager: While acting as Shift Emergency Director, will take immediate action during an emergency and will activate the Station ERO, as appropriate. In the Shift Manager's absence or incapacitation, the line of succession is defined by each Station's procedures.

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Shift Technical Advisor (STA): During normal plant operations, the Senior Reactor Operators report to the Shift Manager and directly supervise the licensed Reactor Operators and all activities in the Control Room. During an abnormal condition, the Shift Manager assumes direct supervision of personnel and all activities in the Control Room while a qualified individual steps back and assumes an overview role as an STA with the specific responsibility of monitoring the maintenance of core cooling and containment integrity. An individual assigned the duty as the STA shall be available to the Control Room at all times.

Radiation Protection: The Station Radiation Protection personnel are responsible for the handling and monitoring of radioactive materials. Included in this organization are Health Physicists, Radiation Protection Supervisors and Technicians.

Chemistry: The Station Chemistry personnel are responsible for sampling of system effluents, and the chemical and radio-analytical analysis of those samples. Included in this organization are Chemists, Chemistry Supervisors and Technicians.

Security: The Station Security personnel are responsible for the physical security of the site. Included in this organization are Security Supervisors and Security Guards.

2. Authority Over the Emergency Response Organization

The Emergency Director in Command and Control is the designated Exelon Nuclear individual who has overall authority and responsibility, management ability, and technical knowledge for coordinating all emergency response activities at the nuclear power station.

- Control Room: Shift Emergency Director (Shift Manager)
- TSC: Station Emergency Director
- EOF: Corporate Emergency Director

3. Criteria for Assuming Command and Control (Succession)

Emergency personnel assume responsibility for their positions upon receiving notification to activate. The responsibility for initial assessment of and response to an emergency rests with the Shift Manager. The Shift Manager is the Shift Emergency Director and has the Station Emergency Director's responsibilities and authority until relieved by a qualified Station Emergency Director. The Station Emergency Director, once having relieved the Shift Manager of the Emergency Director responsibilities, is responsible for continued assessment of the severity of the emergency and for the necessary functions as described in the E-Plan and the emergency implementing procedures. Final succession is achieved when the Corporate Emergency Director assumes overall Command and Control, and directs Exelon Nuclear's Emergency Response activities.

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The Shift Emergency Director is relieved of Command and Control as soon as possible after the declaration of an Alert (or higher classification if Alert not declared). Command and Control may be transferred directly to the Corporate Emergency Director, or transferred to the Station Emergency Director on an interim basis. Command and Control does not transfer until the following criteria have been met:

- Adequate staff levels are present in support of the non-delegable responsibilities.
- The staff has been fully briefed as to the status of the event and the currently proposed plan of action.
- A turnover between the Emergency Director relinquishing Command and Control and the Emergency Director assuming Command and Control has been made.

Although Exelon Nuclear's ERO fulfills all regulatory requirements for emergency response, it may be altered by the Emergency Director. This type of alteration will be based upon identified needs within the ERO, event dependent criteria, and identified needs of the company as a whole.

4. Non-Delegable Responsibilities

Non-delegable responsibilities include the following functions:

- Event classification.
- Protective Action Recommendations (PARs) for the general public.
- Notification of offsite authorities (approval of state/local and NRC notifications).
- Authorization of emergency exposure controls in excess of 5 Rem TEDE and the issuance of potassium iodide (KI), for Exelon Nuclear emergency workers per EPA-400.

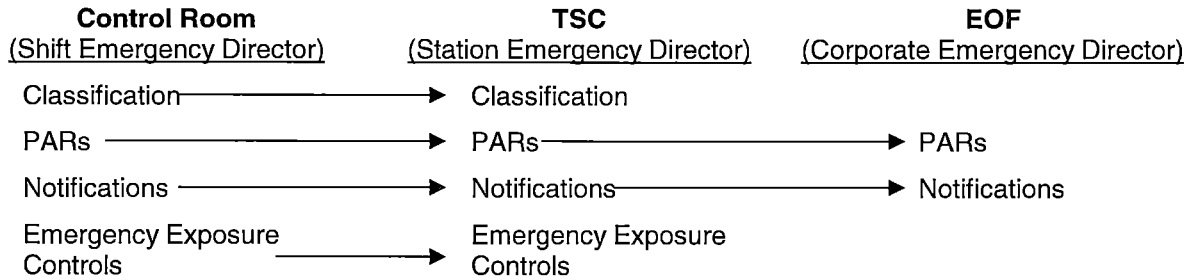
The Shift Manager is responsible for the initial classification of an event and assumes the position as Shift Emergency Director. In this capacity, the Shift Manager has responsibility for performing the non-delegable responsibilities until relieved.

The Station Emergency Director will assume overall authority and responsibility for performing all of the non-delegable duties from the Shift Manager. The Corporate Emergency Director (EOF) will subsequently relieve the Station Emergency Director (TSC) of overall Command and Control and assume the non-delegable responsibilities for PAR determination and notifications to offsite authorities.

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Transition of "Non-Delegable" Responsibilities



5. Emergency Response Organization Positional Responsibilities

ERO staffing tables contained within the Oyster Creek Annex, outline ERO positions required to meet minimum staffing and full augmentation of the on-shift complement at an Alert or higher classification, and the major tasks assigned to each position. The full augmentation staffing levels are used as a planning basis to cover a wide range of possible events. For extended events (one which lasts for more than 24 hours), actual staffing will be established by the Emergency Director based on the event and personnel availability. However, additional staffing or reduced staffing will only occur after discussion concerning the impact on plant operations and emergency response.

In addition to maintaining adequate documentation of the event, responsibilities for each position are as follows:

- a. Station Emergency Response Organization: The Station ERO is the onsite group that is activated during an emergency. It functions under the Station Emergency Director, who is responsible for organizing and coordinating the emergency efforts at and within the immediate vicinity of the station (including carrying out all onsite emergency efforts and the initial offsite environs monitoring efforts necessary to assess plant releases).

The Station ERO consists of station personnel who are involved with emergency response efforts necessary to control the plant during an incident. This organization operates out of the Control Room, the Technical Support Center (TSC) and the Operations Support Center (OSC). Collectively, members of the Station ERO provide for the following activities during an emergency:

- Plant systems operations
- Radiological survey and monitoring (including Environs Monitoring)
- Firefighting
- Rescue operations and First Aid
- Decontamination
- Security of plant and access control
- Repair and damage control

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- Personnel protection including Assembly, Accountability and Evacuation
- Communications
- Initial Liaison responsibilities with Federal, state and local authorities

When plant conditions warrant entry into the Severe Accident Management Guidelines (SAMGs), the Station Emergency Director or other qualified individual (e.g., Operations Manager) assumes the role of Decision-Maker. The Technical Manager and/or another qualified individual(s) assumes the role of Evaluator (at least 2 are required), and the Control Room staff assumes the role of Implementers. Control Room personnel will perform mitigating actions for severe accidents per EOPs prior to TSC activation.

All Station ERO personnel shall have the authority to perform assigned duties in a manner consistent with the objectives of this plan.

1) Shift Manager (Shift Emergency Director) Control Room

A Shift Manager is on duty 24 hours a day and is the Shift Emergency Director in a declared emergency until relieved of this function. While serving in this capacity the Shift Manager is responsible for:

- Activating the ERO (as deemed appropriate or as procedurally required).
- Performing those duties outlined in Section B.5.a.2 for the Station Emergency Director. The responsibilities described for the Station Emergency Director applies to either the Shift Emergency Director or the Station Emergency Director depending on which individual is in Command and Control.

The on-duty Shift Manager directs the activities of the operating crew and is responsible for the safe operation of the plant in compliance with the station NRC operating license and the station operating procedures. The Shift Manager, after relinquishing Command and Control, functionally reports to the Operations Manager in the TSC.

The Shift Manager's responsibilities, when not in Command and Control, are described below:

- The authority and responsibility to shutdown the reactor when determined that the safety of the reactor is in jeopardy or when operating parameters exceed any of the reactor protection circuit set-points and automatic shutdown does not occur;
- To ensure a review has been completed to determine the circumstance, cause, and limits under which operations can safely proceed before the reactor is returned to power following a trip or an unscheduled or unexplained power reduction;

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- The responsibility to be present at the plant and to provide direction for returning the reactor to power following a trip or an unscheduled or unexplained power reduction;
- The responsibility to adhere to the station Technical Specifications and to review routine operating data to assure safe operation;
- The responsibility to identify applicable EALs and emergency classifications; and
- The responsibility to adhere to plant operating procedures and the requirements for their use. During an emergency, operations personnel may depart from approved procedures where necessary to prevent injury to personnel, including the public, or damage to the facility consistent with the requirements of 10 CFR 50.54(x) and (y).
- Supervise the activities of the Control Room Crew, Operations Communicator and Damage Control Communicator in the Control Room.

2) Station Emergency Director TSC

The Station Emergency Director reports to the Corporate Emergency Director and supervises and directs the Station ERO. The Station Emergency Director's responsibilities include organizing and coordinating the onsite emergency efforts. Additionally, the Station Emergency Director has the requisite authority, plant operating experience and qualifications to implement in-plant recovery operations.

a) Station Emergency Director Responsibilities while in Command and Control:

- Perform all non-delegable responsibilities as the Emergency Director in Command and Control until relieved by the EOF.
- Conduct personnel assembly/accountability and evacuation of non-essential personnel at Site Area Emergency, General Emergency or as conditions warrant.
- If the emergency involves a hazardous substance and/or oil discharges, ensure that appropriate notifications and responses have been made.
- Determine if the OSC is to remain activated at the Alert Classification.

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b) Station Emergency Director Responsibilities while not in Command and Control:

- Event classification.
- Emergency exposure controls.
- Protective actions for all onsite personnel.
- Supervision of the Station ERO.
- Inform the Corporate Emergency Director and onsite NRC as to the status of the plant.
- Assist the Corporate Emergency Director in the acquisition of information for the state/local notifications, NRC notifications and offsite agency updates.
- Provide information and recommendations to the Corporate Emergency Director.
- Implement plans, procedures and schedules to meet emergency response objectives as directed by the Corporate Emergency Director.
- Request from the Corporate ERO any additional material, personnel resources or equipment needed to implement response plans and operations.
- Assume the duties and responsibilities of Decision-Maker when a transition to Severe Accident Management Guidelines (SAMGs) is initiated. This responsibility can be delegated to the Operations Manager if qualified.

3) TSC Director TSC

The TSC Director reports to the Station Emergency Director and is responsible for the content of information transmitted from the TSC to other agencies (or facilities) and for documenting information received at the TSC in coordination with the Station Emergency Director. Responsibilities include:

- Verify that qualified individuals are filling Communicator positions in the Control Room, TSC and OSC.
- Supervise the activities of the Logistics Coordinator and state/local Communicator.
- Ensure that communications are established with appropriate parties as directed by the Station Emergency Director.

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- Ensure that all required notifications to offsite governmental agencies (state/local and NRC) are timely and accurate.
- Act as the Exelon Nuclear Liaison to any NRC Site Team Representatives.
- Ensure that the NRC Site Team Representatives are directed to their appropriate counterparts.
- Assist the Corporate Emergency Director in the acquisition of information for off-site agency updates.
- Record and relay inquiries to the Station Emergency Director. In addition, record responses to such inquiries prior to transmission.
- Assist the Station Emergency Director in maintaining proper records.

4) Communicators

CR/TSC/OSC

The Communicators are responsible for transmitting/receiving information to and from the TSC, OSC and Control Room. General responsibilities assigned to all Communicators include:

- Establish communications with appropriate parties as directed.
- Transmit information that has been reviewed and/or approved by the responsible Manager or Coordinator.
- Document time, date and information being transmitted or received on appropriate forms.
- Record and relay inquiries and the responses to those inquiries.
- Assist appropriate Managers and Coordinators in maintaining proper records and logs of emergency related activities.
- Gather, record and post appropriate information.

a) Specific responsibilities assigned to the State/Local Communicator include:

- Communicate and receive information via the Nuclear Accident Reporting System (NARS) circuit or commercial telephone line with appropriate agencies prior to the EOF accepting Command and Control.
- Monitor NARS communications until released by the TSC Director.

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- b) Specific responsibilities assigned to the Damage Control Communicator include:
- Relay requests from the Control Room and TSC for the dispatching of OSC Teams.
 - Apprise the station emergency response facilities of the status of OSC Team activities.
- c) Specific responsibilities assigned to the Operations Communicator include:
- Apprise the TSC and EOF staff of the overall plant condition and significant changes to system and equipment status.
 - Inform the Control Room, TSC, and EOF of significant changes in event status (e.g. changes in classification, command and control, initiation of station assembly, accountability, evacuation, etc.).
- d) Specific responsibilities assigned to the TSC Technical Communicator include:
- Establish and maintain contact with the EOF Technical Advisor.
 - Provide EOF with updates on technical support activities and priorities.
- e) Specific responsibilities assigned to the ENS Communicator include:
- Notify the NRC of changes in event classification, prior to the EOF accepting Command and Control, and assist the EOF ENS Communicator in completing the NRC Event Notification Worksheet and responding to NRC inquiries.
 - Provide real time updates of significant changes to plant and system status and responses to NRC inquiries.
 - Maintain continuous communications with the NRC, if requested, via the NRC ENS phone or commercial telephone line.
- f) Specific responsibilities assigned to the HPN Communicator include:
- Maintain continuous communications with the NRC, if requested, via the NRC Health Physics Network (HPN) phone or commercial telephone line.
 - Communicate current Health Physics information to NRC representatives, as requested.

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- Coordinate the communications of radiological information to the NRC with the EOF HPN Communicator (onsite vs. environmental data).

5) Operations Manager TSC

The Operations Manager reports to the Station Emergency Director. Major functions include determining the extent of station emergencies, initiating corrective actions, and implementing protective actions for onsite personnel. In the event that the Station Emergency Director becomes incapacitated and can no longer fulfill the designated responsibilities, the Operations Manager will normally assume the responsibilities until relieved by another qualified Station Emergency Director. Responsibilities include:

- Coordinate TSC efforts in determining the nature and extent of emergencies pertaining to equipment and plant facilities in support of Control Room actions.
- Initiate immediate corrective actions to limit or contain the emergency invoking the provisions of 10 CFR 50.54(x) if appropriate, and specifically when addressing Severe Accident Management Guidelines (SAMG).
- Recommend equipment operations checks and miscellaneous actions to the Control Room in support of restoration and accident mitigation.
- Approve emergency special procedures, and implement as required under the provisions of 10 CFR 50.54(x).
- Assist the Maintenance Manager in determining the priority assigned to OSC activities.
- Organize and direct medical response efforts for injured personnel.
- Ensure adequate staffing of the Control Room and TSC subordinates.
- Ensure the Shift Manager is informed of OSC staffing utilization and activities.
- Identify steps or procedures that the Operations staff should be utilizing to properly respond to the emergency condition.
- Assist the Station Emergency Director in evaluating changes in event classification.
- Supervise the activities of the Operations Communicator and the ENS Communicator in the TSC.
- Act as the TSC liaison with the appropriate NRC Site Team Representative.

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- At the direction of the Station Emergency Director, assume the duties and responsibilities of the Evaluator, or Decision-Maker if qualified, when transition to Severe Accident Management Guidelines (SAMG) is initiated.

6) Technical Manager TSC

The Technical Manager reports to the Station Emergency Director and directs a staff in performing technical assessments of station emergencies and assists in recovery planning. Responsibilities include:

- Accumulate, tabulate and evaluate data on plant conditions.
- Evaluate plant parameters during an emergency to determine the overall plant condition.
- Coordinate core damage assessment activities.
- Identify data points and control parameters that the Operations staff should monitor.
- Ensure that current and adequate technical information is depicted on status boards.
- Identify and direct staff in the development of special procedures needed to effect long-term safe shutdown or to mitigate a release.
- Supervise the total onsite technical staff effort.
- Act as the TSC liaison with state and appropriate NRC Site Team representatives.
- Assist the Radiation Protection Manager for onsite radiological/technical matters.
- Assist the Station Emergency Director in evaluating plant based PARs (prior to Corporate Emergency Director accepting command and control) and changes in event classification.
- Supervise the activities of the TSC Technical Communicator.
- Assume the duties and responsibilities of an Evaluator when transition to Severe Accident Management Guidelines (SAMG) is initiated and supervise the activities of the SAMG Evaluator Team

7) Technical Support Staff TSC

The TSC Technical Support Staff consists of the following minimum staff engineering positions:

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- Electrical Engineer
- Mechanical Engineer
- Core/Thermal Hydraulic Engineer - serves as Core Damage Assessment Methodology (CDAM) Evaluator, as applicable.

In addition, station Engineering support will be augmented on an as needed basis to support accident assessment and mitigation activities.

The Electrical or Mechanical Engineer, as directed by the Technical Manager, will perform the duties of the State / Local Communicator until relieved by the EOF.

8) Logistics Coordinator TSC

The Logistics Coordinator reports to the TSC Director and provides administrative services in support of emergency/recovery operations. Responsibilities include:

- Coordinate shift relief and continual staffing of the station.
- Arrange for clerical staff at the TSC, OSC and Control Room.
- Assist the Security Coordinator in coordinating ERO and station activities in support of on-going security contingency, accountability or site/area evacuation efforts.
- Support the processing of special procedures and interim reports during an emergency.
- Ensure that event status and priority logs are being maintained in the TSC.
- Coordinate record-keeping efforts at the station.
- Arrange for food, sleeping facilities and other necessary accommodations for onsite emergency workers.
- Arrange for specialized training of Emergency Response personnel as needed.
- Direct the activities of the Computer Specialist.

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9) Radiation Protection Manager (RPM) TSC

The Radiation Protection Manager reports to the Station Emergency Director and supervises the activities of the Radiation Controls Coordinator and Radiation Controls Engineer. The TSC RPM directs a staff in determining the extent and nature of radiological or hazardous material problems onsite. Responsibilities include:

- Accumulate, tabulate and evaluate data on plant conditions such as meteorological and radiological monitoring readings, and other pertinent data.
- Act as the TSC liaison with the appropriate NRC Site Team representative.
- Ensure use of protective clothing, respiratory protection, and access control within the plant as deemed appropriate to control personnel exposures.
- Ensure that appropriate bioassay procedures have been implemented for onsite personnel when a radioactivity incident has occurred.
- Ensure that personnel are decontaminated, if necessary.
- Authorize personnel exposures below 5 Rem TEDE (EPA-400 lower limit).
- Assist the Station Emergency Director in determining if exposures in excess of the 5 Rem TEDE (EPA-400 lower limit) are necessary.
- Advise the Station Emergency Director of situations when the use of KI should be considered.
- Assist the Station Emergency Director in evaluating dose-based PARs (prior to Corporate Emergency Director accepting command and control) and changes in radiological event classification.
- Advise the Station Emergency Director and EOF Radiation Protection Manager of changes in radiological release status.
- Assist the Operations Manager in planning rescue operations and provide monitoring services as required, including the transfer of injured and/or contaminated personnel.
- Coordinate with the Security Coordinator to determine the routes to be used for evacuation of non-essential personnel.
- Assure additional radiation protection personnel and/or equipment is arranged for, as necessary.

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10) Radiation Controls Engineer (RCE) TSC

The Radiation Controls Engineer reports to the Radiation Protection Manager and coordinates the radiological and chemistry interface between the technical support engineering efforts. Responsibilities include:

- Monitor area and process radiation monitors to identify trends and potential hazards within the station.
- Evaluate plant environmental factors regarding radiological and other hazardous material conditions.
- Evaluate radiological and hazardous material surveys and chemistry sample results as appropriate.
- Direct the performance of sampling activities through coordination with the OSC Chemistry Lead in support of operations and core damage estimates as necessary.
- Coordinate radiological and chemistry information with the Core/Thermal Hydraulic Engineer in support of core damage assessment.

11) Radiation Controls Coordinator (RCC) TSC

The Radiation Controls Coordinator reports to the Radiation Protection Manager. The RCC coordinates site and in-plant Radiation Protection response activities through the OSC Radiation Protection Lead. Responsibilities include:

- Support the OSC Radiation Protection Lead in the dispatching of OSC Teams.
- Assist the Operations Manager in planning radiological controls for personnel dispatched from the Control Room.
- Ensure the proper use of protective clothing, respiratory protection, and access controls in the plant as appropriate to control personnel exposure.
- Monitor habitability concerns impacting access to plant and site areas.
- In coordination with the OSC Radiation Protection Lead, assemble and dispatch the Field Monitoring Teams as required.
- Supervise the activities of the HPN Communicator in the TSC.
- Request additional Radiation Protection personnel and/or equipment, as necessary in support of station activities and staff relief.

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- Prior to EOF Protective Measures Group staffing:
 - Perform dose assessments and provide appropriate dose-based PARs.
 - Coordinate Field Monitoring Team activities.
 - Monitor meteorological conditions and remain cognizant of forecast data.
- Following EOF Protective Measures Group staffing:
 - Transfer responsibility of dose assessment activities and control of the Field Monitoring Teams to the EOF Dose Assessment Coordinator when appropriate.
 - Assist the EOF Dose Assessment Coordinator in the acquisition of information for the off-site agency updates.

12) Maintenance Manager

TSC

The Maintenance Manager reports to the Station Emergency Director and directs a staff in providing labor, tools, protective equipment and parts needed for emergency repair, damage control and recovery efforts to place the plant in a safe condition or return the plant to its pre-accident status. Responsibilities include:

- Direct the total onsite maintenance and equipment restoration effort.
- Request additional equipment in order to expedite recovery and restoration.
- Supervise the activities of the OSC Director and the TSC Damage Control Communicator.
- Ensure the Operations Manager is informed of OSC staffing utilization and activities.
- In coordination with the Operations Manager, determine the priority assigned to OSC activities.
- Ensure adequate staffing of the OSC.
- Assist in rescue operations.
- Identify required procedures that need to be written or implemented in support of the response efforts.

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13) Security Coordinator TSC

The Security Coordinator reports to the Station Emergency Director and maintains plant security and personnel accountability at the nuclear station. Responsibilities include:

- Maintain plant security and account for all personnel within the protected area.
- Assist the Station Emergency Director in evaluating changes in security related threats and event classifications.
- Identify any non-routine security procedures and/or contingencies that are in effect or that require a response.
- Expedite ingress and egress of emergency response personnel.
- Coordinate with the Radiation Protection Manager in controlling ingress and egress to and from the Protected Area if radiological concerns are present.
- Provide for access control to the Control Room, TSC and OSC, as appropriate.
- Expedite entry into the Protected Area, as necessary, for the NRC Site Team.
- Act as the TSC liaison with the appropriate NRC Site Team representative.
- Assist the Radiation Protection Manager in determining personnel evacuation routes as necessary.
- Coordinate the evacuation of station non-essential personnel with the appropriate Local Law Enforcement Agencies (LLEAs).

14) Computer Specialist TSC

The Computer Specialist reports to the Logistics Coordinator. Responsibilities include:

- Assist any personnel in logging in, initializing or using a desired computer program.
- Investigate and repair problems encountered with communications equipment and computer equipment/applications.

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15) Operations Support Center Director OSC

The OSC Director reports to the Maintenance Manager and supervises the activities of OSC personnel. Responsibilities include:

- Assign tasks to designated Leads as available:
 - Operations
 - Mechanical Maintenance
 - Electrical/I&C Maintenance
 - Radiation Protection
 - Chemistry
- Coordinate with the OSC Operations Lead in the dispatch of Operations personnel to support Control Room and OSC Team activities.
- Notify the Control Room and TSC prior to dispatch of any OSC teams into the plant.
- Maintain OSC resources including personnel, material, and equipment.
- Maintain accountability for all individuals dispatched from the OSC.
- Conduct periodic briefings on the overall plant status, emergency response activities, and station priorities.

16) Assistant Operations Support Center Director OSC

The Assistant OSC Director reports to the OSC Director and supports the OSC Director in supervising the activities of personnel reporting to the OSC. The Assistant OSC Director may be filled by an OSC Lead, normally the Radiation Protection Lead. Responsibilities include:

- Assist the OSC Director in supervising personnel assigned to the OSC.
- Assist in formation of Field Monitoring Teams as directed by the TSC.
- Assist in formation of sampling teams.
- Ensure that records of in-plant survey information and radiochemistry results are maintained.

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- Ensure that accumulated exposure records for all essential onsite personnel are maintained.
- Coordinate with the OSC Leads to organize in-plant teams to support station priorities.
- Ensure that in-plant team dispatch briefings include expected activities and radiological hazards.
- Ensure that periodic facility briefings are conducted on plant radiological conditions.

17) OSC Leads

OSC

OSC Leads report to the OSC Director and are assigned from the following station departments:

- Mechanical Maintenance
- Electrical / Instrument and Control
- Radiation Protection
- Chemistry
- Operations (on-shift Supervising Operator or designated Operations representative)

The OSC Lead assigned to an OSC team is responsible at all times for the safety of team personnel and to keep the OSC Director apprised of team status. Specifically, the OSC Leads are responsible for the managing and supervising OSC team personnel, including:

- Conduct of adequate pre-dispatch briefings.
- Ensuring adequate protective equipment and measures have been identified.
- Tracking of OSC team activities while dispatched.
- Debriefing of team personnel upon return to the OSC.

b. Corporate Emergency Response Organization

1) Nuclear Duty Officer (NDO)

The NDO is the Exelon Nuclear individual who acts as the initial Corporate contact for declared events. Responsibilities include:

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a) Actions for all classified events:

- Contact the affected station to verify and obtain updated information concerning emergency response actions and event status.
- Notify Exelon Nuclear Executives of event.
- Provide information on the event to State Duty Officers, if requested.
- Notify the on-call Exelon Communications and Public Affairs Representative.
- Prior to EOF activation, review any news releases for accuracy.

b) Actions for Alert classifications and above:

- Complete all actions as listed above.
- Notify American Nuclear Insurers (ANI) prior to being transferred to the EOF.

2) Corporate Emergency Director EOF

a) When the Station Emergency Director has Command and Control, the ongoing responsibilities include:

- Coordinate all Exelon Nuclear activities involved with the emergency response.
- Ensure off-site agency updates are periodically communicated as required/requested.
- Coordinate Exelon Nuclear press releases with the Nuclear Duty Officer and Exelon Communications and Public Affairs.
- Request assistance from non-Exelon Nuclear emergency response organizations, as necessary.

b) Following assumption of Command and Control, the additional responsibilities assigned to the Corporate Emergency Director include:

- Assumes overall Command and Control of emergency response activities and the non-delegable responsibilities for PAR determination and the notification of offsite authorities.

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- Ensure that Federal, state and local authorities and industry support agencies remain cognizant of the status of the emergency situation. If requested, dispatch informed individuals to offsite governmental Emergency Operation Centers (EOCs).
- Approve the technical content of Exelon Nuclear press releases prior to their being released to the media.

3) EOF Director

EOF

The EOF Director reports to the Corporate Emergency Director and has the authority, management ability and technical knowledge to assist the Corporate Emergency Director in the management of Exelon Nuclear's offsite ERO.

In the event that the Corporate Emergency Director becomes incapacitated, the EOF Director shall assume the responsibilities of the Corporate Emergency Director until a transfer of Command and Control can be affected either back to the station or to another qualified Corporate Emergency Director. Responsibilities include:

- Direct and coordinate the activation and response efforts of the EOF staff in support of the Corporate Emergency Director.
- Evaluate the need to augment the EOF staff based on events in progress.
- Assess the effectiveness of ongoing EOF working relationships.
- Monitor information flow within the EOF to ensure that facility activities remain coordinated.
- Prepare state/local notification forms with the assistance of the EOF Radiation Protection Manager and the Technical Support Manager.
- Coordinate services as necessary to support EOF operations.
- Coordinate with the Administrative Coordinator for continual shift staffing requirements.
- Assist in the conduct of Corporate Emergency Director duties.
- Act as the designated alternate for approval of the technical content of Exelon Nuclear Press Releases and information released to the News Media.
- Act as purchasing agent in support of the TSC for contract negotiation/administration.

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4) Technical Support Manager EOF

The Technical Support Manager reports to the EOF Director and directs the activities of the Technical Support Group. Responsibilities include:

- Assist the Corporate Emergency Director in monitoring changes in event classification.
- Assist the Corporate Emergency Director in determining plant-based PARs when necessary.
- Provide information to the EOF Director for completing the state/local notification form.
- Provide the Corporate Emergency Director information concerning the status of plant operations, and recommendations for mitigating the consequences of the accident.
- Coordinate the overall Exelon Nuclear engineering support from corporate staff and unaffected stations.
- Interface with Industry and contractor engineering support organizations.
- Ensure that the EOF Radiation Protection Manager is informed of changes in plant status that impacts or potentially impacts the offsite environment or PARs.
- Provide technical information on facility and system design.
- Assist in the development of post-accident recovery measures.

5) Operations Advisor EOF

The Operations Advisor reports to the Technical Support Manager, directs the ENS Communicator, and is responsible for obtaining and analyzing plant status information and ensuring that it is disseminated. Specific responsibilities include:

- Monitor the Operations Status Line to keep apprised of:
 - Control Room activities including progress on Emergency Operating Procedures.
 - Significant changes in plant system/equipment status and critical parameters.
 - Possible changes in event classification.

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- Identify and track critical parameters for the identification and trending of current plant status information.
- Assist the station in identifying Operations resources from corporate staff or unaffected stations for direct support of plant shift operations personnel.
- Assist the ENS Communicator in the completion of the NRC Event Notification Worksheet and in responding to NRC inquiries.
- Ensure that the EOF Radiation Protection Manager is informed of changes in plant status that impact or potentially impact the offsite environment or PARs.

6) ENS Communicator EOF

The ENS Communicator reports to the Operations Advisor. Specific responsibilities include:

- Notify the NRC of changes in event classification. Generally, the TSC ENS Communicator focuses on real time plant operations and the EOF ENS Communicator focuses on notifications following changes in event classification and overall changes in event response or status.
- Establish and maintain continuous communications with the NRC, if requested, via the NRC ENS phone or commercial telephone line.
- Coordinate NRC communications with the ENS Communicator in the TSC.

7) Technical Advisor EOF

The Technical Advisor reports to the Technical Support Manager and is responsible for obtaining and analyzing technical support information, accident mitigating activities and priorities and ensuring that it is disseminated. Responsibilities include:

- Monitor the Technical Conference Line to remain aware of TSC technical support activities, strategies and priorities.
- Assist the Dose Assessment Coordinator in acquiring technical information pertaining to release pathway and core damage assessment.
- Supervise the activities of the Events Recorder.

8) Events Recorder EOF

The Events Recorder reports to the Technical Advisor. Responsibilities include:

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- Gather/record approved information on status boards as requested.
- Maintain an event chronology/status log.

9) Radiation Protection Manager EOF

The Radiation Protection Manager reports to the EOF Director and directs the activities of the EOF Radiation Protection staff. Specific responsibilities include:

- Recommend changes in event classification and PARs based upon effluent releases or dose projections.
- Assist the EOF Director in the evaluation of the significance of an emergency with respect to the public.
- Notify the EOF Director of meteorological changes that may impact identification of downwind areas.
- Advise the Corporate Emergency Director of protective actions taken by the station for plant personnel.
- Assist the TSC in the planning and coordination of activities associated with the evacuation of non-essential personnel.
- Advise the Corporate Emergency Director on the need for emergency exposures or for issuance of KI to the Field Monitoring Teams or Exelon personnel required to enter the plume.
- Determine the need for and contact Occupational Health/Industrial Safety Services personnel for assistance.
- Monitor plant radiological conditions and advise the TSC Radiation Protection Manager of any adverse trends or potential release pathways that may impact existing event classification.
- Assist in the completion and review of the state/local notification form.
- Maintain cognizance of environmental sampling activities.
- Ensure state authorities are provided information pertaining to Exelon Field Monitoring Team activities and sample results.
- Assist the affected station in the following areas:
 - Planning and coordination of activities associated with the evacuation of non-essential personnel.

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- Acquisition of additional instrumentation, dosimetry, protective equipment and radiological support personnel.
- Assist and interface with the EOF Technical Support Group and the station in the development of plans for plant surveys, sampling, shielding, and special tools in support of waste systems processing and design modification activities.
- Upon request, provide in-plant health physics data to Emergency Public Information personnel and the HPN Communicator.

10) Field Team Communicator EOF

The Field Team Communicator reports to the Dose Assessment Coordinator. Responsibilities include:

- Establish and maintain contact with the dispatched Field Monitoring Teams.
- Document the Dose Assessment Coordinator's instructions and then relay this information to the Field Monitoring Teams.
- Document environmental data reported by the Field Monitoring Teams.
- Periodically obtain and document information on Field Monitoring Team radiological exposure.
- Promptly report new environmental or Field Monitoring Team exposure data to the Dose Assessment Coordinator.
- Document questions and answers directed to and received from the Field Monitoring Teams. Ensure the Dose Assessment Coordinator is cognizant of these information requests and relay replies to these requests.

11) Dose Assessment Coordinator EOF

The Dose Assessment Coordinator reports to the EOF Radiation Protection Manager and directs the activities of the Dose Assessor and the HPN Communicator. The Dose Assessment Coordinator also directs the Field Team Communicator and Field Monitoring Teams. Responsibilities include:

- Interpret radiological data and provide PARs based upon dose projections to the EOF Radiation Protection Manager.
- Advise the EOF Radiation Protection Manager of changes in event classification based on effluent releases or dose projections.

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- Initiate evaluation of the need for administering KI to Exelon nuclear workers.
- Remain cognizant of forecast and meteorological data and ensure the status is updated periodically.
- Notify the EOF Radiation Protection Manager of meteorological changes that may impact identification of downwind areas.
- Upon request, provide release and dose assessment data to Emergency Public Information personnel and the HPN Communicator.
- Coordinate the transfer of control of the Field Monitoring Teams if initially under the direction of the TSC Radiological Controls Coordinator.
- Ensure communications are established with the TSC to obtain information on the accident conditions, meteorological conditions and estimates of radioactive material releases.
- Maintain cognizance of Field Monitoring Team exposure. When warranted, ask the Dose Assessment Coordinator to initiate an evaluation of the need for administering KI to Exelon nuclear workers.
- Determine needs of the Dose Assessment Coordinator, the Dose Assessor, and the HPN Communicator for updates on Field Monitoring Team data and ensure distribution of new data to them in accordance with those needs.
- Upon request, provide environmental data to Emergency Public Information personnel.
- Evaluate and coordinate additional equipment and personnel as necessary from unaffected stations to augment and/or relieve station Field Monitoring Teams.
- As needed, obtain release, dose assessment data, and Field Monitoring Team data from the Dose Assessment Coordinator.
- Coordinate activities and information flow between the EOF Protective Measures Group and the affected state(s) environmental authorities, including periodic updates on meteorological conditions, Field Monitoring Team activities and survey/sample results.

12) Dose Assessor

EOF

The Dose Assessor reports to the Dose Assessment Coordinator. Responsibilities include:

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- Perform dose projections using the Dose Assessment computer models as directed by the Dose Assessment Coordinator.
- Monitor meteorological and plant effluent conditions.
- Notify the Dose Assessment Coordinator of meteorological changes that may impact identification of downwind areas.
- Evaluate the need for administering KI to Exelon nuclear workers when requested by the Dose Assessment Coordinator.

13) HPN Communicator EOF

The HPN Communicator reports to the Dose Assessment Coordinator. Responsibilities include:

- Provide updates and respond to inquiries from the NRC on offsite environmental data, release status, dose projections and changes to PARs for the general public.
- Obtain release and dose assessment data and Field Monitoring Team data from the Dose Assessment Coordinator.
- Maintain continuous communications with the NRC, if requested, via the NRC HPN phone or commercial telephone line.
- Communicate current Health Physics information to NRC representatives, as requested.

14) Logistics Manager EOF

The Logistics Manager reports to the EOF Director and directs the activities of the administrative, security and liaison personnel. Responsibilities include:

- Ensure contact is made and communications are maintained with appropriate Non-Exelon Nuclear personnel whose assistance may be required to terminate the emergency conditions and to expedite the recovery.
- Advise the EOF Director concerning the status of activities relating to governmental interfaces.
- Obtain support from Human Resources, the Comptroller's Office, the Legal Department, Accounting Department and others as required.
- Coordinate with the Nuclear Duty Officer to maintain communications with ANI and INPO.

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- Ensure that access to the EOF is limited to Emergency Responders and authorize admittance to non-Exelon personnel.
- Implement the Exelon Nuclear Fitness for Duty Program.
- Ensure that NRC Site Team Representatives are directed to the Regulatory Liaison upon arrival at the EOF.
- Ensure that updates and information are provided to offsite officials present in the EOF.
- Assist in obtaining and coordinating additional equipment/materials and /or technical expertise to support station requests, including Exelon Corporate staff, unaffected stations and vendor/contractors.
- Coordinate maintenance of EOF equipment as necessary.
- Ensure shift relief and continual staffing for the EOF.
- Provide and interpret information on security events.
- Assist with access control activities at the EOF and JIC.
- Perform the following in support of the TSC Security Coordinator:
 - Provide assistance in resolving security events.
 - Assist as a liaison for local, state and federal law enforcement agencies during security related events.
 - Serve as the primary contact to the security force for additional support, if necessary, during a security event.
- Obtain additional resources to support access control measures needed at the EOF and JIC.

15) Administrative Coordinator EOF

The Administrative Coordinator reports to the Logistics Manager. Responsibilities include:

- Direct the clerical staff and ensure the clerical requirements for the other EOF and JIC staff are met.
- Obtain clerical support for the EOF and JIC.
- Coordinate shift relief and continual staffing for the EOF.
- Obtain services as appropriate to support operation of the EOF.

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16) State/Local Communicator EOF

The State/Local Communicator reports to the Logistics Manager. Responsibilities include:

- Communicate and receive information via the Nuclear Accident Reporting System (NARS) circuit or commercial telephone line with appropriate state and county agencies.
- Ensure that the Logistics Manager is made aware of issues and questions raised by offsite agencies and then relay the replies to these requests.

17) Regulatory Liaison EOF

The Regulatory Liaison reports to the Logistics Manager. Responsibilities include:

- Coordinate interfaces between Exelon Nuclear personnel and governmental agencies within the EOF.
- Obtain necessary equipment and supplies to support activities of governmental agencies located in the EOF.
- Act as the Exelon Nuclear Liaison to the NRC Site Team representatives.

c. Public Information Emergency Response Organization

1) Corporate Spokesperson JIC

The Corporate Spokesperson reports to the Corporate Emergency Director and is responsible for directing the Exelon Emergency Public Information Organization and providing news information to the media. Responsibilities include:

- Maintain command and control of the Joint Information Center.
- Coordinate with Federal, state and local agencies, as well as with other organizations involved in the emergency response, to maintain factual consistency of information to be conveyed to the news media/public.
- Conduct periodic briefings with the news media.
- Interface with the Public Information Director.
- Coordinate and direct responses to media inquiries.
- Ensure that the composition and timeliness of Exelon News Releases are adequate.
- Provide for timely exchange of information between other spokespersons.

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2) Technical Spokesperson JIC

The Technical Spokesperson reports to the Corporate Spokesperson. Responsibilities include:

- Assist in development of technical and plant status information for use in news releases and media briefings.
- Assist the Events Recorder in the preparation of a chronological event description log.
- Prepare briefing papers which contain additional detail and background not found in the news releases.
- Provide answers as soon as possible to media questions.
- Provide a follow-up explanation that corrects misinformation as soon as practicable.

3) JIC Director JIC

The JIC Director reports the Corporate Spokesperson to ensure the operability of and to supervise the activities in the JIC. Responsibilities include:

- Maintain cognizance of conditions of the plant and environment, and the actions of Exelon Nuclear and governmental support personnel.
- Coordinate with Federal, state and local agencies, as well as with other organizations involved in the emergency response, to maintain factual consistency of information to be conveyed to the news media/public.
- Participate, as needed, in rumor control activities.
- Ensure that adequate information flow between the EOF and the JIC is coordinated through the Public Information Director.
- Authorize admittance of non-Exelon Nuclear officials to the JIC.

4) JIC Coordinator JIC

The JIC Coordinator reports to the JIC Director. Responsibilities include:

- Ensure the JIC is activated and operational. This includes the availability of communications and visual aids.
- Ensure that access to the JIC areas occupied by Exelon personnel is controlled.

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- Establish a minimum frequency for addressing news media/public representatives and ensure that some form of communication occurs within that time frame (i.e., an update at least hourly.)
- Ensure that approved News Releases and Chronological Event Description Logs are made available in the JIC.
- Document unanswered questions and serious public misinformation issues. Follow-up on these questions and issues to ensure that they are being adequately addressed.
- Coordinate the interface between Exelon Nuclear and the news media/public, including, as necessary, briefings, news conferences, interviews and responses to information requests.

5) Administrative Coordinator JIC

The Administrative Coordinator reports to the JIC Director. Responsibilities include:

- Coordinate with the EOF Administrative Coordinator to ensure the clerical requirements for the other JIC staff are met.
- Coordinate shift relief and continual staffing for the JIC.
- Obtain services as appropriate to support operation of the JIC.

6) Access Controller JIC

The Access Controller reports to the JIC Director and is responsible for controlling facility access and obtaining authorization prior to admitting non-Exelon Nuclear officials into the JIC.

7) Public Information Director (PID) JIC

When the Emergency Public Information Organization is activated, the Public Information Director reports to the Corporate Spokesperson and is responsible for all emergency event related information intended to be conveyed from Exelon Nuclear to the news media/public. The Public Information Director supervises the activities of the News Writer and Events Recorder personnel. Responsibilities include:

- Provide the Corporate Emergency Director with an overview of the public and media impacts resulting from the Exelon Nuclear and governmental activities.
- Participate with the Corporate Emergency Director regarding information to be released to the public.

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- Authorize the issuance of news releases.
- Interface with the Corporate Spokesperson at the JIC.
- Act as a liaison between the ERO and Exelon Nuclear's corporate executives.
- Maintain cognizance of conditions of the plant and environment, and the actions of Exelon Nuclear and governmental support personnel.
- Coordinate information flow between the EOF and the JIC.

8) News Writer JIC

The News Writer reports to the Public Information Director. Responsibilities include:

- Compose draft news releases with assistance from the Technical Spokesperson and the Bureau of Nuclear Engineering (BNE).
- Provide the drafted news releases to the Corporate Emergency Director for technical review prior to Public Information Director approval.

9) Events Recorder JIC

The Events Recorder reports to the Public Information Director. Responsibilities include:

- Develop a chronological event description log.

6. Exelon Emergency Response Organization Block Diagram

ERO staffing tables lists the key positions of the ERO and the supporting positions assigned to interface with federal, state, and county authorities. Figures B-1a through B-1d illustrates the overall emergency response organization. Section B.5 discusses specific responsibilities and the interrelationships for key positions.

7. Exelon Corporate Emergency Response Organization

The Corporate ERO consists of the EOF Organization and the Emergency Public Information Organization. Personnel staffing these corporate organizations are covered in detail in Section B.5 of this plan.

The Corporate Emergency Response Organization is staffed by Exelon personnel, and operates out of the Emergency Operations Facility (EOF) and the Joint Information Center (JIC). The Corporate ERO is supported by News Media Spokespersons, environmental assessment staff and monitoring teams that provide long-term support to the affected station. Additionally, the Corporate ERO has long term liaison responsibilities with federal, state, and local authorities.

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The Emergency News Center (ENC) function is responsible for the collection and analysis of event information and status, and development of Company news statements. This information is then communicated to the JIC Spokespersons. The ENC function is located at the JIC.

The Corporate ERO is activated at an Alert. The EOF Organization is responsible for evaluating, coordinating and directing the overall company activities involved in the emergency response. Within the EOF, the Corporate Emergency Director shall assume Command and Control from the Station Emergency Director when classification escalates to an Alert or higher, unless the EOF capabilities are limited such that the overall control and responsibility for PARs and offsite notifications cannot be assumed. The EOF may also function in a supporting role to the station when the Station Emergency Director maintains Command and Control.

8. Industry/Private Support Organizations

Exelon Nuclear retains contractors to provide supporting services to nuclear generating stations. A contract/purchase order with a private contractor is acceptable in lieu of an agreement letter for the specified duration of the contract. Among services currently provided are the following:

a. Institute of Nuclear Power Operations (INPO): Experience has shown that a utility may need resources beyond in-house capabilities for the recovery from a nuclear plant emergency. One of the roles of the Institute of Nuclear Power Operations (INPO) is to assist affected utilities by quickly applying the resources of the nuclear industry to meet the needs of an emergency. INPO has an emergency response plan that enables it to provide the following emergency support functions:

- Assistance to the affected utility in locating sources of emergency personnel, equipment and operational analysis.
- INPO, Electric Power Research Institute (EPRI) and Nuclear Energy Institute (NEI) maintain a coordination agreement on emergency information with their member utilities.
- INPO provides the "Nuclear Network", or its replacement, electronic communications system to its members, participants, NEI, and EPRI to coordinate the flow of media and technical information about the emergency.
- Exelon Nuclear may obtain utility industry information and assistance from any party to this agreement through the coordination of INPO.

To support these functions, INPO maintains the following emergency support capabilities:

- A dedicated emergency call number.

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- Designated INPO representative(s) who can be quickly dispatched to the utility emergency response organization to coordinate INPO support activities and information flow.
- The 24-hour per day operation of an Emergency Response Center at INPO headquarters.

Exelon Nuclear will notify INPO (via the designated emergency call number) for all situations involving an Alert, Site Area Emergency, or General Emergency declaration per the Exelon Nuclear Reportability Manual.

INPO has coordinated the preparation of a Voluntary Assistance Agreement for Transportation Accidents. Exelon Nuclear has signed this agreement which establishes the rights and responsibilities of electric utilities in requesting or providing assistance for response to a nuclear materials Transportation Accident.

- b. American Nuclear Insurers (ANI): In early 1982, ANI issued Bulletin #5B (1981) "Accident Notification Procedures for Liability Insurers" which provides revised criteria for the notification of the Pools in the event of a nuclear emergency at one of the liability insured nuclear power reactor sites. This revision brings the ANI/MAELU (Mutual Atomic Energy Liability Underwriters) notification criteria into alignment with the standard emergency classification system adopted by the nuclear industry. This document also identifies a suitable channel for follow-up communication by ANI after initial notification.

- ANI/MAELU Emergency Assistance: In the event of an extraordinary nuclear occurrence (as defined in the Price-Anderson Law) ANI and MAELU (the insurance pools) have plans prepared to provide prompt emergency funding to affected members of the public.
- ANI/MAELU Emergency Assistance (Claims Handling Procedures): The pools' emergency assistance arrangements contemplate the mobilization and dispatch of emergency claims teams to directly dispense emergency assistance funds to affected members of the public.

The pools should be notified in the event of a nuclear emergency requiring notification of state or Federal governmental agencies, or if the insured believes that offsite persons may be affected and financial assistance of a nature discussed may be required. In these instances, ANI expects notification as soon as possible after the initiation of the emergency. Exelon notification to the pools in the event of an Alert, Site Area Emergency, or General Emergency will be in accordance with the Exelon Nuclear Reportability Manual.

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Even if it appears to be remote that offsite persons will be affected, the pools should be notified in order that response plans can be initiated to the point of alerting teams of adjusters to stand by. Response activity can be discontinued if it proves less severe and does not require pool response.

All nuclear occurrences of an emergency or non-emergency nature that fall under the nuclear liability policy should be reported formally in writing to ANI by the Exelon Nuclear Insurance Administrator.

- Emergency Notification and Follow-up Procedures: Pre-established lines of communication exist between each utility and ANI in order to exchange all required information during a developing emergency situation.

ANI maintains 24-hour coverage of an emergency notification number. During normal office hours (8:00 am - 4:00 pm) their number will be answered by the receptionist who will transfer an incoming emergency call to an appropriate individual in the office. Outside of normal office hours, this telephone line is covered by an answering service. The answering service will intercept the call and obtain the name, affiliation and telephone number of the caller. They will then notify a designated ANI staff member who will in turn call back the utility to obtain appropriate information regarding the nuclear accident.

In order that follow-up information is available to the Insurance Pool Exelon Nuclear has established the Corporate Emergency Director or their designee as a Point of Contact that ANI personnel may use to update themselves regarding the status of the emergency.

NOTE: For the below listed support services, the specific contractors may change but the functions are maintained.

c. Environmental Monitoring Services:

Environmental Inc.: Environmental Inc. provides emergency Radiological Environmental Monitoring Program (REMP) services for all Exelon Nuclear Stations. These services include:

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- Sample collection
- Handling, packaging and storage of test samples
- Sample shipment
- Chain of Custody

The Environmental Inc. Midwest Laboratory in Northbrook, Illinois would analyze the environmental samples for their radioactivity content and report results to Exelon Nuclear. The Mid-Atlantic REMP sampling activities have been subcontracted to Normandeau and Associates.

- d. Teledyne Brown Engineering: Teledyne Brown Engineering provides bioassay analysis and radiochemical analysis services.
- e. Department Of Energy (DOE) Radiation Emergency Assistance Center/Training Site (REAC/TS): DOE REAC/TS provides services of medical and health physics support. REAC/TS advises on the health physics aspects of situations requiring medical assistance.
- f. Murray and Trettel, Inc.: Murray and Trettel, Inc. provide meteorological monitoring services, including weather forecasts. Murray and Trettel maintain all Exelon Nuclear station meteorological facilities. Murray and Trettel have computer capability to poll remotely the meteorological facilities to ascertain local conditions and to detect instrument failure.
- g. Landauer, Inc.: Landauer provides extremity dosimetry services. In an emergency Landauer would provide additional dosimetry to the affected nuclear station and EOF, if needed.
- h. Manufacturer Design and Engineering Support: Under established contracts, the following will provide available engineering expertise, specialized equipment and other services identified as needed and deemed appropriate to assist in an emergency situation:
 - General Electric (GE) Nuclear Energy
 - Westinghouse Electric Company

9. Supplemental Emergency Assistance to the ERO

Agreements are maintained with outside support agencies who do not take part in the organizational control of the emergency that provide assistance when called on during an emergency or during the recovery phase. These agreements identify the emergency measures to be provided, the mutually accepted criteria for implementation, and the arrangements for exchange of information. These support agencies (named in the Station Annex) provide services of:

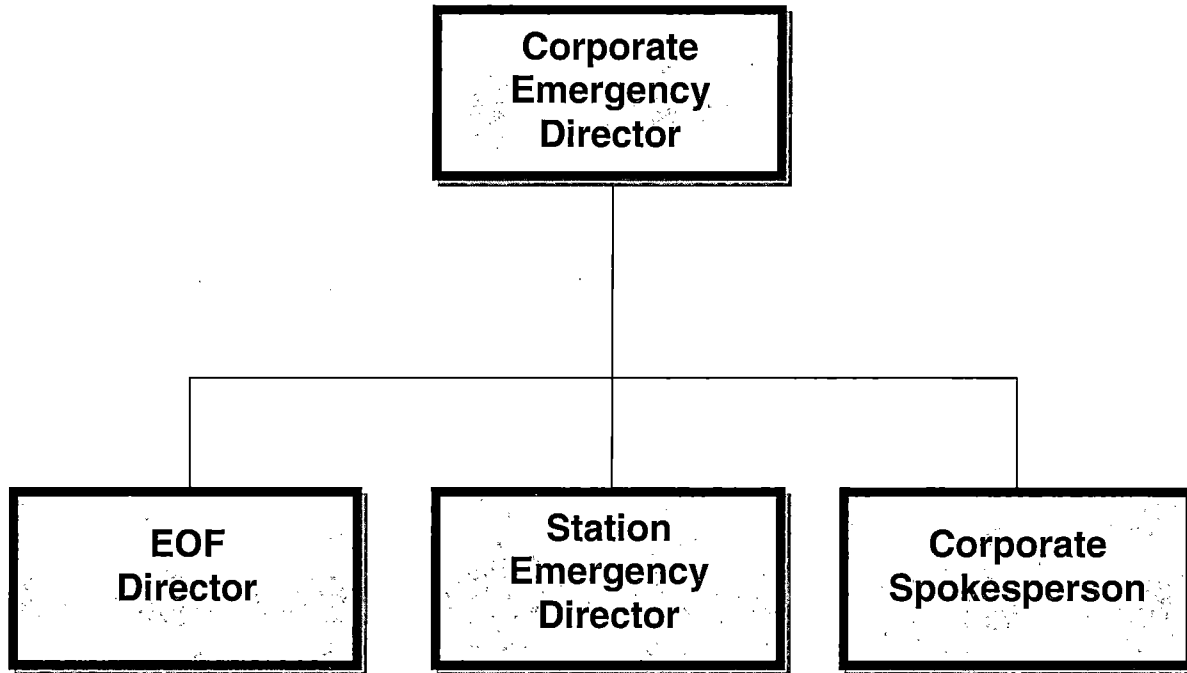
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- a. Law enforcement;
- b. Fire protection;
- c. Ambulance services;
- d. Medical and hospital support

Support groups providing transportation and treatment of injured station personnel are described in Section L of this plan.

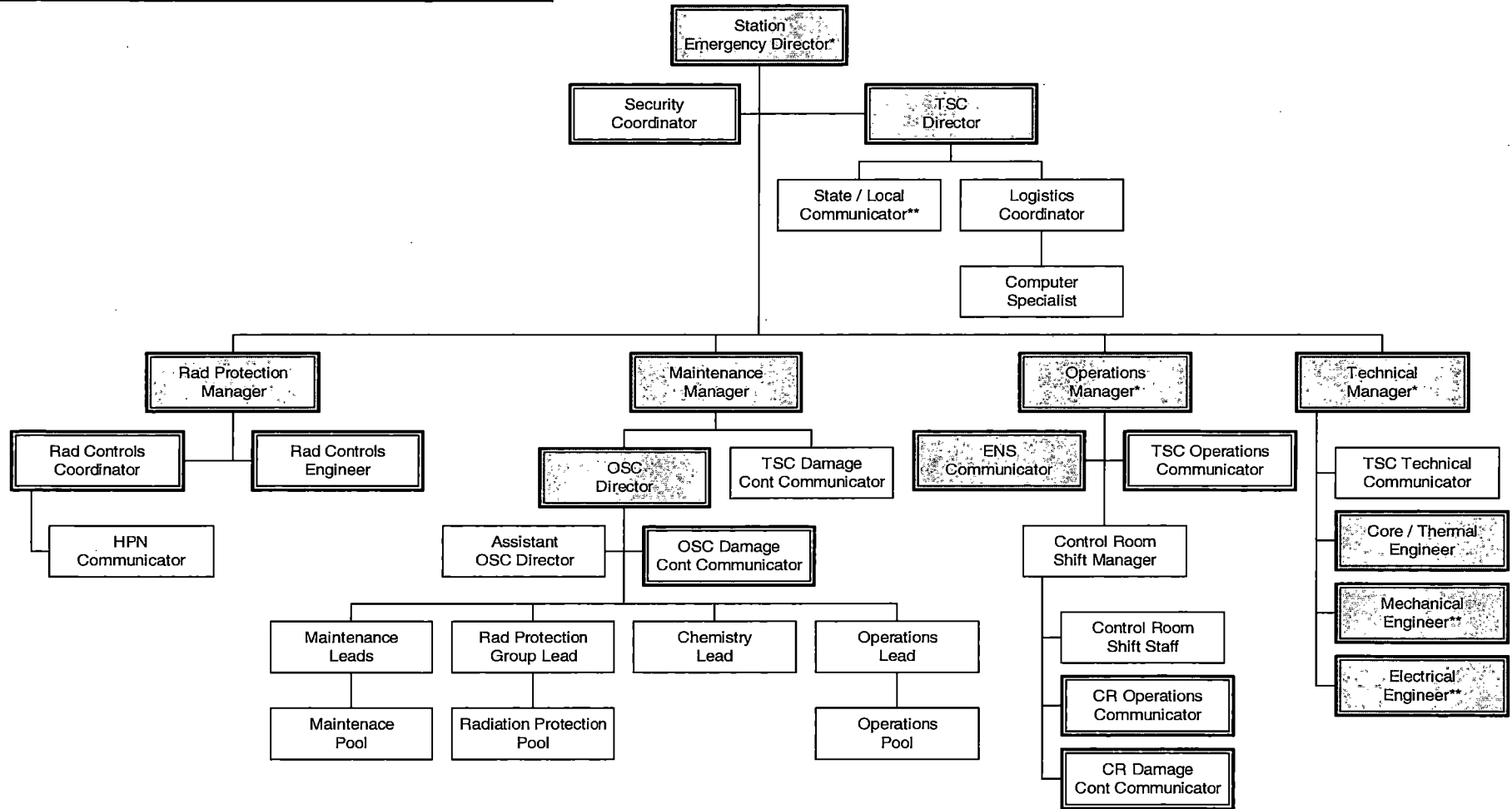
Figure B-1a: Exelon Overall ERO Command Structure



Shaded/Bold Boxes indicate minimum staffing positions.

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Figure B-1b: Emergency Onsite Organization



Shaded Boxes indicate minimum staffing positions.

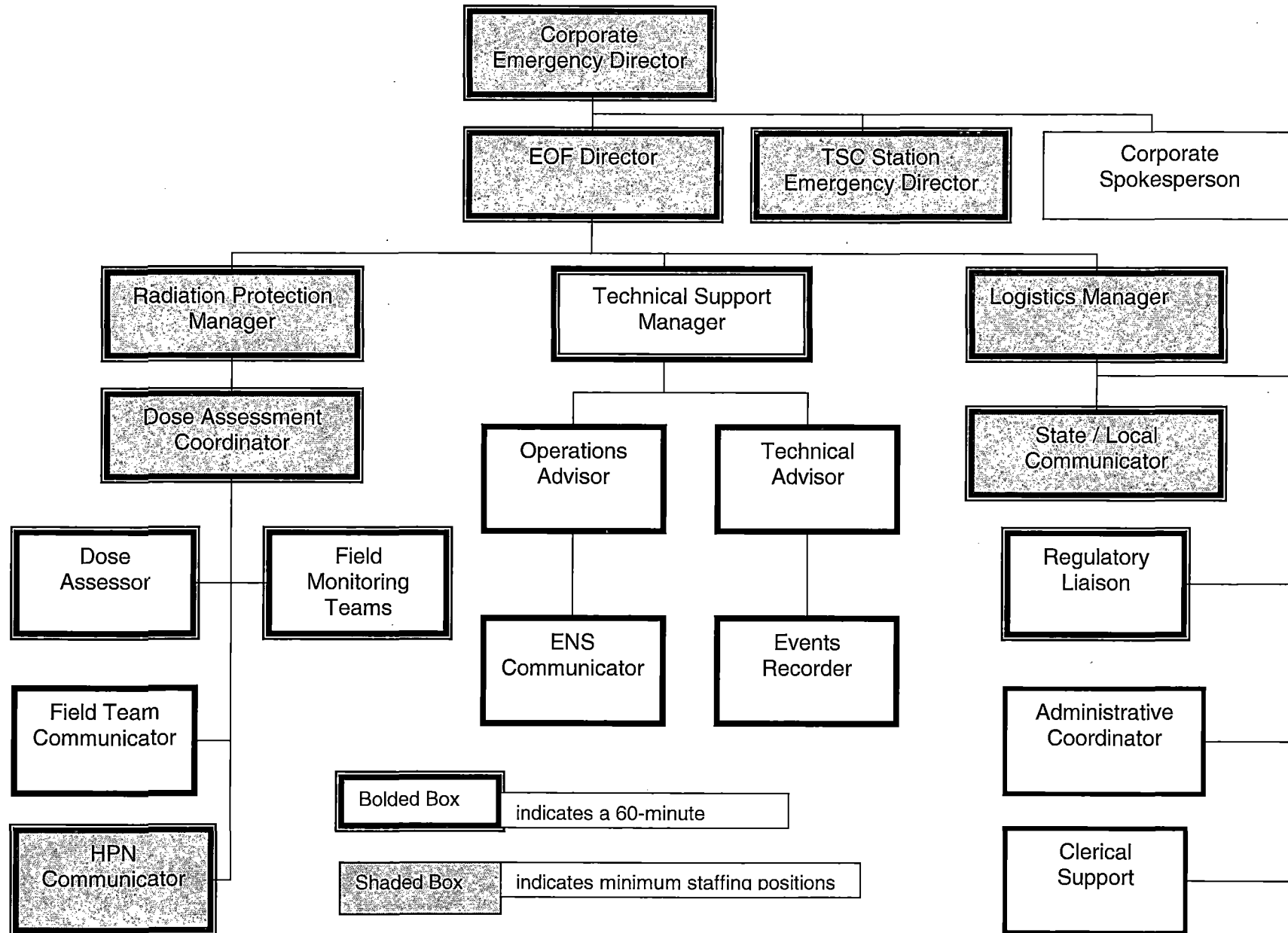
Bolded Boxes indicate 60 minute responder positions.

* SAMG functions may be assigned to other qualified personnel. Minimum staffing requires 1 Decision Maker and 2 Evaluators.

** Refer to Annex Table OCGS 2-1: Minimum Staffing Requirements for required staffing levels

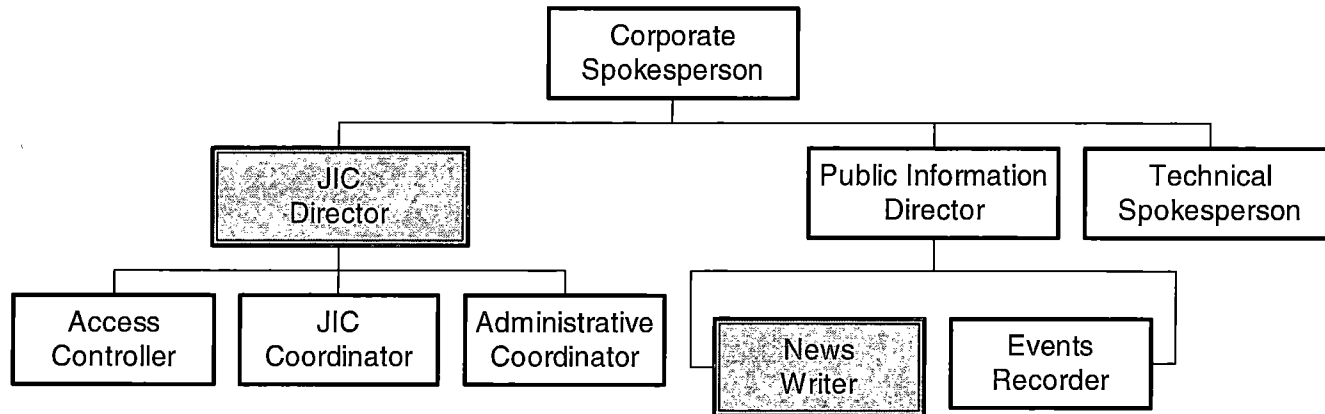
Figure B-1c: Emergency Offsite Organization

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Figure B-1d: Emergency Public Information Organization



Shaded Box indicates minimum staffing positions

Bolded Box indicates a 60-minute responder

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Section C: Emergency Response Support and Resources

This section describes the provisions for requesting and effectively utilizing support resources and for accommodating offsite officials at the Exelon Nuclear emergency response facilities.

1. Federal Response Support and Resources

Assistance is available from federal agencies through the National Response Framework (NRF). The lead federal agency who provides direct assistance to Exelon during an emergency is the Nuclear Regulatory Commission (NRC). Other federal agencies, such as the Federal Emergency Management Agency (FEMA) and the Department of Energy (DOE), provide assistance to the state through implementation of the NRF.

- a. Sections A and B of this plan identify the specific individuals by title who are authorized to request federal assistance.
- b. Federal agencies that may provide assistance in direct support of Exelon Nuclear in the event of an accident are identified in Section A of this plan. If needed, federal resources are made available to Exelon Nuclear in an expeditious and timely manner.
- c. Each emergency response facility has the equipment and communications capability necessary for a continuous high level of response, interaction, and communication among key personnel during emergency conditions. The emergency facilities are able to accommodate federal representatives with working areas provided for their use. Accommodations for the expected NRC site response team assume the following approximate numbers for each facility:

	Initial Activation (minimum)	Full Activation
EOF	9	16
TSC	3	5
CR	1	1
JIC	1	10

The Exelon Emergency Response Organization will provide senior management support for site response teams and communications over a Management Counterpart Link to federal response headquarters.

2. Liaisons

- a. The NRC, FEMA, and the state(s) may dispatch representatives to the EOF where accommodations have been provided.
- b. At the Alert level and above, Exelon Nuclear personnel may be assigned as liaisons to the requesting state's and/or county Emergency Operations Center (EOC). These representatives act as technical liaisons to interpret emergency action levels and protective action recommendations made by Exelon.

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3. Radiological Laboratories

Support of the radiation monitoring and analysis effort is provided by an onsite laboratory. The onsite laboratory is the central point for receipt and analysis of all onsite samples and includes equipment for chemical analyses and for the analysis of radioactivity. Additional facilities for counting and analyzing samples can be provided by the other Exelon Nuclear generating stations, state, federal or contracted laboratory services. These laboratories can act as backup facilities in the event that the plant's counting room and laboratory become unusable or the offsite radiological monitoring and environmental sampling operation exceeds the capacity or capability of the station laboratory during an emergency. Additional outside analytical assistance may be requested from contracted vendors or state and federal agencies. The equipment and analytical capabilities for Oyster Creek's laboratories are listed in the station's E-Plan Annex. The state, federal and contract laboratories maintain independent evaluation and certification processes and have the capability of quantitative analysis of terrestrial, marine and air samples.

4. Other Assistance

Any unaffected Exelon Nuclear Generating station is available to provide certain types of assistance and support, including engineering, design, consultation, whole body counting, and dosimetry evaluation and equipment. Additional facilities, organizations, and individuals, as listed in the Emergency Response Facilities (ERF) Telephone Directory, are available and may be used in support of emergency response. In addition, American Nuclear Insurers (ANI) provides insurance to cover Exelon legal liability up to the limits imposed by the Price-Anderson Act, for bodily injury and/or property damage caused by the nuclear energy hazard resulting from an incident at the plant. Written agreements which describe the level of assistance and resources provided to Exelon Nuclear by external sources are included in Appendix 3 as applicable.

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Section D: Emergency Classification System

This section describes the classification and emergency action level scheme used to determine the minimum response to an abnormal event at Oyster Creek. This scheme is based on plant systems, effluent parameters, and operating procedures. The initial response of federal, state, and county agencies is dependent upon information provided by the ERO. Exelon works closely with the state and county agencies to ensure consistency in classification schemes and procedural interfaces.

1. Emergency Classification System

The E-Plan provides for classification of emergencies into five (5) categories or conditions, covering the postulated spectrum of emergency situations. The first four (4) categories: Notification of Unusual Event (referred to as Unusual Event), Alert, Site Area Emergency, and General Emergency, are characterized by Emergency Action Levels (EALs) or event initiating conditions and address emergencies of increasing severity. The fifth, the Recovery classification, is unique in that it may be viewed as a phase of the emergency requiring specific criteria to be met and/or considered prior to its declaration. Recovery is that period when the emergency phase is over and activities are in progress to return the situation to a normal state (acceptable condition).

- a. Unusual Event - 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 has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

This is the least severe of the four (4) levels. The purpose of this classification is to bring response personnel and offsite agencies to a state of readiness in the event the situation degrades and to provide systematic handling of information and decision making. The Shift Manager, as Shift Emergency Director will classify an Unusual Event.

Required actions at this classification include:

- Notifications to station management and the NDO.
- Notification, within 15 minutes, of the state and local communities.
- At the discretion of the Emergency Director, station management or the Nuclear Duty Officer (NDO), full or selective staffing of the TSC, OSC and EOF may be initiated.
- Notification of the NRC immediately after notification of the appropriate State and local agencies and not later than 60 minutes of classification.

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- Assessment of the situation and response as necessary, which may include escalating to a higher classification if conditions warrant.
 - When the event is terminated, close-out is performed over communication links to offsite authorities participating in the response (i.e., NRC, state, county), followed by formal transmission of a state/local notification form within 24 hours.
- b. Alert - Events are in process or have occurred which indicate 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 HOSTILE ACTION. Any releases are expected to be limited to small fractions of EPA Protective Action Guideline exposure levels.

The purpose of this classification is to ensure that emergency response personnel are readily available and to provide offsite authorities with current status information. An Alert will be classified as the initiating event or as escalation from an Unusual Event. In either case, the classification will most likely be made by the Shift Manager (Shift Emergency Director) prior to the transfer of Command and Control.

Required actions at this classification include:

- Notifications to station management and the NDO.
- Notification, within 15 minutes, of the state and local communities. The EOF will assume state update responsibilities.
- Activation of the TSC, OSC, EOF, and the JIC organizations.
- Transfer of Command and Control.
- Notification of the NRC immediately after notification of the appropriate State and local agencies and not later than 60 minutes of classification.
- Notification of INPO and ANI.
- Assessment of the situation and response as necessary, which may include escalating to a higher classification if conditions warrant.
- On-site and off-site Field Monitoring Teams are sent to staging areas or dispatched to monitor for releases of radiation to the environment.
- Keeping offsite authorities informed of plant status by providing periodic updates to include meteorological and radiological data.

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- When the event is terminated, notification is performed over communication links followed by an Initial Incident Report to offsite authorities participating in the response (i.e., NRC, state, county) within 8 hours.
- c. Site Area Emergency - Events are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts; 1) toward site personnel or equipment that could lead to the likely failure of or; 2) that prevent 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.

The purpose of this classification, in addition to those of the Alert level, is to ensure that all emergency response centers are staffed and provisions are made for information updates to the public through offsite authorities and the news media. The classification will most likely be made by the Station Emergency Director following activation of the TSC.

Required actions at this classification, in addition to those listed under the Alert level, include:

- If not previously performed, Assembly/Accountability shall be performed and Site Evacuation of non-essential personnel shall be initiated.
- Keeping offsite authorities informed of plant status by providing periodic updates to include meteorological data and projected or actual doses for any releases that have occurred.
- d. General Emergency - Event(s) are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results 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.

The purpose of this classification, in addition to those of the Site Area Emergency level, is to initiate predetermined protective actions for the public and provide continuous assessment of information from monitoring groups. The classification will most likely be made by the Station Emergency Director following activation of the TSC.

Required actions at this classification, in addition to those listed under the Alert and Site Area Emergency, include:

- A Protective Action Recommendation will be determined.
- Assessment of the situation and response as necessary.

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- e. Recovery: That period when the emergency phase is over and activities are being taken to return the situation to a normal state (acceptable condition). The plant is under control and no potential for further degradation to the plant or the environment is believed to exist.

Recovery will be classified by the Station Emergency Director after obtaining authorization from the Corporate Emergency Director.

Required actions at this classification include:

- The affected state(s) and the NRC should be consulted prior to entry into Recovery.
 - Notifications will be made to station management, the NDO, state(s) and NRC.
 - A Recovery organization will be established to manage repairs to return the Unit to an acceptable condition, and support environmental monitoring activities as requested in coordination with Federal and state efforts.
 - INPO and ANI are notified of Recovery classification.
- f. Classification Downgrading: Exelon Nuclear policy is that emergency classifications shall not be downgraded to a lower classification. Once declared, the event shall remain in effect until no Classification is warranted or until such time as conditions warrant classification to Recovery.
- g. Guidance for Termination of an Emergency: The purpose of terminating an emergency is to provide an orderly turnover of plant control from the Emergency Response Organizations to the normal Exelon Nuclear plant organization. Termination of the emergency is authorized by the Emergency Director in Command and Control. The considerations provided in the Recovery/Termination Checklist in the emergency implementing procedures must be performed prior to exiting the emergency event. Consultation with governmental agencies and other parties should be conducted prior to termination of an event classified as Site Area or General Emergency. Notifications shall be transmitted to appropriate agencies to terminate an event.
- h. Station Nuclear Security Plan: Oyster Creek has a Security Plan that complies with the requirements of 10 CFR 73. The interface between the E-Plan and the Security Plan is one of parallel operation. The plans are compatible. The E-Plan response measures, once initiated, are executed in parallel with measures taken in accordance with the Security Plan.

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Threats made to Exelon Nuclear facilities are evaluated in accordance with established threat assessment procedures and the respective Security Plans. The Security Plan, Appendix C, Contingency Events, identifies situations that could be initiating conditions for EAL classifications. Contingency events include bomb threats, attack threats, civil disturbances, protected area intrusions, loss of guard/post contact, vital area intrusions, bomb devices discovered, loss of guard force, hostages, extortion, fire/explosions, internal disturbances, security communications failure, and obvious attempts of tampering. The Security Plan provides guidance for decisions and actions to be taken for each security contingency event. As guidance, the Security Plan allows for differing responses depending upon the assessment of the actual situation within each contingency event classification.

The assessment of any security contingency event and the decision to initiate, or not to implement the E-Plan, will be the responsibility of the Shift or Station Emergency Director. All identified security contingency events have the potential of being assessed as initiating conditions for a radiological emergency declaration.

Determination of a credible security threat may require the staffing of emergency response facilities based on the classification of an Unusual Event per the Emergency Action Levels (EALs).

2. Emergency Action Level Technical Bases

Addendum 3 to the Station Annex includes Site Specific Emergency Action Levels (EALs) consistent with the general class descriptions and provided in NEI guidance documentation in accordance with Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors." Where possible, these EALs will be related to plant instrumentation readings.

Emergency classifications are characterized by Emergency Action Levels (EALs). The Threshold Values are referenced whenever an Initiating Condition is reached. An Initiating Condition is one of a predetermined subset of unit conditions where either the potential exists for a radiological emergency, or such an emergency has occurred. Defined in this manner, an Initiating Condition is an emergency condition, which sets it apart from the broad class of conditions that may or may not have the potential to escalate into a radiological emergency. Initiating Conditions are arranged in one of the Recognition Categories.

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EALs are for unplanned events. A planned evolution involves preplanning to address the limitations imposed by the condition, the performance of required surveillance testing, and the implementation of specific controls prior to knowingly entering the condition. Planned evolutions to test, manipulate, repair, perform maintenance or modifications to systems and equipment that result in an EAL Threshold Value being met or exceeded are not subject to classification and activation requirements as long as the evolution proceeds as planned. However, these conditions may be subject to the reporting requirements of 10 CFR 50.72.

An emergency is classified after assessing abnormal plant conditions and comparing them to EAL Threshold Values for the appropriate Initiating Conditions. Matrix tables organized by recognition categories are used to facilitate the comparison. The matrix tables are used when the unit is in the Technical Specification defined modes of Power Operations, Hot Standby, Hot Shutdown (for classification purposes, startup evolutions are included in the Power Operations mode) and Cold Shutdown or Refueling (for classification purposes a defueled plant will be considered in the Refueling mode).

All recognition categories should be reviewed for applicability prior to classification. The initiating conditions are coded with a letter and/or number designator. All initiating conditions, which describe the severity of a common condition (series), have the same initial designator.

3. Timely Classification of Events

Classification of an emergency condition occurs within 15 minutes after the availability of indications from plant instrumentation, plant alarms, computer displays, or incoming verbal reports that an EAL has been exceeded and, is then promptly made upon identification of the appropriate EAL. The 15-minute period encompasses all assessment, classification, and declaration actions associated with making an emergency declaration from the first availability of a plant indication or receipt of a report up to and including the declaration of the emergency.

Validation or confirmation of plant indications or reports of the condition are to be accomplished within the 15-minute period as part of the assessment. Since this validation or confirmation is being performed to determine the validity of an alarm, indication, or report, the 15-minute period starts with the availability of the alarm, indication, or report, and not the completion of the validation or confirmation, because the former is the time that the information was first available.

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The 15-minute criterion is not to be construed as a grace period in which attempts to restore plant conditions are taken to avoid declaring an EAL that has already been exceeded. This statement does not preclude taking actions to correct or mitigate an off-normal condition, but once an EAL has been recognized as being exceeded, the emergency declaration shall be made promptly without waiting for the 15-minute period to elapse. The 15-minute criterion shall not prevent the implementation of response actions deemed necessary to protect public health and safety provided that any delay in the declaration would not deny the State and local authorities the opportunity to implement measures necessary to protect the public health and safety.

For EAL thresholds that specify duration of the condition, the emergency declaration process runs concurrently with the specified threshold duration. Once the condition has existed for the duration specified in the EAL or it is determined that the duration time will likely be exceeded, no further assessment is necessary—the EAL has been exceeded.

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4. Offsite Classification Systems

Exelon Nuclear works with the state to ensure consistency between classification schemes. The content of the EALs is reviewed with the state and county authorities on an annual basis.

5. Offsite Emergency Procedures

Exelon Nuclear works with the state and county authorities to ensure that procedures are in place that provide for emergency actions to be taken which are consistent with the protective actions recommended by Exelon accounting for local offsite conditions that exist at the time of the emergency.

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Section E: Notification Methods and Procedures

This section describes the notification of state and county response organizations and Exelon emergency response personnel. It outlines the content of initial and follow-up messages to response organizations within the Plume Exposure Pathway Emergency Planning Zone (EPZ).

1. Bases for Emergency Response Organization Notification

Exelon Nuclear, in cooperation with state and county authorities, has established mutually agreeable methods and procedures for notification of offsite response organizations consistent with the emergency classification and action level scheme. Notifications to offsite agencies include a means of verification or authentication such as the use of dedicated communications networks, verification code words, or providing call back verification phone numbers.

Notification for Transportation Accidents: A Transportation Accident is defined in 49 CFR 171.15 and 49 CFR 171.16. If a Transportation Accident involving material in the custody of an Exelon facility occurs, Exelon Nuclear will notify the appropriate internal and offsite agencies in accordance with the Exelon Nuclear Reportability Manual.

2. Notification and Mobilization of Emergency Response Personnel

Emergency implementing procedures are established for notification and mobilization of emergency response personnel as follows:

- a. Onsite: When an emergency is declared, reclassified, or terminated an announcement is made (over the plant public address system or by other means) that includes the emergency classification declared and response actions to be taken by site personnel.

At the Unusual Event classification, select ERO augmentation personnel are notified and requested to remain available to respond. At an Alert classification or higher ERO augmentation personnel are notified for activation of the TSC, OSC, EOF, and JIC using the ERO Notification System..

- b. Offsite: Notifications are promptly made to offsite emergency response organizations as follows:

- 1) State/Local Agencies: A notification shall be made within fifteen (15) minutes of:

- The initial emergency classification.
- Classification escalation.
- The issuance of or change to a Protective Action Recommendation (PAR) for the general public.

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- Changes in radiological release status, occurring outside of an event classification or PAR notification, based on an agreement with the state(s).

The emergency warning points are simultaneously notified using the Nuclear Accident Reporting System (NARS), or a commercial telephone line as backup.

A notification will also be initiated to cognizant state/local government agencies as soon as possible but within one hour of the termination of an event classification, or entry into Recovery Phase.

- 2) Nuclear Regulatory Commission (NRC): An event will be reported to the NRC Operations Center immediately after notification of the appropriate state or local agencies but not later than one (1) hour after the time of initial classification, escalation, termination or entry into the Recovery Phase. The NRC is notified by a dedicated telephone system called the Emergency Notification System (ENS). If the ENS is inoperative, the required notification is made via commercial telephone service, other dedicated telephone service, or any other method that shall ensure that a report is made as soon as practical. An NRC Event Notification Worksheet should be utilized to transmit initial information to the NRC. If a continuous communication is requested and established, a log is used in lieu of the ENS Worksheet.

Specific requirements for the notifications to the NRC for classified emergency events are detailed in 10 CFR 50.72 with guidance provided in the Exelon Reportability Manual.

The computerized data link to the NRC, referred to as the Emergency Response Data System (ERDS), continuously supplies specified plant data to the NRC.

Mobilization of federal, state, and county response organizations is performed in accordance with their applicable emergency plan and procedures. At a minimum, mobilization of federal response organizations and activation of state and county EOCs is expected to occur at the declaration of a Site Area Emergency.

The state and county authorities are responsible for the process of notification of the general public.

- c. Support Organizations: When an emergency is initially classified, escalated or terminated, notifications are promptly made to the following support organizations:
 - Medical, rescue, and fire fighting support services are notified for assistance as the situation dictates.

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- The Institute of Nuclear Power Operations (INPO) is notified at an Alert or higher classification with requests for assistance as necessary.
- The American Nuclear Insurers (ANI) are notified at an Alert or higher classification with requests for assistance as necessary.
- Vendor and contractor support services are notified for assistance as the situation dictates.

3. Initial Notification Messages

Exelon Nuclear, in conjunction with state and county authorities, has established the contents of the initial notification message form transmitted during a classified emergency. The contents of the form include, as a minimum:

- Designation ("This is a Drill" or "Actual Event").
- Identity of site.
- Event classification.
- EAL number (as agreed upon with state authorities).
- Non-technical event description (as agreed upon with state authorities).
- Date and time of declaration (or entry into Recovery or Termination).
- Whether a release is taking place (Note: "Release" means a radiological release attributable to the emergency event.)
- Wind direction and speed.
- Whether offsite protective measures may be necessary.
- Potentially affected Subareas (or Sectors as applicable) when a General Emergency is declared.

Notification approval, transmittal date and time, and offsite agencies contacted are recorded either on the notification form or in an event logbook.

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4. Follow-up Messages

For all emergency classifications, update messages to state authorities will be provided at the time of the notification on a prearranged frequency. The facility in Command and Control is responsible for ensuring that the updates are completed. State updates contain the prearranged information plus any additional information requested at the time of the notification.

Follow-up notifications are provided to the NRC Operations Center as soon as possible, but not later than one (1) hour after significant new information is available involving:

- a. The results of evaluations or assessments of plant conditions.
- b. The effectiveness of response or protective measures taken.
- c. Information related to plant behavior that is not understood.

If requested by the NRC, an open, continuous communications channel will be maintained with the NRC Operations Center over the Emergency Notification System (ENS) and/or Health Physics Network (HPN) Circuits.

5. State and County Information Dissemination

The state and county emergency response plans describe procedures for state and county officials to make a public notification decision promptly (within about 15 minutes) on being informed by the plant of an emergency. The system for disseminating information to the public includes notification by pre-scripted messages through appropriate broadcast media such as the Emergency Alert System (EAS).

6. Notification of the Public

The capability exists for the prompt notification of the general public within the Plume Exposure Pathway Emergency Planning Zones (EPZs) for Oyster Creek.

This notification capability consists of two principal elements: (1) the Alert and Notification Systems (ANS) and (2) the Emergency Alerting System (EAS) radio stations.

- The Alert and Notification System (ANS) consists of fixed sirens used as a primary means of notification. Activation of the ANS sirens by the civil authorities will alert the public to turn on their radios to a local EAS radio station for detailed information on the emergency situation. A backup means of notification is provided and is described within each of the respective station Annexes.
- The Emergency Alerting System (EAS) is a network of local radio stations prepared to transmit or relay emergency information and instructions from the civil authorities to the general public

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The ANS is operated by local governmental agencies and maintained by Exelon Nuclear. To assure the ANS is maintained in an operational readiness posture, the local agencies have agreed to test the system (by sounding the sirens) on a periodic basis that meets or exceeds FEMA guidance and to report inoperable equipment to EP-designated maintenance personnel. The goal of the testing and maintenance program is to identify inoperable equipment in a timely manner and to restore equipment to a functional status commensurate with FEMA operability requirements as referenced in FEMA-REP-10, "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants" Section E.6.2.1. In addition to this routine test and repair program, preventive maintenance of the ANS will be performed on an annual basis.

A more site-specific description of the various prompt public notification systems is presented in the station annex to the E-Plan. The activation of the ANS sirens, deployment of emergency service vehicles and operation of the Emergency Alerting System is discussed in detail in the state specific response plans.

7. Messages to the Public

The respective States have developed EAS messages for the public consistent with the classification scheme. These draft messages are included as part of the States' Emergency Plan and contain instructions with regard to specific protective actions to be taken by occupants and visitors of affected areas. Messages may include instructions such as: take shelter and go indoors, close windows and doors, turn off ventilation systems; directions given for evacuation; directions to stay tuned to Oyster Creek for further information, ad-hoc respiratory protection, (e.g. handkerchief over mouth, etc.). Exelon will provide support for the content of these messages when requested. The States control the distribution of radioprotective drugs to the general public.

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Section F: Emergency Communications

This section describes the provisions utilized for prompt communications among principal emergency response organizations, communications with the ERO and communications with the general public.

1. Communications/Notifications

Exelon Nuclear has extensive and reliable communication systems installed at Oyster Creek and the offsite Emergency Response Facilities. Examples of the communications network include systems such as normal and dedicated telephone lines on landlines, fiber-optic voice channels, cell phones, satellite phones, mobile radio units, handi-talkies and computer peripherals. This network provides:

- Voice communication through normal telephone, dedicated line and automatic ring-down between selected facilities, conference call capability, speaker phones, and operator assistance where required.
- Communications between selected Exelon vehicles and appropriate fixed locations, as well as with state mobile units and fixed locations.
- Facsimile, network, and modem transmission.

Figure F-1 depicts the initial notification paths and the organizational titles from the Exelon Nuclear Emergency Response Facilities (ERFs) to federal, state and local emergency response organizations, and industry support agencies. The Exelon primary and alternate methods of communication, and the NRC communications network, are illustrated on Figures F-2 and F-3.

- a. Exelon Nuclear maintains the capability to make initial notifications to the designated offsite agencies on a 24-hour per day basis. The offsite notification system, referred to as the Nuclear Accident Reporting System (NARS) provides communications to state and county warning points and Emergency Operations Centers from the CR, TSC, and EOF. Backup methods include facsimile and commercial telephone lines. state and county warning points are continuously staffed.
- b-d. Exelon Nuclear has established several dedicated communication systems that ensure reliable and timely exchange of information necessary to provide effective Command and Control over any emergency response; (1) between Exelon and state and local agencies within the EPZs, (2) with federal emergency response organizations, (3) between the plant, the EOF, and the state and county EOCs, and (4) between Emergency Response Facilities and Field Monitoring Teams. A general description of the systems is as follows:

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- 1) Nuclear Accident Reporting System (NARS): The NARS is a dedicated communications system that has been installed for the purpose of notifying state and local authorities of declared nuclear emergencies. This system links together the station Control Rooms, the EOF, TSCs and state and local authorities as appropriate. The specific design, operation, and responsibility for maintenance of the NARS systems vary between Exelon Nuclear regions.
- 2) Damage Control Line: A dedicated telephone link called the Damage Control Line that enables communication between the Control Room, the TSC and the OSC to coordinate the dispatching of emergency damage control teams from the OSC (see Figure F-2).
- 3) Operations Status Line: A dedicated telephone link called the Operations Status Line that enables communication between the Control Room, the TSC and the EOF to monitor the activities of the Control Room staff (see Figure F-2).
- 4) Technical Conference Line: A dedicated telephone line called the Technical Conference Line between the TSC and the EOF to communicate mitigating activities and priorities for the station to the EOF (see Figure F-2).
- 5) Director's Hotline: A dedicated telephone link called the Director's Hotline that enables direct Emergency Director communication between the Control Room, TSC, and the EOF (see Figure F-2).
- 6) Private Branch Exchange (PBX) Telephone System: The PBX telephone system provides communication capability between telephones located within the plant. The PBX is used to connect the CR, TSC, EOF, and OSC. The PBX telephone system also provides for outside communications through interconnections with the corporate telephone communications system and commercial telephone lines.
- 7) Local Commercial Telephone System: This system provides standard commercial telephone service through the public infrastructure, consisting of central offices and the wire line and microwave carrier. The commercial telephone system includes connections to PBX, emergency telephone system, dedicated lines to emergency facilities, and lines to the JICs. The commercial vendor provides primary and secondary power for their lines at their central office.
- 8) Emergency Response Data System (ERDS): ERDS will continuously supply the NRC with selected plant data points on a near real time basis. The selected data points are transmitted automatically to the NRC at approximately 1-minute intervals.

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- 9) Field Monitoring Team (FMT) Communications: A separate communications system has been installed to allow coordinated environmental monitoring and assessment during an emergency. This system consists of the necessary hardware to allow communication between the Control Room, TSC, EOF, and mobile units in Exelon Nuclear vehicles. Though direct communications between the Control Room and the FMTs is not required per the prescribed methods of FMT coordination, the FMTs can be contacted from equipment in the Control Room if required. Commercial cell phones or other means are available as back up to the primary field team communications system.

In addition, station communication links exist to ensure appropriate information transfer capabilities during an emergency. The station may also utilize its Public Address System, station radios and notification devices to augment its emergency communications.

- e. ERO Notification System: Exelon Nuclear utilizes an automated ERO Notification System to rapidly notify members of the ERO. The system consists of a network of physical infrastructure capable of initiating and receiving contact via multiple notification devices. When activated, the system contacts the notification devices (e.g., through commercial and cellular phone, email, text message) belonging to members of the ERO. The System includes redundant activation methods via the internet, call-centers, or direct telephone activation, as well as redundant, geographically separated call centers and data centers, with redundant power sources. Implementing procedures specify the course of action to be taken if the primary ERO Notification System activation path fails to respond. The ERO Notification System provides primary and back-up notification functions. For the Exelon North East sites, the ERO notification system description is contained in the Station Annex and EP implementing procedures.
- f. NRC Communications (ENS and HPN)

Communications with the NRC Operations Center will be performed via the NRC ENS and HPN circuits or commercial telephone line. Information is normally communicated from an approved NRC Event Notification Worksheet prior to establishing an open ENS and/or HPN line.

Installation and use of these NRC telephones is under the direction of the NRC (see Figure F-3).

Emergency Notification System (ENS): Dedicated telephone equipment is in place between the Control Room and the NRC, with an extension of that line in the TSC. A separate line is available in the EOF with the capability of being patched with the station through the NRC. This line is used for NRC event notifications and status updates.

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Health Physics Network (HPN): There also exists a separate dedicated telephone between the NRC, the TSC, and EOF for conveying health physics information to the NRC as requested or as an open line.

2. Medical Communications

Communications are established with the primary and backup medical hospitals and transportation services via commercial telephone that is accessed by station personnel.

3. Communications Testing

Communications equipment is checked in accordance with Section H.10. Communications drills between Exelon Nuclear and state and county government facilities are conducted in accordance with Section N.2.a. In addition, minimum siren testing is performed in accordance with the site specific siren Design Report.

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Figure F-1: Exelon Notification Scheme (For Full Augmentation)

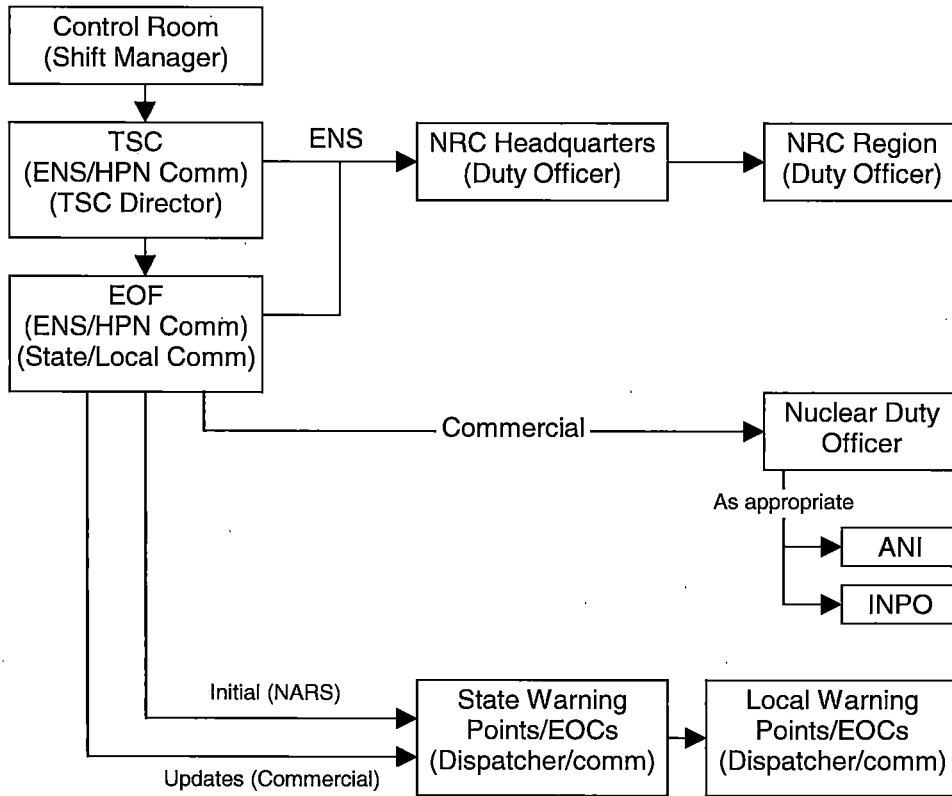
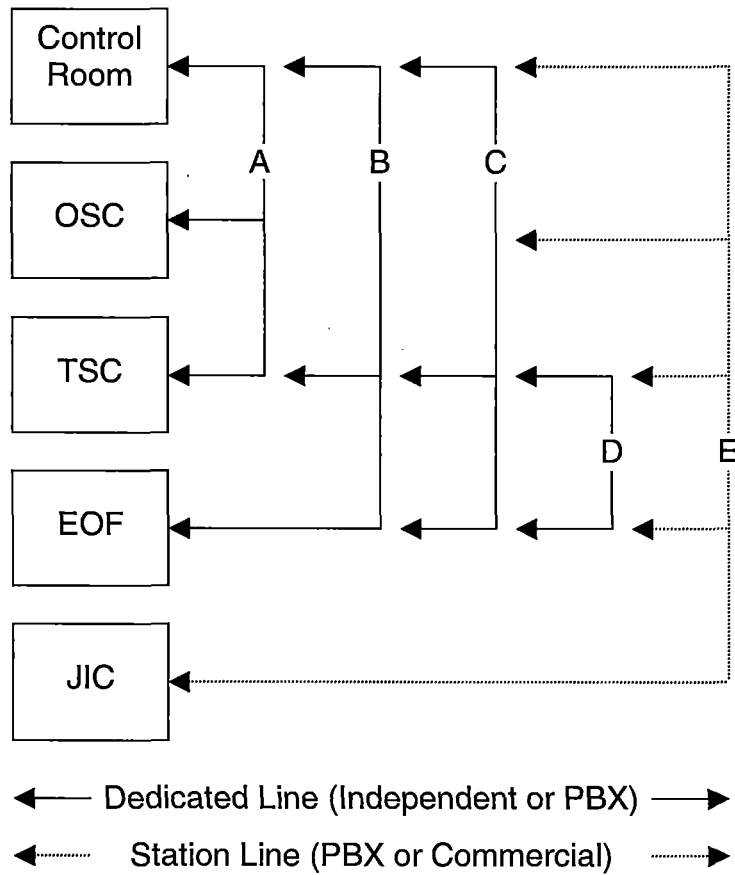


Figure F-2: ERF Communications Matrix



A = Damage Control Line between the OSC, TSC, and Control Room.

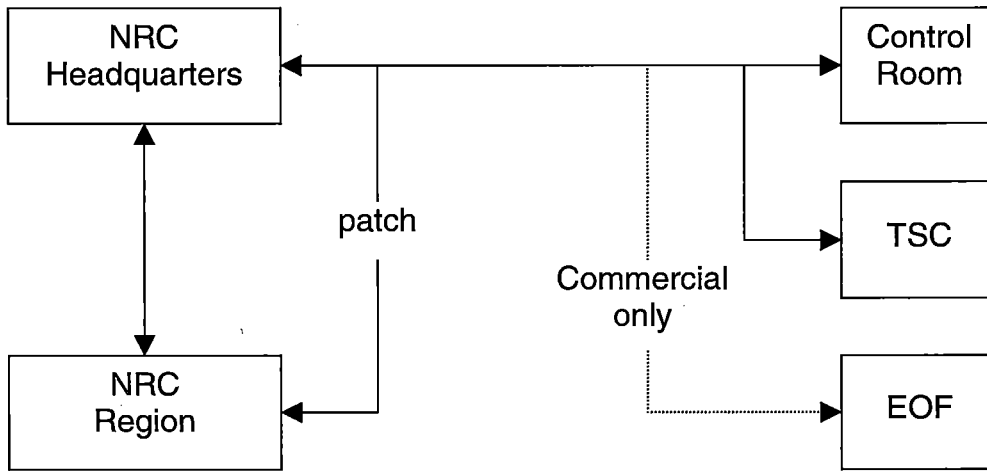
B = Directors Hotline line between the Control Room, TSC and EOF.

C = Operations Line between the TSC, Control Room and EOF.

D = Technical Conference Line between the TSC and EOF.

E = Station telephone line.

Figure F-3: NRC Communications for Nuclear Response



NOTE: ENS and HPN circuits may use the Federally maintained system, company tie lines or PBX as dedicated primary communications systems and have commercial backups.

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Section G: Public Education and Information

This section describes the Exelon Nuclear public education and information program. It outlines the methods for distributing public information materials on an annual basis and describes how the public is informed in the event of an emergency.

1. Public Information Publication

The state has overall responsibility for maintaining a continuing disaster preparedness public education program. The emergency public information publication for the Exelon Nuclear generating stations is updated annually, in coordination with state and county agencies, to address how the general public is notified and what their actions should be in an emergency. Exelon distributes the publication on an annual basis by mail to all residents within the ten-mile plume exposure EPZs and to appropriate locations where a transient population may obtain a copy. The public information publication includes the following information:

- a. Educational information on radiation.
- b. A description of the times that require public notification (what to do if a take-shelter or evacuate recommendation is given).
- c. A map of major evacuation routes.
- d. A list of communities likely to serve as host shelter areas and instructions on how to obtain additional information, especially for the disabled or their caretakers and those without transportation.

2. Public Education Materials

Public information publications instruct the public to go indoors and turn on their radios when they hear the ANS sirens operating. These publications also identify the local radio stations to which the public should tune in for information related to the emergency.

3. Media Accommodations

- a. The Exelon Communications and Public Affairs Department is notified when an Unusual Event or higher Emergency condition exists. They will handle public and media inquiries in the early stages of the event (until the JIC is activated) by distributing background information, news releases, and providing information to corporate management.

- 1) The Emergency Public Information Organization: The Emergency Public Information Organization is part of the Corporate ERO. It may be activated at any time at the discretion of the Nuclear Duty Officer. However, when there is a procedural requirement to activate the EOF, the Emergency Public Information Organization shall also be activated.

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The primary purpose of the Emergency Public Information Organization is to disseminate information from Exelon Nuclear's ERO about the emergency events to the public, via the news media. However, the authority for issuance of news releases for the classification of an Unusual Event or prior to ERO activation will always reside with the Exelon Communications and Public Affairs Department. Upon activation, the Emergency Public Information Organization has the responsibility and authority for issuance of news releases to the public.

The Emergency Public Information Organization is comprised of senior managers from Exelon Nuclear who will function as spokespersons, and other Exelon Nuclear individuals including personnel from the Governmental Affairs and Human Relations areas. Exelon Nuclear's spokespersons disseminate information to the news media/public concerning the emergency events out of a Joint Information Center (JIC).

- 2) The Joint Information Center (JIC): The JIC is the facility in which media personnel gather to receive information related to the emergency event. The JIC is the location where approved news releases will be provided to the media for dissemination to the public. News releases are coordinated between the EOF and JIC personnel and state and/or Federal representatives in the JIC. Exelon public information personnel operate from the EOF and the JIC, which is under the direction of the Corporate Spokesperson and functions as the single point contact to interface with Federal, state, and local authorities who are responsible for disseminating information to the public.

Each station has a designated JIC. Each JIC is equipped with appropriate seating, lighting and visual aids to allow for public announcements and briefings to be given to the news media. Additionally, JICs are equipped with commercial telephone lines for making outgoing calls. The Emergency Public Information Organization functions from the JIC and EOF in preparing and releasing utility information about the emergency event. The JIC is activated at the declaration of an Alert or higher classification. Functions of the JIC include:

- Serving as the primary location for accumulating accurate and current information regarding the emergency conditions and writing news releases.
 - Providing work space and phones for public information personnel from the state, counties, NRC, FEMA, and industry-related organizations.
 - Providing telephones for use by the news media personnel.
- b. The news media is not permitted into the EOF during an emergency.

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4. Coordination of Public Information

- a. The JIC is staffed by Exelon and government public information representatives who will be the source of public information during an emergency at the station. The Corporate Spokesperson is the primary spokesperson for Exelon Nuclear. The Corporate Spokesperson has direct access to all necessary information (see Section B.5).
- b. The JIC is staffed by federal, state, county, and utility personnel to assure timely, periodic exchange and coordination of information. Representatives coordinate information prior to conducting news briefings.
- c. The JIC for the Oyster Creek Station is co-located with the EOF at 1268 Rt. 37 West, Toms River, NJ.

5. Media Orientation

Emergency Preparedness, in conjunction with Exelon Communications and Public Affairs Department, offers training (at least annually) to acquaint news media with the E-Plan, information concerning radiation, and points of contact for release of public information in an emergency. Training is provided for those media agencies that accept the training offer.

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Section H: Emergency Facilities and Equipment

Onsite and offsite facilities are available for emergency assessment, communications, first aid and medical care, and damage control. Of particular importance are the Emergency Response Facilities (ERFs); the Control Room (CR), the Technical Support Center (TSC), the Operations Support Center (OSC), the Emergency Operations Facility (EOF), and the Joint Information Center (JIC).

This section describes the emergency facilities and equipment used by the Emergency Response Organization and outlines the requirements which aid in timely and accurate response actions. It also describes the surveillance programs used to monitor and ensure that these facilities and equipment are maintained in a high degree of constant readiness.

1. Control Room, Technical Support Center, and Operations Support Center

Exelon Nuclear has established a TSC and an on-site OSC, which are activated upon declaration of an Alert or higher classification. Until they become operational, required functions of these facilities are performed in the Control Room.

Under certain adverse conditions for Security-Based Events, personnel may be assembled in an Alternative Facility prior to being dispatched to one of the facility ERFs.

a. Station Control Room: The Control Room is the centralized onsite location from which the Nuclear Station's reactors and major plant systems are operated. The Control Room is equipped with instrumentation to supply detailed information on the reactors and major plant systems. The Control Room is continuously staffed with qualified licensed operators. The Control Room is the first onsite facility to become involved with the response to emergency events. Control Room personnel must evaluate and effect control over the emergency and initiate activities necessary for coping with the emergency until such time that support centers can be activated. These activities shall include:

- Reactor and plant control.
- Initial direction of all plant related operations.
- Accident recognition, classification, mitigation and initial corrective actions.
- Alerting of onsite personnel.
- Notification of appropriate individuals.
- Activation of emergency response facilities and ERO notification.
- Notification of offsite agencies.

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- Continuous evaluation of the magnitude and potential consequences of an incident.
- Initial dose projections.
- Recommendations for immediate protective actions for the public.

As other ERFs become activated, they will supply support to the Control Room, although overall Command and Control of the emergency will transfer to the SED (TSC) or the CED (EOF). Throughout all emergencies, the Control Room maintains its emergency activation status until its normal operational status may be resumed.

- b. Technical Support Center (TSC): Oyster Creek has established a TSC for use during emergency situations by station management, technical, and engineering support personnel. The TSC is activated for all emergencies classified as Alert or higher. Activation for other events is optional. When activated the TSC functions include:

- Support for the Control Room's emergency response efforts.
- Support the SED with assigned Command & Control functions.
- Continued evaluation of event classification.
- Assessment of the plant status and potential offsite impact.
- Coordination of emergency response actions.
- Notification of appropriate corporate and station management.
- Notification and update of the NRC via Emergency Notification System (ENS).

The TSC is the onsite location utilized to support the Control Room for assessment of plant status and potential offsite impact, and for implementation of emergency actions. TSC provides technical data and information to the EOF.

Figure B-1b illustrates the staffing and organization of the TSC.

The TSC provides reliable voice communications to the Control Room, the OSC, the EOF, the NRC, and state and local Emergency Operations Centers. In addition, the TSC provide facsimile transmissions capability (see Section F.1).

The TSC is sized to accommodate a minimum of 25 spaces and supporting equipment. This includes provisions for five NRC representatives. Adequate space is also available for the appropriate state representative(s).

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Personnel in the TSC shall be protected from radiological hazards, including direct radiation and airborne contaminants under accident conditions with similar radiological habitability as Control Room personnel. To ensure adequate radiological protection, permanent radiation monitoring systems have been installed in the TSC and/or periodic radiation surveys are conducted. These systems indicate radiation dose rates and airborne radioactivity inside the TSC while in use. In addition, protective breathing apparatus (full-face air purifying respirators) and KI are available for use as required.

The TSC has access to a complete set of as-built drawings and other records, including general arrangement diagrams, P&IDs, and the electrical schematics. The TSC has the capability to record and display vital plant data, in real time, to be used by knowledgeable individuals responsible for engineering and management support of reactor operations, and for implementation of emergency procedures.

- c. Operations Support Center (OSC): Oyster Creek has established an OSC. The OSC is the onsite location to where station support personnel report during an emergency and from which they will be dispatched for assignments or duties in support of emergency operations. The OSC shall be activated whenever the TSC is activated, but need not remain activated at the Alert level if its use is judged unnecessary by the Station Emergency Director. At the Site Area and General Emergency levels, the OSC or an alternate OSC shall be activated at all times. Activation for other events is optional. Station disciplines reporting to the OSC include, but are not limited to:

- Operating personnel not assigned to the Control Room,
- Radiation Protection Personnel,
- Chemistry Personnel,
- Maintenance Personnel (mechanical, electrical and I&C).

Figure B-1b illustrates the staffing and organization for the OSC.

Each OSC is equipped with communication links to the Control Room, the TSC and the EOF (see Section F). A limited inventory of supplies will be kept for the OSC. This inventory will include respirators, protective clothing, flashlights and portable survey instruments.

2. Emergency Operations Facility (EOF)

The EOF is the location where the Corporate Emergency Director will direct a staff in evaluating and coordinating the overall company activities involved with an emergency. Activation of the EOF is mandatory upon declaration of an Alert or higher classification. The EOF provides for:

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- Management of overall emergency response.
- Coordination of radiological and environmental assessments.
- Determination of recommended public protective actions.
- Management of recovery operations.
- Coordination of emergency response activities with federal, state, and local agencies.

The EOF for Oyster Creek Station is co-located with the JIC at 1268 Rt. 37 West, Toms River, NJ.

The facility is designed with the following considerations:

- The location provides optimum functional and availability characteristics for carrying out overall strategic direction of Exelon Nuclear onsite and support operations, determination of public protective actions to be recommended to offsite officials, and coordination with Federal, state and local organizations.
- It is well engineered for the design life of the plant and is of sufficient size to accommodate about 50 people.
- It is equipped with reliable voice communications capabilities to the TSC, the OSC, the Control Room, NRC, and state and local emergency operations centers. In addition, the EOF has facsimile transmission capability.
- Equipment is provided to gather, store, and display data needed in the EOF to analyze and exchange information on plant conditions with the Station. The EOF technical data system receives, stores, processes, and displays information sufficient to perform assessments of the actual and potential onsite and offsite environmental consequences of an emergency condition.
- The EOF has ready access to plant records, procedures, and emergency plans needed for effective overall management of Exelon Nuclear emergency response resources.

3. Emergency Operations Centers

EOCs operated by the state and local communities have been established to perform direction and control of emergency response functions.

The New Jersey state EOC is capable of continuous (24-hour) operations for a protracted period. The center contains sufficient communications (radio, telephone and teletype) equipment, maps, emergency plans, and status boards to provide the necessary interfaces with other federal, state, county, and Exelon emergency facilities.

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The county EOCs serve as Command and Control headquarters for local emergency response activities as well as a center for the coordination of communications to field units and to the state EOC. These EOCs have the equipment necessary, (such as facsimile machines, telecommunications equipment, radio gear, photocopiers, wall maps, etc.) to carry out their emergency responsibilities.

4. Activation

NOTE: NUREG-0654 Criterion II.B.5 states that the "licensee must be able to augment on-shift capabilities within a short period after declaration of an emergency". It further defines that short period as 30 and 60 minutes. The time frames for rapid augmentation of a nuclear power plant staff in the event of an emergency are not rigid inviolate requirements but rather goals. It is Exelon Nuclear's intent to expend its best efforts to meet the augmentation criteria goals regarding staffing Emergency Response Facilities with sufficiently skilled individuals capable of handling an emergency. Both the NRC and Exelon Nuclear realize that due to diversity of normal residential patterns for the stations' staff, possible adverse weather conditions, road congestion and site access restrictions, these time frames might be exceeded.

Exelon Nuclear has put into place plans and procedures to ensure timely activation of its emergency response facilities. The Shift Manager (as Shift Emergency Director) will initiate a call-out in accordance with the implementing procedures. The ERO augmentation process identifies individuals who are capable of fulfilling the specific response functions that are listed in ERO staffing tables contained within the station specific Annex. This table was developed based on the functions listed in NUREG-0654, Table B-1.

Although the response time will vary due to factors such as weather and traffic conditions, a goal of 60 minutes for minimum staffing, following the declaration of an Alert or higher emergency classification, has been established for the ERO personnel responding to the station emergency facilities and the EOF. Additionally, plans have been developed to ensure timely functional activation and staffing of the JIC when the classification of Alert is declared.

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It is the goal of the organization to be capable of activating the applicable Emergency Response Facility upon achieving minimum staffing. The facility can be declared activated when the following conditions are met:

- a. Minimum staffing has been achieved.
- b. The facility is functional.

Although the minimum staffing criteria applies to the JIC, the activation time is not applicable. Public Information personnel must first coordinate the decision to activate the JIC with the appropriate offsite authorities.

The Director in charge may elect to activate their facility without meeting minimum staffing; if it has been determined that sufficient personnel are available to fully respond to the specific event (this would not constitute a successful minimum staff response).

5. Monitoring Equipment Onsite

Oyster Creek is equipped with instrumentation for radiation monitoring, fire protection and meteorological monitoring. Instrumentation for the detection or analysis of emergency conditions is maintained in accordance with station Technical Specifications, if applicable, or commitments made to the NRC. Descriptions of the equipment will appear in the Station Annex. This equipment includes but is not limited to the following:

a. Geophysical Monitors

- 1) Meteorological Instrumentation: A permanent meteorological monitoring station is located near each station for display and recording of wind speed, wind direction, and ambient and differential temperature for use in making offsite dose projections. Meteorological information is presented in the CR, TSC, and EOF by means of the plant computer system. This information is remotely interrogated using a computer or other data access terminal.

With regard to Exelon Nuclear's meteorological monitoring program, there has been a quality assurance program adopted from 10 CFR 50, Appendix B. However, since the meteorological facilities are not composed of structures, systems, and components that prevent or mitigate the consequences of postulated accidents and are not "safety related," not all aspects of 10 CFR 50, Appendix B, apply. Those aspects of quality assurance germane to supplying good meteorological information for a nuclear power station were adopted into the meteorological quality assurance program. The meteorological program is also subject to the requirements of the QATR, Section 19, Augmented Quality.

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The National Weather Service (NWS), or regional weather forecast providers, may be contacted during severe weather periods. These providers analyze national and local weather in order to provide localized weather forecasts for the system or for the station area as appropriate.

- 2) Hydrological Monitors: The design basis flood, probable maximum precipitation, and other improbable, conceivable extremes in hydrologic natural phenomena are well below any design limits for the station as detailed in the UFSAR.

b. Radiological Monitors and Sampling

- 1) The Radiation Monitoring System (RMS): In-plant radiological measurements provide information that may help determine the nature, extent and source of emergency conditions. The RMS is available to give early warning of a possible emergency and provides for a continuing evaluation of the situation in the Control Room. Radiation monitoring instruments are located at selected areas within the facility to detect, measure, and record radiation levels. In the event the radiation level should increase above a preset level, an alarm is initiated in the Control Room. Certain radiation monitoring instruments also alarm locally in selected areas of the facility. The RMS is divided into 3 subsystems:
 - a) Area Radiation Monitors (ARMs) are used for the direct measurement of in-plant exposure rates. The ARM readings allow in-plant exposure rate determinations to be made remotely without requiring local hand-held meter surveys. This information may be used, initially, to aid in the determination of plant area accessibility. In addition to permanent monitors, portable Continuous Air Monitors (CAMs) measure airborne particulate and airborne iodine activities at various locations within the operating areas.
 - b) Process Radiation Monitors (PRMs) are used for the measurement of radioactive noble gas, iodine, and particulate concentrations in plant effluent and other gaseous and fluid streams.
 - c) The accident, or high range, radiation monitoring system monitors radiation levels at various locations within the operating area. These are high range instruments used to track radiation levels under accident or post accident conditions. These instruments include the Containment/Drywell Radiation Monitors.

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The RMS provides the necessary activity or radiation levels required for determining source terms in dose projection procedures. Key RMS data is linked to the plant computer, which allows information to be passed to the TSC and EOF. The isotopic mix, including isotopes such as those in Table 3 of NUREG-0654, is based upon a default accident mix. Refer to the Oyster Creek UFSAR for further detail on the RMS capabilities and design.

- 2) Liquid and Gaseous Sampling Systems: The process sampling system consists of the normal sampling system and additional sampling panels located throughout the plant. Sampling systems are installed or can be modified to permit reactor coolant and containment atmosphere sampling even under severe accident conditions.

The sampling systems use a number of manual sampling techniques to enable reactor coolant and containment sampling operations over a wide range of plant conditions. It is capable of providing information relative to post-accident plant conditions to allow operator actions to be taken to mitigate and control the course of an accident. Refer to the Oyster Creek UFSAR for further detail on sampling capabilities.

- 3) Portable Radiation Monitoring Equipment: Portable radiation survey instruments are available for a wide variety of uses such as area, sample, and personnel surveys and continued accident assessment. Instruments are stored throughout the plant and in the emergency facilities.
- c. Process Monitors: The Control Room and applicable redundant backup locations are equipped with extensive plant process monitors for use in both normal and emergency conditions. These indications include but are not limited to reactor coolant system pressure and temperature, containment pressure and temperature, liquid levels, flow rates, status or lineup of equipment components. This instrumentation provides the basis for initiation of corrective actions.
- 1) Plant Monitoring/Information System: A plant monitoring/information system provides the data acquisition and database capability for performing plant monitoring and functions. The system is designed to scan, convert to engineering units, make reasonability and alarm limit checks, apply required transformations, store for recall and analysis, and display the reading of transformed data from plant instrumentation. The system scans flows, pressures, temperatures, fluid levels, radiation levels, equipment, and valve status at required frequencies. Scanned variables are quality tagged. The system provides for short and mid term storage of data for on-line retrieval and fast recall, and long term storage to appropriate media.

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- 2) Safety Parameter Display (SPDS) & Plant Parameter Display (PPDS) Systems: SPDS and PPDS provide a display of plant parameters from which the safety status of operation may be assessed in the Control Room, TSC and EOF. The primary function of the SPDS and PPDS is to help operating personnel in the Control Room make quick assessments of plant safety status. SPDS and/or PPDS displays in the TSC and EOF promote the exchange of information between these facilities and the Control Room and assists the emergency organization in the decision making process.
- d. Fire Detection System: The Fire Detection System is designed to quickly detect visible or invisible smoke (or other products of combustion) and/or heat in designated areas of the plant. The fire alarm communication systems and subsystems are located at strategic points throughout the plant to warn personnel of a nuclear incident or other emergency conditions. Existing plant alarm systems are sufficiently audible to alert personnel in the event of a fire or need for assembly. These alarm communication systems consist of warning sirens and lights (in high noise areas) and the PA system. Refer to the Oyster Creek UFSAR for further description of the station's fire protection system.

6. Monitoring Equipment Offsite

Exelon has made provisions to acquire data from and have access to the following offsite sources of monitoring and analysis equipment:

- a. Geophysical Monitors: In the event that the onsite meteorological tower or monitoring instrumentation becomes inoperative and the contracted weather provider cannot be contacted, meteorological data may be obtained directly from the National Weather Service or the internet.

A considerable array of seismometers are located in the region. A central point of contact to obtain information about a seismic event is the National Earthquake Information Service in Golden, Colorado.

Exelon Nuclear Corporate Offices can coordinate hydrology and seismology expertise in the event onsite information becomes unavailable.

- b. Radiological Environmental Monitors and Sampling: Exelon Nuclear has contracted with a company to conduct an extensive offsite environmental monitoring program to provide data on measurable levels of radiation and radioactive materials in the environs. The program (described fully in the Offsite Dose Calculation Manual), includes:
- Fixed continuous air samplers.
 - Routine sampling of river water; milk and fish.
 - A fixed dosimeter monitoring network.

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The dosimeter program consists of the following elements:

- A near-site ring of dosimeters covering the 16 meteorological sectors.
 - A 16-sector ring of dosimeters placed in a zone within about 5 miles from the plant.
 - Dosimeters placed at each of the normal fixed air sampler locations (typically about 8-15 air samplers per nuclear station).
- c. Laboratory Facilities: External facilities for counting and analyzing samples can be provided by the other Exelon Nuclear stations, state, federal or contracted laboratories. These laboratories can act as backup facilities in the event that the affected station's counting room and laboratory become unusable or the offsite radiological monitoring and environmental sampling operation exceeds the capacity or capability of the station laboratory during an emergency. It is estimated that these laboratories will be able to respond within several hours from initial notification.

Outside analytical assistance may be requested from state and federal agencies, or through contracted vendors. The state maintains a mobile radiological laboratory that provides the primary means of analyzing off-site environmental samples. The NRC mobile laboratory may be made available for Site Area and General Emergencies. The DOE, through the Radiological Assistance Program (RAP) has access to any national laboratory with a Bell Lab contract (e.g., Brookhaven, Oak Ridge, Lawrence Livermore, etc.).

A general description of the laboratory capabilities is provided in Section C.3.

7. Offsite Monitoring Equipment Storage

Oyster Creek maintains a sufficient supply of emergency equipment (such as portable survey, counting, and air sampling instrumentation and other radiological monitoring equipment and supplies) that may be used for environmental monitoring. These supplies meet the initial requirements of two environmental Field Monitoring Teams. During subsequent phases of an emergency, additional equipment is available from other Exelon Nuclear generating stations, vendors and offsite response organizations.

8. Meteorological Monitoring

The station has installed and maintains a meteorological tower equipped with instrumentation for continuous reading of the wind speed, wind direction, air temperature and delta air temperature. Additional capabilities are available to obtain representative current meteorological information from other sources, such as the National Weather Service. A full description of the onsite meteorological capabilities is given in Section H.5.a of this Plan.

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9. OSC Capabilities

The OSC provides area for coordinating and planning of OSC activities and the staging of personnel. Further space is available in adjacent offices and locker rooms to accommodate additional personnel as may be required. Alternate locations are available. The onsite storeroom maintains a supply of parts and equipment for normal plant maintenance. These parts, supplies and equipment are available for damage control use as necessary.

Sufficient radiation protection equipment (i.e., protective clothing, respiratory protection gear, KI, and other health physics equipment and supplies) is stored and maintained near the OSC (as well as the other emergency response facilities). Damage Control Team equipment is available near the OSC as well as in the maintenance shops. This equipment includes items such as a camera, portable lighting, and additional portable communications equipment. The OSC is stocked with an assortment of first aid and medical treatment equipment and supplies. The OSC maintains reliable voice communications with the CR, TSC, and EOF. For a complete description of communications equipment, refer to Section F. When an emergency condition exists at one station, additional supplies can be obtained from other unaffected stations and Exelon resources upon request.

10. Facility and Equipment Readiness

Emergency facilities and equipment are inspected and inventoried in accordance with emergency preparedness procedures. These procedures provide information on location and availability of emergency equipment and supplies. An inventory of all emergency equipment and supplies is performed on a quarterly basis and after each use in an emergency or drill. During this inventory, radiation monitoring equipment is checked to verify that required calibration period and location are in accordance with the inventory lists. Inspections include an operational check of instruments and equipment. Equipment, supplies, and parts which have a shelf-life are identified, checked, and replaced as necessary. Sufficient reserves of instruments and equipment are maintained to replace those which are removed from emergency kits or lockers for calibration or repair. The station is responsible for maintaining a supply of KI at their respective site.

11. General Use Emergency Equipment

Inventory procedures identify the equipment that makes up kits used in an emergency situation available within each emergency facility.

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12. Collection Point for Field Samples

The onsite chemistry lab, unless otherwise specified in the respective Station Annex, has been designated as the central point for the receipt of radiological field monitoring samples. Sampling and analysis equipment is available for quantitative activity determination of marine and air samples, and qualitative activity determination of terrestrial samples. Sufficient field monitoring equipment is maintained at the station for initial sampling. Instrumentation and equipment utilized for sample activity determination are routinely calibrated to ensure timely availability. Additional facilities as described in C.3 and H.6.c are available for sample and analysis of environmental samples.

Refer to the Station Annex for further description of contracted environmental sampling and analysis support for a particular site.

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Section I: Accident Assessment

To effectively coordinate and direct all facets of the response to an emergency situation, diligent accident assessment efforts are required throughout the emergency. All four emergency classifications have similar assessment methods, however, each classification requires a greater magnitude of assessment effort dependent upon the plant symptoms and/or initiating event(s).

1. Plant Parameters and Corresponding Emergency Classification

Plant system and effluent parameter values are utilized in the determination of accident severity and subsequent emergency classification. Environmental and meteorological events are also determining factors in emergency classification. An emergency condition can be the result of just one parameter or condition change, or the combination of several. The specific symptoms, parameter values or events for each level of emergency classification are detailed in the emergency implementing procedures. Specific plant system and effluent parameters that characterize a classifiable event (EALs) are presented in Addendum 3 to each Station Annex.

In order to adequately assess the emergency condition, each emergency facility has the necessary equipment and instrumentation installed to make available essential plant information on a continuous basis. Evaluation of plant conditions is accomplished through the monitoring of plant parameters both from indication in the Control Room and within the plant. Some of the more important plant parameters to be monitored in the Control Room are assembled into a single display location, which is entitled the "Safety Parameter Display System" (SPDS). The SPDS monitors such parameters as: reactor coolant system pressure, reactor or pressurizer water level, containment pressure, suppression pool water level and temperature, reactor power, safety system status, containment radiation level and effluent monitor readings. The instrumentation and equipment capabilities available for each emergency facility are described in Section H.

2. Onsite Accident Assessment Capabilities

The resources available to provide initial and continuing information for accident assessment throughout the course of an event include plant parameter display systems, liquid and gaseous sampling system, Area and Process Radiation Monitoring Systems, and Accident Radiation Monitoring Systems (which includes the high range containment radiation monitors). Descriptions of these systems are given in Section H.5.b.

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3. Source Term Determination

Source term (or core damage) estimations serve several roles within the Exelon 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 failure, and fuel melt, and vessel melt-through) to:

- Evaluate the status of the fuel barriers and how their status relates to the risks and possible consequences of the accident.
- Provide input on core configuration (coolable or uncoolable) for prioritization of mitigating activities.
- 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 that quantifies the severity of an accident in terms that can be readily understood and visualized.
- Support the determination of radiological protective actions that should be considered for long term recovery activities.

The assessment methodologies utilized by Oyster Creek 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 includes the following:

- Containment Radiation Monitors: An indirect method used to determine the amount of core damage. Applicable to Loss of Coolant Accident (LOCA) scenarios. Based upon an end-of-life source term and static nuclide ratio assumptions yielding a limited accuracy. Valid any time following an accident.
- Core Temperatures: Methods such as Core Exit Thermocouple (CET), Peak Core Temperatures and Hot Leg Temperatures provide indirect methods used to indicate the type and/or amount of core damage. Applicable for all types of accidents. Valid any time following an accident.
- Core Uncovery: Methods such as Core Uncovery Time, RVLIS Level and Source Range Monitor count rate provide indirect methods 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 state of the core early in the event. Valid any time following an accident.

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- 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 provide a go/no go indication 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 that yields the most accurate numerical estimations of the amount of core damage. Applicable for all types of accidents. Requires the sampled system(s) be in a steady state that usually prevents its use until the plant is in a stable condition.

4. Effluent Monitor Data and Dose Projection

Dose assessment or projection represents the calculation of an accumulated dose at some time in the future if current or projected conditions continue. During an accident, the Plant Parameter Display System and personal computers will provide the ERO with the timely information required to make decisions. Radiological and meteorological instrumentation readings are used to project dose rates at predetermined distances from the station, and to determine the integrated dose received. Dose assessment methods used by Exelon personnel to project offsite doses include:

- A. Monitored Release Points - This method utilizes the plant's effluent radiation monitors and system flow rates. Effluent release points are used to directly calculate a release rate. The point of the release determines the way the source term is affected and is adjusted by the dose assessment process.
- B. Containment Leakage/Failure - This method uses a variety of containment failures or leak rates in conjunction with available source term estimations to develop a release rate to the environment. A direct vent of containment can be modeled as a failure to isolate.
- C. Release Point Samples - This method uses a sample at the release point and an estimated flow rate to develop a release rate at the point of release.
- D. Field Monitoring Team Data - This method uses a field survey or sample and the atmospheric model to back calculate a release rate and ratio concentrations of radioactive material at various points up and downwind of plume centerline.

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The computer applications used to provide dose calculations are evaluated against the EPA-400 plume exposure Protective Action Guides (PAGs) applicable for the early phase of an accident. These evaluations place an emphasis on determining the necessity for offsite protective action recommendations. Dose assessment actions will be performed in the following sequence:

First: Onset of a release to 1 hour post-accident: Shift personnel will rely on a simplified computerized dose model to assist them in developing offsite dose projections using real time data from effluent monitors and site meteorology.

Second: 1 hour post-accident to event termination: Estimates of off-site doses based on more sophisticated techniques are provided. Dedicated ERO personnel will analyze the offsite consequences of a release using more complex computerized dose modeling. These additional methods are able to analyze more offsite conditions than the simplified quick method, as well account for more specific source term considerations.

5. Meteorological Information

Local meteorological data is available from an onsite meteorological tower. The data available includes wind speed, wind direction, temperature, and delta temperature. These data are used by the utility, state, and NRC to provide near real-time predictions of the atmospheric effluent transport and diffusion. Meteorological data from the tower is available in the CR, TSC, and EOF. A full description of the onsite meteorological capabilities is given in Section H.5.a.

6. Unmonitored Release

Dose projections can be made during a release through use of actual sample data in situations where effluent monitors are either off-scale or inoperative or the release occurs by an unmonitored flow path. In the absence of effluent sample data, a dose projection can be performed simply by specifying the accident category as a default. The selection of a default accident category defines the mix, the total curies, and the release pathway(s). The total number of curies from a default mix for each isotope is used to provide an upper bound for release concentration, and hence, an upper bound for the dose rate and dose to the public.

7. Field Monitoring

In addition to the capabilities and resources described in Section H.6.b and H.7, Oyster Creek maintains the ability to take offsite air samples and to directly measure gamma dose rates the event of an airborne or liquid release. The capability to take offsite soil, water, and vegetation samples is also provided by either the Field Teams or a contracted vendor.

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The environmental monitoring equipment, as described in Section H, contain portable survey, counting, and air sampling instrumentation and other radiological monitoring equipment and supplies to be used by the Field Monitoring Teams. Samples are taken at predetermined locations as well as those specified both during and after a release. Environmental measurements are used as an aid in the determination and assessment of protective and recovery actions for the general public.

8. Field Monitoring Teams

Field Monitoring Teams are dispatched by Oyster Creek to perform a variety of functions during conditions that may involve significant releases of radioactive materials from the plant. Radiological survey and sample data is used to define affected area boundaries, verify or modify dose projections and protective action recommendations, and assess the actual magnitude, extent, and significance of a liquid or gaseous release.

In addition to contamination and dose rate measurements, the change out of dosimeters and air sampler cartridges can be performed. Other actions may include soil, water and vegetation sampling.

The initial environmental surveys involve simple-to-perform measurements to quickly confirm or modify the dose projections based on plant parameters. Subsequent environmental monitoring efforts will be aimed at further defining the offsite consequences including instituting an expanded program to enable prompt assessments of any subsequent releases from the plant.

The expertise necessary to conduct limited offsite environmental survey and sampling exists onsite 24 hours a day. A minimum of two offsite Field Monitoring Teams are notified and activated at an Alert or higher classification. Teams are composed of two individuals are assembled at the station to test and inventory dedicated survey and sampling equipment. Teams are then dispatched in company or personal vehicles into the surrounding area when a release is or is expected to occur. Radiological survey and sample data is transmitted to the emergency facilities. Vendor/contractor support can be used to perform collection, shipment and analysis of environmental sample media as described in Section B.8.c.

9. Iodine Monitoring

Field monitoring equipment has the capability to detect and measure airborne radioiodine concentrations as low as $1 \times 10^{-7} \mu\text{Ci}/\text{cm}^3$ in the presence of noble gases. Interference from the presence of noble gas and background radiation will be minimized by ensuring that monitoring teams move to areas of low background prior to analyzing the sample cartridge. The collected air sample is measured by hand held survey meter as an initial check of the projection derived from plant data to determine if significant quantities of elemental iodine have actually been released (the chemical form that would pose a health hazard).

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10. Dose Estimates

Specific procedures exist for the correlation of air activity levels to dose rate for key isotopes. Provisions have been established for estimating integrated dose from the projected and actual dose rates and for the comparison of these estimates with the protective action guides.

11. State Monitoring Capabilities

The states have the ability to dispatch their own field monitoring teams to track the airborne radioactive plume. The states also have the ability and resources to coordinate with federal and utility monitoring teams to compare sample results.

Section J: Protective Response

Protective response consists of emergency actions, taken during or after an emergency situation, which are intended to minimize or eliminate hazards to the health and safety of the public and/or station personnel. A range of protective actions has been developed for emergency workers and the general public in the Plume Exposure Pathway EPZ. Additionally, guidelines have been established to aid in choosing protective actions during an emergency that are consistent with federal guidance. Oyster Creek is responsible for onsite actions, while the responsibility for offsite actions rests with the state, county, and other offsite response agencies.

1. Notification of Onsite Personnel

For all emergency classifications, all personnel within the Protected Area are notified within 15 minutes of the initial classification or escalation of an emergency by recognizable alarms and/or verbal announcements over the plant Public Address (PA) System. Announcements include the emergency classification and response actions to be taken by personnel onsite (such as ERO, non-ERO, contractor personnel, and visitors). Provisions are made to alert personnel in high noise areas and outbuildings within the Protected Area as applicable.

Oyster Creek has identified locations where people might be expected to be present outside the Protected Area but within the Owner Controlled Area. Accountability of persons within the Owner Controlled Area but outside the Protected Area is not required. However, provisions are established for notification of personnel within the Owner Controlled Area any time a Site Evacuation has been initiated, or as otherwise deemed appropriate.

2. Evacuation Locations

If a Site Evacuation is required, nonessential personnel are directed to either assemble within designated Assembly Areas or to immediately evacuate the site. Personnel will be directed to either proceed to their homes or to reassemble at designated offsite locations. Visitors to the station will assemble with and follow the instructions of their escorts. Nonessential personnel within the Protected Area will normally exit through the security building. Personal transportation (if available) will normally be used and established evacuation routes will be followed. Personnel without transportation will be identified and provided transportation as necessary.

3. Radiological Monitoring of Evacuees

Personnel evacuating the site will be monitored for contamination by the portal monitors as they exit the Protected Area, with portable friskers in Assembly Areas, or sent to offsite monitoring locations on an as needed basis.

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4. Evacuation

Evacuation is the primary protective action anticipated for onsite personnel not having immediate emergency response assignments. Oyster Creek has identified locations that serve as Assembly Areas and offsite locations for non-essential personnel when they are not instructed to proceed home. The specific locations of these areas are shown in the Station Annex. Implementing procedures describe equipment, supplies and general operation of these facilities. The Station Emergency Director will designate personnel within the Site Boundary as essential or nonessential. Evacuation of non-essential personnel is usually conducted immediately after accountability if a Site Area Emergency or General Emergency has been declared and conditions permit. Evacuation shall commence in accordance with station procedures as directed by the Station Emergency Director or his/her designee, unless one of the following conditions exist:

- a. Severe weather conditions threaten safe transport.
- b. A significant radiological hazard would be encountered.
- c. There is a security threat occurring, which would have an adverse impact on the personnel while leaving the site.
- d. A condition similar to the above in magnitude, which in the opinion of the Station Emergency Director would adversely affect the site personnel.

Security forces will be dispatched, when available, to access road(s) to control entry to site facilities. Unauthorized and non-ERO personnel will be denied entry.

The initiation of a site evacuation will be reported to the appropriate state/local agency.

Exelon has established the implementation of alternate onsite protective actions for security-based events that are more appropriate than the actions for radiological emergencies. These alternate protective actions could include taking immediate cover, immediate protected area evacuation, immediate owner controlled area evacuation, and dispatch of the ERO to their alternative facility.

5. Accountability

The purpose of Accountability is to determine the locations of all personnel inside the Protected Area and to muster emergency personnel at prearranged locations. When Accountability of onsite personnel is determined to be necessary by the Station Emergency Director, all personnel within the protected area shall be accounted for and the names of missing individuals (if any) are determined within thirty (30) minutes of the announcement.

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Accountability is usually performed in conjunction with Assembly, and is required to be initiated whenever a Site Area Emergency or higher classification is declared. The movement of personnel for the purposes of Accountability may be delayed if their health and safety could be in jeopardy, such as severe weather or for security concerns.

If it is determined that the prearranged Assembly Area is unfit for personnel, the Station Emergency Director may designate an alternative Assembly Area and direct personnel using appropriate communication systems that are available.

Once established, Accountability within the Protected Area is maintained throughout the course of the event. Should missing personnel be identified, search and rescue operations are initiated.

6. Provisions for Onsite Personnel

Oyster Creek maintains an inventory of respiratory protection equipment, anti-contamination clothing, and KI that is made available to emergency workers remaining onsite should conditions warrant. During the course of an emergency, protective actions are considered to minimize radiological exposures or contamination problems associated with all onsite personnel. For those who must work within the restricted area of the affected site, measures that are considered are:

- a. Use of Respirators: On-shift and emergency response personnel use respiratory protection in any environment involving exposure to high level gaseous activity or oxygen deficient atmosphere, or where air quality is in doubt. In the presence of airborne particulates, emergency response personnel may be directed by health physics personnel to use full-face filter type respirators. The criteria for issuance of respiratory protection are described in Radiation Protection procedures.
- b. Use of Protective Clothing: Anti-contamination clothing, located in the TSC, OSC and station dress out areas is available for use by onsite personnel. The criteria for issuance of protective clothing are described in Radiation Protection procedures.
- c. Use of Potassium Iodide (KI): The use of KI may be recommended when a projected dose of 50 Rem Committed Dose Equivalent (CDE) is exceeded for an emergency worker's thyroid. This is the value specified in EPA 400-R-92-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents.". Oyster Creek is responsible for maintaining a supply of KI onsite. The Station Emergency Director has the responsibility for approval of issuing KI to Exelon Nuclear emergency workers.

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7. Mechanism for Implementing Protective Action Recommendations

Plant conditions, projected dose and dose rates, and/or field monitoring data are evaluated to develop PARs for the purpose of preventing or minimizing exposure to the general public. PARs are provided to the offsite agencies responsible for implementing protective actions for the general public within the 10-mile EPZ. PARs are approved by the Emergency Director in Command and Control.

In an emergency that requires immediate protective actions be taken prior to activation of the offsite emergency facilities, PARs are provided directly to the state and county 24 hour warning points by the Emergency Director.

8. Evacuation Time Estimates (ETEs)

The evacuation time estimates (ETE) were developed in accordance with NUREG/CR-7002, Criteria for Development of Evacuation Time Estimate Studies. Section IV of Appendix E to 10CFR50 requires that an analysis of the time required to evacuate be provided for various sectors and distances within the plume exposure pathway EPZ for transient and permanent residents which includes special facilities schools, nursing homes, hospitals, and recreational areas. The evacuation time estimate (ETE) is a calculation of the time to evacuate the plume exposure pathway emergency planning zone (EPZ), which is an area with a radius of about 10 miles around the station.

The ETE study used population data from the 2010 census. The evacuation times are based on a detailed consideration of the EPZ roadway network and population distribution. The ETE Study is contained in an addendum to the station Annex and presents evacuation times for daytime and nighttime scenarios under various weather conditions for the evacuation of various areas around the station.

Within 365 days of the availability of each decennial census data from the U.S. Census Bureau, each station shall develop an ETE analysis using this decennial data and submit it under 10CFR50.4 to the NRC. The ETE analysis shall be submitted to the NRC at least 180 days before using it to form protective action recommendations and providing it to State and local governmental authorities for use in developing offsite protective action strategies.

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During the years between decennial censuses, EPZ permanent resident population changes are estimated once a year, but no later than 365 days from the date of the previous estimate, using the most recent U.S. Census Bureau annual resident population estimate and State/local government population data, if available. If at any time during the decennial period, the EPZ permanent resident population increases such that it causes the longest ETE value for the 2-mile zone or 5-mile zone, including all affected Emergency Response Planning Areas, or for the entire 10-mile EPZ to increase by 25 percent or 30 minutes, whichever is less, from the currently NRC approved or updated ETE, the ETE analysis will be updated to reflect the impact of that population increase. These estimates are available for NRC inspection during the period between decennial censuses and will be submitted to the NRC with any updated ETE analysis under 10CFR50.4 no later than 365 days after the determination that the criteria for updating the ETE have been met and at least 180 days before using it to form protective action recommendations and providing it to State and local governmental authorities for use in developing offsite protective action strategies.

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9. Capability of Implementing Protective Action Recommendations

The responsibility for implementing protective measures based on protective action guides for the offsite population at risk is the responsibility of the state and local governments. Detailed procedures for public protective actions are contained in the state and other local radiological emergency response plans as appropriate.

The state agencies are responsible for evaluation of Exelon Nuclear recommended protective actions and preparing a recommendation to the Governor, or his/her appointed agent. Only when the state acts under the Governor's order does a recommended protective action become a directed protective action.

If the plant conditions are stable and offsite radiological conditions are such that the public health and safety are not endangered, then return to evacuated areas may be discussed with the affected state(s). State authorities are responsible for actually recommending return and transmitting this recommendation.

10. Implementation of Protective Action Recommendations

The utility, state, and county emergency plans used to implement the protective measures for the plume exposure pathway take numerous factors into consideration as stated in NUREG-0654 II.J. Among these considerations are:

- a. Most of the public evacuees are expected to travel in their own vehicles, leaving the EPZ via designated evacuation routes. The Station Annex shows the evacuation routes, EPZ Subareas and pre-selected sampling/monitoring points. The state and county plans contain official maps and information on the locations of off-site centers.
- b. The population distribution around the station. Population distribution for the plume exposure EPZ is illustrated in the Station Annexes.
- c. As indicated in Section E, offsite agencies are notified in the event the E-Plan is activated. State and county agencies have the capability to notify all members of the transient and resident population within the Plume Exposure Pathway EPZ.
- d-l. NUREG-0654 II.J.10.d-l items are addressed separately in state and county emergency plans.

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m. At a General Emergency classification, Oyster Creek will provide the state with recommendations for protective actions for the public. For incidents involving actual, potential, or imminent releases of radioactive material to the atmosphere, EPA 400-R-92-001, the NRC Response Technical Manual (RTM-96) and NUREG-0654, Supp. 3, Revision 1 are used as the basis for the general public PARs.

1) Plant Based PARs

Station specific PAR Flowcharts have been developed to aid Exelon Nuclear personnel providing PARs based on the above. Station specific PAR Flowcharts with Subarea or Sector tables are documented in the Exelon EP Implementing Procedures, including station-specific requirements regarding PAR determination. These flowcharts and tables provide technically based Protective Action Recommendations based on plant conditions and core damage indicators as applicable to the Exelon site and described within the implementing procedures. Possible plant based PARs issued by Exelon Nuclear, in support of NUREG-0654 Supp. 3, at a General Emergency could include as appropriate for the Station:

- Response to a Rapidly Progressing Severe Accident.
- Utilization of the staged evacuation concept as determined by station ETE's.
- Shelter of the general public in response to but not limited to; a controlled containment vent lasting less than 1 hour in duration less than PAGs, impediments to evacuation, or Hostile Action event.
- Evacuation of the general public.

In addition to the above actions to minimize or prevent potential exposure to radiation, a recommendation of "monitor and prepare" will be issued for the remainder of the EPZ.

2) Dose Based PARs

Evacuation is recommended if projected doses reach the minimum EPA PAGs (≥ 1 Rem EPA TEDE¹ or ≥ 5 Rem CDE Thyroid).

¹ EPA TEDE is defined as the sum of the doses from external exposure and inhalation from the plume, and from 4 days of external exposure to deposited materials.

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Many assumptions exist in dose assessment calculations, involving both source term and meteorological factors, which make computer predictions over long distances highly questionable. However, in the event dose assessment results indicate the need to recommend actions beyond the outer EPZ boundaries, which is past 10 miles, Field Monitoring Teams are dispatched to downwind areas to verify the calculated exposure rates prior to issuing PARs outside the EPZ.

Exelon personnel normally do not have the necessary information to determine whether off site conditions would require sheltering instead of evacuation. External factors (such as road conditions, traffic/traffic control, weather, or offsite emergency response capabilities) are determined by the state.

11. Ingestion Pathway Protective Measures

The responsibility for specifying protective measures to be used for the ingestion pathway rests with the state. These measures include the methods for protecting the public from consumption of contaminated water and foodstuffs.

12. Monitoring of Evacuees

The state and county organizations have the capability to register and monitor evacuees at designated reception centers. This capability includes personnel and equipment capable of monitoring residents and transients evacuating from the plume exposure EPZ and arriving at the reception centers, in accordance with FEMA guidelines.

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Section K: Radiological Exposure Control

This section of the plan describes the means for controlling emergency worker radiological exposures during an emergency, as well as the measures that are used by Exelon to provide necessary assistance to persons injured or exposed to radiation and/or radioactive materials. Exposure guidelines in this section are consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides described in EPA 400-R-92-001.

1. Emergency Exposure Guidelines

Being licensed by the NRC, all Exelon Nuclear generating stations maintain personnel exposure control programs in accordance with 10 CFR 20 under normal operating conditions. The Station Emergency Director is assigned the non-delegable responsibility for authorizing personnel exposure levels under emergency conditions per EPA-400. In emergency situations, workers may receive exposure under a variety of circumstances in order to assure safety and protection of others and of valuable property. These exposures will be justified if the maximum risks or costs to others that are avoided by their actions outweigh the risks to which the workers are subjected. The Emergency Worker Dose Limits are as follows:

Dose Limit (Rem TEDE)	Activity	Condition
0-5	All	Personnel should be kept within normal 10 CFR 20 limits during bona fide emergencies, except as authorized for activities as indicated below.
5-10	Protecting valuable property	Lower dose not practicable.
10-25	Lifesaving or protection of large populations	Lower dose not practicable.
> 25	Lifesaving or protection of large populations	Only on a voluntary basis to persons fully aware of the risks involved.

Limit dose to the lens of the eye to 3 times the above values and doses to any other organ (including skin and body extremities) to 10 times the above values.

Whenever possible, the concurrence of the Station's Radiation Protection (Department) Manager should be secured before exposing individuals to dose equivalents beyond the EPA-400 lower limit.

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2. Emergency Radiation Protection Program

The TSC Radiation Protection Manager is the individual responsible for the implementation of the radiation protection actions during an emergency. Radiation protection guidelines include the following:

- Volunteers over forty-five years of age are considered first for any emergency response action requiring exposure greater than normal limits. Routine dose limits shall not be extended to emergency dose limits for declared pregnant individuals. As in the case of normal occupational exposure, doses received under emergency conditions should be maintained as low as reasonably achievable.
- Persons undertaking any emergency operation in which the dose will exceed 25 Rem TEDE should do so only on a voluntary basis and with full awareness of the risks involved including the numerical levels of dose at which acute effects of radiation will be incurred and numerical estimates of the risk of delayed effects.
- In the context of the emergency limits, exposure of workers that is incurred for the protection of large populations may be considered justified for situations in which the collective dose avoided by the emergency operation is significantly larger than that incurred by the workers involved.
- Exposure accountability is maintained and proper personnel radiological monitoring equipment is provided for all personnel during emergency conditions.
- Access to high radiation areas is only permitted with prior approval of the applicable Radiation Protection Manager. Personnel are not allowed to enter known or potential high radiation areas unless their exposure has been properly evaluated.
- Periodic habitability surveys of emergency facilities are performed during an emergency. If the facility is determined to be uninhabitable, the facility is evacuated in order to prevent or minimize exposure to radiation and radioactive materials. Alternate assembly areas are established, as necessary, to relocate and monitor evacuated personnel.

3. Personnel Monitoring

- a. Emergency workers will receive DLR badges and personal self-reading dosimeters capable of measuring expected exposures on a real time basis. The capability exists for the emergency processing of DLRs on a 24-hour per day basis, if necessary.
- b. Emergency worker dose records are maintained by the Radiation Protection Managers (as appropriate) in accordance with the emergency and radiological protection procedures. Emergency workers are instructed to read their dosimeters frequently. DLRs may be processed with increased periodicity.

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4. Non-Exelon Personnel Exposure Authorization

The responsibility for authorizing non-Exelon emergency workers (i.e. state and local agency emergency workers) to receive exposures in excess of the EPA General Public Protective Action Guides rests with the state and county organizations, except when such emergency workers are onsite. Authorization of exposures in excess of EPA General Public Protective Action Guides, in this latter instance, rests with the Station Emergency Director.

5. Contamination and Decontamination

During an emergency, the Station Emergency Director is responsible for preventing or minimizing personnel exposure to radioactive materials deposited on the ground or other surfaces. Special consideration should be given to setting up contamination control arrangements for personnel entering the OSC after completion of assigned activities.

- a. During emergency conditions, normal plant contamination control criteria will be adhered to as much as possible. However, these limits may be modified by the applicable Radiation Protection Manager per existing Radiation Protection procedures, should conditions warrant.
- b. Contamination Control Means: Personnel found to be contaminated will normally be attended to at decontamination areas located onsite. Temporary decontamination areas can also be set up inside at various locations. Decontamination showers and supplies are provided onsite with additional personnel decontamination equipment and capabilities. Shower and sink drains in the controlled area are routed to the miscellaneous waste processing system where the liquid is processed and monitored prior to discharge. Potentially contaminated emergency vehicles will be surveyed before they are allowed to leave the plant or offsite assembly area. If the survey area is not suitable for monitoring and decontamination due to radiological or other concerns, vehicles will be surveyed at an alternate location.

6. Contamination Control Measures

Controls are established 24 hours per day to contain the spread of loose surface radioactive contamination.

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- a. Contaminated areas are isolated as restricted areas with appropriate radiological protection and access control. Personnel leaving contaminated areas are monitored to ensure they and their clothing are not contaminated. If contamination above acceptable levels is found, they will be decontaminated in accordance with plant procedures. If normal decontamination procedures do not reduce personnel contamination to acceptable levels, the case will be referred to a competent medical authority. Supplies, instruments, and equipment that are in contaminated areas or have been brought into contaminated areas will be monitored prior to removal. If found to be contaminated, they will be decontaminated using normal plant decontamination techniques and facilities or may be disposed of as radwaste. Contaminated vehicles will be decontaminated before being released.
- b. Measures will be taken to control onsite access to potentially contaminated potable water and food supplies. Under emergency conditions when uncontrolled releases of activity have occurred, eating, drinking, smoking, and chewing are prohibited in all station emergency response facilities until such time as habitability surveys indicate that such activities are permissible.
- c. Restricted areas and contaminated items will be returned to normal use when contamination levels have been returned to acceptable levels. Contamination control criteria for returning areas and items to normal use are contained in the plant procedures.

7. Decontamination of Relocated Personnel

Nonessential onsite personnel may be evacuated to an offsite relocation center or assembly area, as discussed in Section J. Radiological controls personnel at that location monitor evacuees and determine the need for decontamination. Existing and temporary facilities to limit contamination and exposure will be utilized and established at the site as necessary during an emergency situation. In the event that decontamination of evacuees locally is not possible, personnel will be sent to designated locations for monitoring and decontamination. Provisions for extra clothing are made and suitable decontaminates are available for the expected type of contaminations, particularly with regards to skin contaminations.

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Section L: Medical and Public Health Support

This section describes the arrangements for medical services for contaminated injured individuals sent from the station.

1. Offsite Hospital and Medical Services

Hospital personnel have been trained and hospitals are equipped to handle contaminated or radiation injured individuals. Specifically, training of medical support personnel at the agreement hospitals will include basic training on the nature of radiological emergencies, diagnosis and treatment, and follow-up medical care. Station personnel are available to assist medical personnel with decontamination radiation exposure and contamination control. Arrangements, by letter of agreement or contract, are maintained by Exelon Nuclear with a qualified hospital located in the vicinity of each nuclear generating station for receiving and treating contaminated or exposed persons with injuries requiring immediate hospital care. Exelon Nuclear shall provide medical consultants to aid in any special care necessary at these facilities.

Arrangements are also maintained with a qualified medical facility well equipped and staffed for dealing with persons having radiation injuries and whenever necessary, such persons will be transferred to this hospital facility for extended specialized treatment. Exelon Nuclear will have available to the staff of this hospital, medical consultants who will provide the direction of the special care necessary for the treatment of persons having radiation injuries.

These agreements are verified annually. Refer to section II.P.4 for details.

2. Onsite First Aid Capability

Oyster Creek maintains onsite first aid supplies and equipment necessary for the treatment of contaminated or injured persons. In general, physicians or nurses are not staffed at Oyster Creek, and as such, medical treatment given to injured persons is of a "first aid" nature. Oyster Creek does have an industrial hygiene advisor. Additionally, the Radiation Protection Technicians at Oyster Creek are experienced in control of radioactive contamination and decontamination work. Station personnel are also trained and qualified to administer first aid. At least two of these individuals are available on shift at all times. The functions of station personnel in handling onsite injured people are:

- 1) Afford rescue;
- 2) Administer first aid including such resuscitative measures as are deemed necessary;
- 3) Begin decontamination procedures; and
- 4) Arrange for suitable transportation to a hospital when required.

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Primary attention shall be directed to the actual factors involved in the treatment of casualties, such as: control of bleeding, resuscitation including heart and lung, control of bleeding after resuscitation, protection of wounds from bacterial or radioactive contamination and the immobilization of fractures.

Station personnel provide an initial estimate of the magnitude of surface contamination of the injured and preliminary estimates of total body dose to the injured. Primary rapid and simple decontamination of the surface of the body (when possible and advisable) before transportation to a designated hospital may be carry out as directed or performed by Radiation Protection personnel. When more professional care is needed, injured persons are transported to a local clinic or hospital. Contaminated and injured persons are transported to a dedicated specified facility.

3. Medical Service Facilities

Because of the specialized nature of the diagnosis and treatment of radiation injuries, Corporate Emergency Preparedness maintains an agreement with REAC/TS. REAC/TS is a radiological emergency response team of physicians, nurses, health physicists and necessary support personnel on 24-hour call to provide consultative or direct medical or radiological assistance at the REAC/TS facility or at the accident site. Specifically, the team has expertise in and is equipped to conduct: medical and radiological triage; decontamination procedures and therapies for external contamination and internally deposited radionuclides, including chelation therapy; diagnostic and prognostic assessments or radiation-induced injuries; and radiation dose estimates by methods that include cytogenetic analysis, bioassay, and in vivo counting.

In addition to REAC/TS, respective Station Annexes may identify additional medical consultants, based on agreements with local hospitals, to support personnel training and medical response.

4. Medical Transportation

Arrangements are made for prompt ambulance transport of persons with injuries involving radioactivity to designated hospitals. Such service is available on a 24-hour per day basis and is confirmed by letter of agreement. Radiation monitoring services shall be provided by Oyster Creek whenever it becomes necessary to use the ambulance service for the transportation of contaminated persons.

A qualified Radiation Protection person shall accompany the ambulance to the hospital. Additional Radiation Protection personnel may be contacted and dispatched to local hospitals to assist in the monitoring and decontamination of the injured victim and hospital and ambulance facilities and personnel.

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Section M: Reentry and Recovery Planning

This section describes the measures to be taken for reentry into the areas of Oyster Creek which have been evacuated as a result of an accident. It also outlines the Exelon Nuclear Recovery Organization and its concepts of operation.

1. Reentry and Recovery

a. Evaluating Reentry Conditions

During an emergency, immediate actions are directed toward limiting the consequences of the accident to afford maximum protection to station personnel and the general public. Once corrective measures have been taken and effective control of the plant has been re-established, a more methodical approach to reentry is taken. This E-Plan divides reentry into two separate categories:

- Reentry *during the emergency phase of an accident* is performed to save a life, control a release of radioactive material, prevent further damage to plant equipment or restore plant equipment. If necessary, this category of reentry may be performed using emergency exposure limits. Briefings, rather than written radiation protection procedures, may be used when making these entries.

All reentry activities conducted during the emergency are authorized by the Station Emergency Director and coordinated by the OSC Director and the Radiation Protection Manager.

- Reentry *during the recovery phase of an accident* is performed using normal exposure limits. Either normal procedures or procedures that consider existing as well as potential conditions inside affected areas are developed specifically for each reentry.

Reentry activities during the recovery phase are authorized by the Recovery Director and coordinated by the recovery organization managers in charge of personnel making the reentry.

The following items are considered when planning for any reentry:

- Review of available radiation surveillance data to determine plant areas potentially affected by radiation and/or contamination.
- Review of radiation exposure history of personnel required to participate in the accident mitigation or recovery operations.
- Determination of the need for additional personnel and the sources of these additional personnel.

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- Review of adequacy of radiation survey instrumentation and equipment (types, ranges number, calibration, etc.).
- Review of non-radiological hazards and required protective measures (e.g., fire, electrical, Hazmat).
- Pre-planning of activities and briefings for the reentry team that include the following:
 - Personnel knowledge requirements.
 - Methods and procedures that will be employed during the entry.
 - Specific tasks to be performed.
 - Anticipated radiation and contamination levels.
 - Radiation survey equipment and types and ranges of dosimetry required.
 - Shielding requirements and availability.
 - Appropriate communications.
 - Protective clothing and equipment requirements.
 - Access control procedures.
 - Decontamination requirements.
 - De-briefing requirements.
 - Respiratory protection.
- A review of security controls to prevent unauthorized or unintentional entry into hazardous areas.

b. Evaluating Entry into Recovery

The Recovery Phase is that period when major repairs are being performed to return the plant to an acceptable condition and the possibility of the emergency condition degrading no longer exists. Once the plant has been stabilized, contained and controlled, the Recovery Phase may be entered. It is the responsibility of the Station Emergency Director to classify Recovery after obtaining authorization from the Corporate Emergency Director.

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Establishment of Recovery can be conducted from any emergency classification level. However, it is possible that the lower classifications of Unusual Event and Alert will conclude with the event being terminated. There may be cases where certain EAL initiating conditions remain exceeded, but the station is under control and no further danger of degradation exists. In such a case, it may be appropriate to enter Recovery. Site Area and General Emergencies will require a Recovery Phase to be established prior to event termination. Exelon Nuclear may consult with/notify cognizant governmental agencies prior to declaring Recovery or event termination.

Termination/Recovery considerations are contained in the implementing procedures to provide guidance for evaluating the risk of entering Recovery without alleviating the intent of the Initiating Condition. The purpose of Recovery is to provide the necessary personnel to handle the long-term activities and to return the plant to an acceptable condition.

The following conditions are guidelines for the determination of establishing Recovery (this is not intended to be a complete list and additional criteria may apply, depending on the specifics of the event):

- The risk to the health and safety of the public has been mitigated.
- Plant parameters and equipment status have been established and controlled.
- In-plant radiation levels are stable or decreasing, and acceptable, given the plant conditions.
- The potential for uncontrolled releases of radioactive material to the environment has been eliminated.
- Environmental monitoring has been established.
- The radioactive plume has dissipated and plume tracking is no longer required (the only environmental assessment activities in progress are those necessary to assess the extent of deposition resulting from passage of the plume).
- Exelon Nuclear workers have been protected.
- Any security threat has been neutralized, and/or plant security is under the direction of Exelon Nuclear personnel.
- Adequate plant safety systems are operable.
- The reactor is in a stable shutdown condition and long-term core cooling is available

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- The fuel pool damage has been mitigated, or spent fuel damage has been contained and controlled.
- Primary and/or secondary containment integrity has been established.
- Plant systems and equipment are restored and/or replaced such that plant conditions are stable highly unlikely to degrade further.
- Conditions that initiated the emergency have been contained, controlled, eliminated or stabilized such that the classification is no longer applicable.
- The operability and integrity of radioactive waste systems, decontamination facilities, power supplies, electrical equipment and of plant instrumentation including radiation monitoring equipment.
- Any fire, flood, earthquake or similar emergency condition or threat to security no longer exists.
- All required notifications have been made.
- Discussions have been held with federal, state and county agencies and agreement has been reached to terminate the emergency.
- At an Alert or higher classification, the ERO is in place and emergency facilities are activated.
- Any contaminated injured person has been treated and/or transported to a medical care facility.
- Offsite conditions do not unreasonably limit access of outside support to the station and qualified personnel and support services are available.

It is not necessary that all conditions listed above be met; however, all items must be considered prior to entering the recovery phase. For example, it is possible after a severe accident that some conditions remain that exceed an Emergency Action Level, but entry into the Recovery Phase is appropriate.

2. Recovery Organization

Once plant conditions have been stabilized and the Recovery Phase has been initiated, the Emergency Director may form a Recovery Organization for long-term operations. These types of alterations will be discussed with the NRC prior to implementation.

- For events of a minor nature, (i.e. for Unusual Event classifications) the normal on shift organization is normally adequate to perform necessary recovery actions.

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- For events where damage to the plant has been significant, but no offsite releases have occurred and/or protective actions were not performed, (i.e. for Alert classifications) the station Emergency Response Organization, or portions thereof, should be adequate to perform the recovery tasks prior to returning to the normal station organization.
- For events involving major damage to systems required to maintain safe shutdown of the plant and offsite radioactive releases have occurred, (i.e. for Site Area Emergency or General Emergency classifications) the station recovery organization is put in place.

The specific members of the station recovery organization are selected based on the sequence of events that preceded the recovery activities as well as the requirements of the recovery phase. The basic framework of the station recovery organization is as follows:

- a. The Recovery Director: The Corporate Emergency Director is initially designated as the Recovery Director. The Recovery Director is charged with the responsibility for directing the activities of the station recovery organization. These responsibilities include:
 - Ensuring that sufficient personnel, equipment, or other resources from Exelon and other organizations are available to support recovery.
 - Directing the development of a recovery plan and procedures.
 - Deactivating any of the plant Emergency Response Organization which was retained to aid in recovery, in the appropriate manner. Depending upon the type of accident and the onsite and offsite affects of the accident, portions of the ERO may remain in place after initiation of the recovery phase.
 - Coordinating the integration of available federal and state assistance into onsite recovery activities.
 - Coordinating the integration of Exelon support with federal, state and county authorities into required offsite recovery activities.
 - Approving information released by the public information organization which pertains to the emergency or the recovery phase of the accident.
 - Determining when the recovery phase is terminated.
- b. The Recovery Plant Manager: The Station Manager or a designated alternate will become the Recovery Plant Manager. The Recovery Plant Manager reports to the Recovery Director and is responsible for:

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- Coordinating the development and implementation of the recovery plan and procedures.
 - Ensuring that adequate engineering activities to restore the plant, are properly reviewed and approved.
 - Directing all onsite activities in support of the station recovery effort.
 - Designating other Exelon recovery positions required in support of onsite recovery activities.
- c. The Recovery Offsite Manager: A senior Corporate Emergency Preparedness or Regulatory Affairs individual, or a designated alternate, is the Recovery Offsite Manager. The Recovery Offsite Manager reports to the Recovery Director and is responsible for:
- Providing liaison with offsite agencies and coordinating Exelon assistance for offsite recovery activities.
 - Coordinating Exelon ingestion exposure pathway EPZ sampling activities and the development of an offsite accident analysis report.
 - Developing a radiological release report.
 - Designating other Exelon recovery positions required in support of offsite recovery activities.
- d. The Company Spokesperson: A senior Exelon management individual is designated as the Company Spokesperson. The Company Spokesperson reports to the Recovery Director and is responsible for:
- Functioning as the official spokesperson to the press for Exelon on all matters relating to the accident or recovery.
 - Coordinating non-Exelon public information groups (federal, state, county, etc.).
 - Determining what public information portions of the ERO will remain activated.

The remainder of the recovery organization is established and an initial recovery plan developed at the end of the emergency phase or just after entry into the recovery phase. Consideration is given to recovery activity needs and use of the normal station organizations. Individual recovery supervisors may be designated in any or all of the following areas:

- Training

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- Radiation Protection
- Chemistry
- Technical/Engineering Support
- Nuclear Oversight
- Operations
- Security
- Maintenance
- Special Offsite Areas (Community Representatives, Environmental Samples, Investigations, etc.)

3. Recovery Phase Notifications

When the decision is made to enter the recovery phase, all members of the Exelon ERO are informed of the change. All Exelon personnel are instructed of the Recovery Organization and their responsibilities to the recovery effort.

4. Total Population Exposure

Total population exposure calculations are performed and periodically updated during the recovery phase of an accident. A method has been developed for estimating the total population exposure resulting from the accident from data collected in cooperation with the state and other federal agencies. Total population exposure is determined through a variety of procedures including:

- Examination of pre-positioned dosimeters.
- Bioassay.
- Estimates based on release rates and meteorology.
- Estimates based on environmental monitoring of food, water, and ambient dose rates.

The state will be the lead agency in the collection and analysis of environmental air, soil, foliage, food, and water samples and for the generation of radiation monitoring reports. Exelon Nuclear environmental sampling activities will be coordinated with state efforts, as requested, and results shared with cognizant agencies.

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Section N: Drill and Exercise Program

This section describes the Drill and Exercise Program that Exelon Nuclear has implemented to:

- Verify the adequacy of the Emergency Preparedness Program.
- Develop, maintain, and evaluate the capabilities of the ERO to respond to emergency conditions and safeguard the health and safety of station personnel and the general public.
- Identify deficiencies in the E-Plan and the associated procedures, or in the training of response personnel, and ensure that they are promptly corrected.
- Ensure the continued adequacy of emergency facilities, supplies and equipment, including communications networks.

The Exercise Cycle is defined as an eight year period of time. During each eight calendar year exercise cycle, sites shall vary the content of scenarios during exercises to provide the opportunity for the ERO to demonstrate proficiency in the key skills necessary to respond to the following scenario elements:

- hostile action directed at the plant site,
- no radiological release or an unplanned minimal radiological release that does not require public protective actions,
- an initial classification of or rapid escalation to a Site Area Emergency or General Emergency,
- implementation of strategies, procedures, and guidance developed under § 50.54(hh)(2), and integration of offsite resources with onsite response.

Exelon uses drill and exercise scenarios that provide reasonable assurance that anticipatory responses do not result from preconditioning of participants. Such scenarios include a wide spectrum of radiological releases and events, including hostile action

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1. Exercises

a. Biennial Exercises

Federally prescribed exercises are conducted at Oyster Creek in order to test the adequacy of timing and content of implementing procedures and methods; to test emergency equipment and communication networks; and to ensure that emergency personnel are familiar with their duties. Exercises involving offsite agency participation, required under Section F.2.c & d to 10 CFR 50 Appendix E, are conducted based on FEMA-REP-14 guidance and the respective state and local emergency response plans.

Partial participation means appropriate offsite authorities shall actively take part in the exercise sufficient to test direction and control functions to include protective action decision making related to Emergency Action Levels and communication capabilities among affected state and local authorities and Exelon Nuclear.

Full participation exercises will include appropriate offsite local and state authorities and Exelon personnel physically and actively taking part in testing the integrated capability to adequately assess and respond to an accident at the plant. Additionally, full participation exercises includes testing the major observable portions of the onsite and offsite emergency plans and mobilization of state, local, and Exelon personnel and other resources in sufficient numbers to verify the capability to respond to the accident scenario.

Where partial or full participation by offsite agencies occurs, the sequence of events simulates an emergency that results in the release of radioactivity to the offsite environs, sufficient in magnitude to warrant a response by offsite authorities.

b. Off-Year Exercises

An Off-Year Exercise is conducted at each station during the calendar year when an NRC Evaluated Exercise is not scheduled. An Off-Year Exercise shall involve a combination of at least two facilities in order to demonstrate at least two of the functions of management and coordination of emergency response, accident assessment, protective action decision-making, or plant system repair and corrective actions. For Off-Year Exercises involving no or limited participation by offsite agencies, emphasis is placed on development and conduct of an exercise that is more mechanistically and operationally realistic. Players will be able, by implementing appropriate procedures and corrective actions, to determine the outcome of the scenario to a greater extent than when core damage and the release of radioactivity are prerequisites for demonstration of all objectives.

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c. Pre-Exercises

Pre-Exercise Drills should be conducted prior to a Biennial Exercise where Federal Emergency Management Agency (FEMA) evaluation of state and local performance is expected. Pre-Exercise Drills may be conducted prior to Off-Year Exercises that only involve the utility. The Pre-Exercise is a training and experience tool for the participants to sharpen awareness and practice skills necessary to accomplish specific E-Plan duties and responsibilities.

Exercises provide an opportunity to evaluate the ability of participating organizations to implement a coordinated response to postulated emergency conditions. Exercises are conducted to ensure that all major elements of the E-Plan and preparedness program are demonstrated at least once in each exercise cycle. Each station shall conduct at least one off-hours exercise between 6:00 p.m. and 4:00 a.m. every exercise cycle. Weekends and holidays are also considered off-hours periods. Provisions will be made for qualified personnel from Exelon, federal, state, or local governments to observe and critique each exercise as appropriate.

2. Drills

In addition to the exercises described above, Exelon conducts drills for the purpose of testing, developing, and maintaining the proficiency of emergency responders. Drills are scheduled on the Emergency Preparedness annual events plan, which contains provisions for the following drills:

a. Communication Drills

- Monthly - The capability of the Nuclear Accident Reporting System (NARS) to notify the state and local government warning points and EOCs within the plume exposure pathway EPZ are demonstrated. Also, the capability to notify the NRC is demonstrated using the Emergency Notification System (ENS) and the Health Physics Network (HPN) where available.
- Quarterly - The capability to notify the NRC Region, FEMA Region, American Nuclear Insurers (ANI) and federal emergency response organizations as listed in the Emergency Response Facilities (ERF) Telephone Directory are demonstrated from the EOF. Also, computer and critical communications equipment shall be functionally tested.

Communications between states outside the 10 mile EPZ but within the 50-mile EPZ are tested by the host state.

- Annually - The emergency communications systems outlined in Section F are fully tested. This includes (1) communications between the plant and the state and local EOCs and Field Monitoring Teams, and (2) communications between the CR, the TSC, and the EOF.

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Each of these drills includes provisions to ensure that all participants in the test are able to understand the content of the messages.

- b. Fire Drills: Fire drills shall be conducted at Oyster Creek in accordance with Station Technical Specifications and/or Station procedures.
- c. Medical Emergency Drills: A medical emergency drill, involving a simulated contaminated individual, and containing provisions for participation by local support services organizations (i.e., ambulance and support hospital) are conducted annually. Local support service organizations, which support more than one station, shall only be required to participate once each calendar year. The offsite portions of the medical drill may be performed as part of the required biennial exercise.
- d. Radiological Monitoring Drills: Plant environs and radiological monitoring drills (onsite and offsite) are conducted annually. These drills include collection and analysis of all sample media (such as, water, vegetation, soil, and air), and provisions for communications and record keeping.
- e. Health Physics Drills: Health Physics Drills involving a response to, and analysis of, simulated airborne and liquid samples and direct radiation measurements within the plant are conducted semi-annually. At least annually, these drills shall include a demonstration of the sampling system capabilities, or the Core Damage Assessment Methodology (CDAM) objectives as applicable.
- f. Augmentation Drills: Augmentation drills serve to demonstrate the capability of the process to augment the on-shift staff with a TSC, OSC and EOF in a short period after declaration of an emergency. These drills are conducted using the following methods:
 - Quarterly, each station will initiate an unannounced off-hours ERO augmentation drill where no actual travel is required. Each region's Corporate ERO shall also perform an unannounced off-hours ERO augmentation drill that may be conducted independent of, or in conjunction with, a station drill.
 - At least once per exercise cycle, an off-hours unannounced activation of the ERO Notification System with actual response to the emergency facilities is conducted by each station. Each region's Corporate ERO need only participate once per cycle.
- g. Accountability Drills: Accountability drills are conducted annually. The drill includes identifying the locations of all individuals within the protected area.

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3. Conduct of Drills and Exercises

Advance knowledge of the scenario will be kept to a minimum to allow "free-play" decision making and to ensure a realistic participation by those involved. Prior to the drill or exercise, a package will be distributed to the controllers and evaluators that will include the scenario, a list of performance objectives, and a description of the expected responses.

For each emergency preparedness exercise or drill conducted, a scenario package is developed that includes at least the following:

- a. The basic objective(s) of the drill or exercise and the appropriate evaluation criteria.
- b. The date(s), time period, place(s), and participating organizations.
- c. The simulated events.
- d. A time schedule of real and simulated initiating events.
- e. A narrative summary describing the conduct of the scenario to include such things as simulated casualties, offsite fire department assistance, rescue of personnel, use of protective clothing, deployment of radiological monitoring teams, and public information activities.
- f. A description of the arrangements for and advance materials to be provided to official observers.

Prior approval by the appropriate station management is obtained for all drills and exercises conducted in support of the Emergency Preparedness Program.

4. Critique and Evaluation

Drill and exercise performance objectives are evaluated against measurable demonstration criteria. As soon as possible following the conclusion of each drill or exercise, a critique is conducted to evaluate the ability of the ERO to implement the E-Plan and procedures.

A formal written critique report is prepared by Emergency Preparedness following a drill or exercise involving the evaluation of designated objectives or following the final simulator set with ERO participation. The report will evaluate the ability of the ERO to respond to a simulated emergency situation. The report will also contain corrective actions and recommendations.

Biennially, representatives from the NRC observe and evaluate the licensee's ability to conduct an adequate self-critical critique. For partial and full offsite participation exercises both the NRC and FEMA will observe, evaluate, and critique.

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Critique comments identified by participants during a training drill where objectives are not formally being evaluated will be reviewed and dispositioned by Emergency Preparedness, but do not require a formal report.

5. Resolution of Drill and Exercise Findings

The critique and evaluation process is used to identify areas of the Emergency Preparedness Program that require improvement. The Emergency Preparedness Manager is responsible for evaluation of recommendations and comments to determine which items will be incorporated into the program or require corrective actions, and for the scheduling, tracking, and evaluation of the resolution to the items.

Whenever exercises and/or drills indicate deficiencies in the E-Plan or corresponding implementing procedures, such documents will be revised as necessary.

Remedial exercises will be required if the emergency plan is not satisfactorily tested during the Biennial Exercise, such that NRC, in consultations 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 the elements of the plan not properly tested in the previous exercises.

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Section O: Emergency Response Training

This section describes the emergency response training that is provided to those who may be called upon in an emergency. It outlines the training provided by Exelon Nuclear to both its employees and offsite support personnel requiring site access.

1. Assurance of Training

The E-Plan Training Program assures the training, qualification, and requalification of individuals who may be called on for assistance during an emergency. Specific emergency response task training, prepared for each E-Plan position, is described in lesson plans and study guides. The lesson plans, study guides, and written tests are contained in the ERO Training Program. Responsibilities for implementing the training program are contained in plant procedures. A description of the content of the training courses is given in TQ-AA-113. Exelon personnel who are assigned an E-Plan position will receive retraining per TQ-AA-113 at a frequency of once per calendar year not to exceed 18 months between training sessions.

Offsite training is provided to support organizations that may be called upon to provide assistance in the event of an emergency. The following outlines the training received by these organizations:

- a. Emergency Preparedness shall annually train, or document an annual written offer to train, those non-Exelon Nuclear organizations referenced in the Station Annex that may provide specialized services during a nuclear plant emergency (e.g., local law enforcement, fire-fighting, medical services, transport of injured, etc.). The training made available is designed to acquaint the participants with the special problems potentially encountered during a nuclear plant emergency, notification procedures and their expected roles. Those organizations that must enter the site shall also receive site-specific emergency response training and be instructed as to the identity (by position and title) of those persons in the onsite organization who will control their support activities.
- b. Training of offsite emergency response organizations is described in their respective radiological emergency plans, with support provided by Exelon Nuclear as requested.

2. Functional Training of the ERO

In addition to general and specialized classroom training, members of the Oyster Creek ERO receive periodic performance based emergency response training. Performance based training is provided using one or more of the following methods:

- Familiarization Sessions: A familiarization session is an informal, organized tabletop discussion of predetermined objectives.

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- **Walk Throughs:** Consists of a facility walk through to familiarize plant ERO personnel with procedures, communications equipment, and facility layout. Walk throughs also provide the opportunity to discuss facility activities, responsibilities and procedures with an instructor.
- **Drills:** A drill is a supervised instruction period aimed at testing, developing and maintaining skills in a particular operation. Drills described in Section N of this plan are a part of training. These drills allow each individual the opportunity to demonstrate the ability to perform their assigned emergency functions. During drills, on-the-spot correction of erroneous performance may be made and a demonstration of the proper performance offered by the Controller.

3. First Aid Response

Selected station personnel are trained in accordance with the Exelon Nuclear approved First Aid Program. First-Aid Teams will likely be augmented with additional personnel such as Fire Brigade Members and other personnel qualified to assist in the rescue.

4. Emergency Response Organization Training Program

Oyster Creek ERO personnel who are responsible for implementing this plan receive specialized training. The training program for emergency response personnel is developed based on the requirements of 10 CFR 50, Appendix E and position specific responsibilities as defined in this document.

On-Shift emergency response personnel perform emergency response activities as an extension of their normal duties and are trained annually as part of their duty specific training. Additional Emergency Preparedness information is provided as part of the Station Nuclear General Employee Training.

New ERO personnel receive an initial overview course that familiarizes them with the E-Plan by providing basic information in the following areas as well as specific information as delineated in the sections below:

- Planning Basis
- Emergency Classifications
- Emergency Response Organization and Responsibilities
- Call-out of Emergency Organization
- Emergency Response Facilities
- Communications Protocol/Emergency Public Information
- Offsite Organizations

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Emergency response personnel in the following categories receive knowledge and/or performance based training initially and retraining thereafter once per calendar year not to exceed 18 months between training sessions.

a. Directors, Managers and Coordinators within the station and corporate ERO: Personnel identified by the Emergency Response Organization Telephone Directory as Directors, Managers and Coordinators for the station ERO receive training appropriate to their position in accordance with the approved ERO Training Program. These personnel receive specialized training in the areas of:

- Notifications
- Emergency Classifications
- Protective Action Recommendations
- Emergency Action Levels
- Emergency Exposure Control

Selected Directors, Managers, Coordinators and Shift Emergency Directors receive training in accordance with the approved ERO Training Program. Training in accident assessment sufficient to classify an event and to mitigate the consequences of an event are also covered.

b. Personnel Responsible for Accident Assessment:

The skills and knowledge required to perform plant stabilization and mitigation are a normal function of operations specific positions, as identified in Section B of this plan. Power changes and planned and unplanned reactor shutdowns are handled on a normal operation basis. Subsequent plant stabilization and restoration is pursued utilizing normal operating procedures. Licensed Operators receive routine classroom and simulator training to ensure proficiency in this area.

1) Active Senior Licensed Control Room Personnel shall have training conducted in accordance with the approved ERO Training Program such that proficiency is maintained on the topics listed below. These subjects shall be covered as a minimum on an annual basis.

- Event Classification.
- Protective Action Recommendations.
- Radioactive Release Rate Determination.
- Notification form completion and use of the Nuclear Accident Reporting System (NARS).

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- Federal, state and local notification procedures as appropriate.
- Site specific procedures for activating the onsite and offsite ERO.

To remove peripheral duties from the Operations shift, the following group of positions responsible for accident assessment, corrective actions, protective actions, and related activities receive the training listed below:

2) Core Damage Assessment Personnel: During an emergency when core/cladding damage is suspected, a specialized group of trained individuals perform core damage assessment. At a minimum, personnel responsible for core damage assessment receive classroom and hands-on training in the following areas:

- Available Instrumentation and Equipment
- Isotopic Assessment and Interpretation
- Computerized Core Damage Assessment Methodology (CDAM) and/or proceduralized assessment methods.

c. Radiological Monitoring Teams and Radiological Analysis Personnel

1) Offsite Radiological Monitoring: Offsite radiological monitoring is performed by trained individuals who provide samples and direct readings for dose assessment calculations and dose projection comparisons.

Personnel identified as members of Field Monitoring Teams receive training in accordance with the approved training program. Field Monitoring Team members receive classroom and hands-on training in the following areas:

- Equipment and Equipment Checks
- Communications
- Plume Tracking Techniques

2) Personnel Monitoring: Personnel monitoring is performed by trained individuals who monitor station personnel and their vehicles for contamination during an emergency. Personnel Monitoring Team members receive classroom and hands-on training in the following areas:

- Personnel Monitoring Equipment and Techniques
- Decontamination Techniques for Personnel
- Decontamination Techniques for Vehicles

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3) Dose Assessment: Dose Assessment training includes the skills and knowledge necessary for calculation and interpretation of an offsite release and its impact on the environment under varying meteorological conditions. Individuals responsible for performing dose assessment are trained in the following areas:

- Computerized Dose Assessment
- Protective Action Recommendations
- Field Monitoring Team Interface
- Protective Action Guidelines associated with offsite plume exposure doses
- Basic Meteorology

d. Police, Security, and Fire Fighting Personnel

1) Local Police and Fire Fighting Personnel: The local Police and Fire Departments are invited to receive training as outlined in Part 1.a of this section.

2) Security Personnel: Station security personnel are trained in accordance with training defined by the Nuclear General Employee Training (NGET) and Exelon Nuclear Security Program.

3) Fire Control Teams (fire brigades): Station fire brigades are trained in accordance with training defined by the Exelon Nuclear Fire Protection Program. Fire Brigade personnel are considered the primary members of rescue teams and will receive the appropriate EP training as part of their training program. Training also includes rescue of personnel from hazardous environments.

e. Repair and Damage Control Teams: Operations, Maintenance and Radiation Protection personnel are trained as part of their normal job specific duties to respond to both normal and abnormal plant operations.

Operations personnel are trained to: (1) recognize and to mitigate degrading conditions in the plant, (2) mechanically and electrically isolate damaged or malfunctioning equipment, (3) isolate fluid leaks, and (4) minimize transients.

Maintenance personnel are trained to troubleshoot and repair damaged or malfunctioning electrical, mechanical, or instrumentation systems as appropriate to their job classification.

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Radiation Protection personnel are trained to assess the radiological hazards associated with equipment repair and instruct personnel as to the appropriate protective clothing requirements, respiratory protection requirements, stay times, and other protective actions specific to the conditions present.

At least 50% of personnel from those departments, who are potential responders to the OSC as Damage Control Team members, are required to be qualified in the use of respiratory protection equipment. This includes in-plant supervision and craft/technicians for the following departments:

- Operations
 - Radiation Protection
 - Chemistry
 - Maintenance (mechanical, electrical and I&C)
- f. First Aid and Rescue Personnel: First aid and rescue team members receive training as outlined in Part 3 of this section.
- g. Local Support Service Personnel: Local support service personnel providing assistance during an emergency are invited to receive training as outline in Parts 1.a and 1.b of this section.
- h. Medical Support Personnel: Onsite medical personnel receive specialized training in the handling of contaminated victims and hospital interface. Offsite ambulance and hospital personnel are offered annual training in accordance with a program provided by Emergency Preparedness.
- i. Public Information Personnel: Corporate and station personnel responsible for disseminating emergency public information and responding to media and public information requests receive specialized public information training.
- j. Communications Personnel: ERO personnel receive training on communications protocol as a part of the initial Emergency Response Overview Course. Personnel using specialized communications equipment that is not part of their normal daily function receive initial and requalification training on the equipment. Personnel involved in notifications to offsite agencies receive specialized training in the notification process.

5. General, Initial, and Requalification Training Program Maintenance

- a. Station Departments and Emergency Preparedness share the responsibility for ensuring that the ERO receives all necessary training and retraining. In order to carry this out, responsibilities are assigned as follows:

Corporate Responsibilities for Corporate ERO Personnel

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- Scheduling and conducting initial, retraining, and make-up classes.
- Acting as the sole contact point for ensuring attendance.
- Record keeping for the training courses, including dates of scheduled classes and non-attendance information.
- Verifying that all emergency response personnel training records are current.
- Ensure instructional materials are prepared and reviewed every two years.

Station Responsibilities for Station ERO Personnel

- Station management shall ensure the attendance of onsite personnel for training, including required E-Plan courses.
 - Each Station shall conduct onsite emergency personnel initial and retraining for station Emergency Response Personnel using approved lesson plans.
 - The Station Training Department shall provide those shift personnel included in a continuing training program an annual review of the following items as a minimum:
 - Assembly Areas
 - Emergency Response Facility assignment
 - Potential Hazards (radiological and non-radiological)
 - Anticipated actions including assembly requirements, protective equipment requirements (clothing, masks, SCBA, etc.), the use of KI, emergency exposure limits and accountability requirements.
- b. Initial and Regualification ERO Training: The proficiency of emergency response personnel (as defined in 10 CFR 50 Appendix E) is ensured by the following means:
- Assigning persons to emergency duties that are similar to those performed as a part of their regular work assignment or experience.

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- Initial training and annual retraining on applicable generic and site-specific portions of the E-Plan and the corresponding implementing procedures. Individuals not demonstrating the required level of knowledge in initial or retraining classes receive additional training on the areas requiring improvement. Annual retraining is conducted **once** per calendar year not to exceed 18 months between training sessions.
- Training on E-Plan changes shall be completed within one hundred twenty (120) days of implementation of the change.
- Participation in exercises and/or drills as developed or authorized by the Emergency Preparedness Department and designed to sharpen those skills that they are expected to use in the event of a nuclear emergency.

All personnel assigned position specific responsibilities in the ERO are documented by inclusion in the Emergency Response Organization Telephone directory listing of positions and personnel.

- c. Nuclear General Employee Training (NGET): All personnel with unescorted station access are provided with initial orientation training on the notification and instruction methods used in the event of an emergency. Additionally, all badged individuals also receive initial orientation on the basic principles of radiological safety including the effects of radiation and the theory and use of radiation detection devices. Appropriate actions for escorted individuals shall be the responsibility of the escort. NGET provides initial and annual requalification training on the basic elements of the E-Plan for all personnel working at the plant. Specifically, these elements include:

- Station emergency alarms and their meaning
- Assembly areas
- Site and Exclusion Area Evacuation procedures
- Special precautions and limitations during an emergency
- Purpose of the E-Plan

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Section P: Responsibility for the Maintenance of the Planning Effort

This section describes the responsibilities for development, review and distribution of the E-Plan and actions that must be performed to maintain the emergency preparedness program. It also outlines the criteria for insuring that personnel who perform the planning are properly trained.

1. Emergency Preparedness Staff Training

The Emergency Preparedness staff is involved in maintaining an adequate knowledge of state of the art planning techniques and the latest applications of emergency equipment and supplies. At least once each calendar year each member of the Emergency Preparedness staff is involved in one of the following activities:

- Training courses specific or related to emergency preparedness.
- Observation of or participation in drills and/or exercises at other stations.
- Participation in industry review and evaluation programs.
- Participation in regional or national emergency preparedness seminars, committees, workshops or forums.
- Specific training courses in related areas, such as systems, equipment, operations, radiological protection, or Problem Identification & Resolution (PI&R).

2. Authority for the Emergency Preparedness Effort

The Oyster Creek Site Vice Presidents is responsible for the safe and reliable operation of the generating station. The issuance and control of this plan and the activities associated with emergency preparedness at Oyster Creek shall be the overall responsibility of the Vice President, Fleet Support. This individual is assigned the responsibility for overall implementation of the E-Plan and station Annexes.

3. Responsibility for Development and Maintenance of the Plan

Each regional Emergency Preparedness Manager is responsible for the overall radiological emergency preparedness program associated with the operation of the nuclear power stations within their respective region and to administer the program to ensure availability of resources in the event of an emergency. The regional Emergency Preparedness Managers report to an EP Director who in turn reports to the Vice President, Fleet Support.

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The Emergency Preparedness Managers are assisted by regional corporate and Station Emergency Preparedness staff. Specific responsibilities include the following:

Program Administration

- Develop and maintain the E-Plan, Station Annex, implementing procedures and administrative documents.
- Develop and maintain 50.54(q) evaluations for changes to EP documents.
- Coordinate and maintain the EP Activities Schedule.
- Develop and maintain working relationships and coordinate meetings with Federal, state and local agencies.
- Ensure integration of plans between Exelon and offsite agencies.
- Provide an opportunity to discuss Emergency Action Levels and the availability of Nuclear Oversight audit results relating to interface with governmental agencies.
- Coordinate, negotiate and maintain agreements and contracts with offsite agencies and support organizations.
- Obtain Letters of Agreement with medical facilities, and medical consultants specifically skilled in the medical aspects of radiation accidents and other medical consultants as might be necessary for the case of a person involved in a radiation incident.
- Coordinate the development and annual distribution of the station's public information publication.
- Coordinate and administer the Self Evaluation Program to monitor and evaluate the adequacy of the Emergency Preparedness Program.
- Coordinate and support EP Self-Assessments, Audits and Inspections.
- Ensure the documentation and resolution of adverse conditions in the emergency preparedness program discovered through drills, audits, etc. in accordance with the Exelon Nuclear Corrective Action Program.
- Coordinate and develop Operational Experience responses.
- Coordinate, document and review Performance Indicator data and reports.
- Provide oversight of Drill and Exercise Performance (DEP) evaluations during License Operator Requalification (LOR) Training.

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- Coordinate and conduct EP Event reviews and reports.
- Maintain adequate documentation/files to support EP activities.
- Develop and manage the EP budget.
- Maintain the Emergency Response Facilities (ERF) Telephone Directory.

Drills and Exercises

- Coordinate and maintain the EP Drill and Exercise Schedule.
- Coordinate and conduct exercises and drills.
- Coordinate NRC, FEMA, state, and local exercise scheduling and development activities.
- Coordinate drill and exercise scenario development activities.
- Develop and publish drill and exercise scenario manuals.
- Coordinate and perform controller and evaluator functions for drills and exercises.
- Coordinate response cells for drills and exercises.
- Develop and issue drill and exercise reports.

Facilities and Equipment

- Provide maintenance and administration of the Alert and Notification System (ANS).
- Provide maintenance of the ERO call-out system.
- Ensure the Emergency Response Facilities are maintained in a constant state of readiness.
- Coordinate and review the EP equipment inventories.
- Coordinate and conduct maintenance and testing of the communications systems.
- Maintain the EP computer applications.

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ERO Qualification and Administration

- Develop and maintain ERO Lesson Plans, Examinations, and Qualification Cards.
- Maintain EP NGET training content.
- Coordinate, schedule and conduct ERO qualification and requalification training.
- Oversee the maintenance of ERO training records.
- Maintain and coordinate publishing of the ERO Duty Rosters.
- Provide adequate oversight and support for the training of offsite response personnel.
- Coordinate conduct of Emergency Medical Assistance Program training.
- Coordinate annual training for the media.

The Oyster Creek Plant Manager is responsible for implementation of the E-Plan at Oyster Creek. The Plant Manager has the following responsibilities for maintenance of the Emergency Preparedness Program:

- Ensure the adequate staffing and training of station ERO members.
- Schedule and conduct drills and exercises to maintain the state of readiness of the Emergency Preparedness Program.
- Ensure the operational readiness of station facilities and communication systems for use during an emergency.
- Ensure the operational readiness of station emergency equipment and supplies is maintained.
- Ensure the emergency response procedures and the training and retraining of Station Emergency Response personnel are maintained.

4. E-Plan and Agreement Revisions

The E-Plan, its Annexes, and supporting Agreements are reviewed on an annual basis. This review may also include applicable state and local emergency response agencies based on established agreements.

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The annual E-Plan review/update includes required changes identified during audits, assessments, training, drills, and exercises. The Emergency Preparedness Director is responsible for determining which recommended changes are incorporated into a plan or emergency procedure revision. In those years when the review does not warrant a revision, a letter to that affect will be issued.

The E-Plan and its Annex shall be revised as needed and the most current approved revisions shall remain in effect so long as they are certified as current. Revisions to the E-Plan are reviewed by the Station's Plant Operational Review Committee (PORC) prior to approval. Changes to the plan are made without NRC approval only if such changes do not result in a reduction in effectiveness of the plan per 10 CFR 50.54(q), and the plan as changed continues to meet the standards of 10 CFR 50.47(b) and the requirements of 10 CFR 50, Appendix E. Proposed changes that reduce or have a potential to reduce the effectiveness of the approved plan are not implemented without prior approval by the NRC.

- Proposed revisions to the E-Plan and Station Annex shall be completed in accordance with the Exelon Nuclear review and approval processes.
- E-Plan and Station Annex changes shall be categorized as (1) minor/administrative or (2) significant programmatic changes. Minor/administrative changes shall be implemented within 30 days of approval. Significant programmatic changes shall be implemented as soon as practical and within 60 days of final approval simultaneously at all sites.
- After review and approval, the E-Plan and Station Annex shall be:
 - a) Reviewed by the applicable Emergency Preparedness Manager(s) and EP Director, or designee(s), and
 - b) Approved for use by the Vice President, Fleet Support or designee.
- The Implementing Procedures shall be developed and revised concurrent with the E-Plan and Annex, and reviewed every two years.

Annually, each Letter of Agreement is reviewed and certified current in order to assure the availability of assistance from each supporting organization not already a party to the individual State Plan for Radiological Accidents.

5. E-Plan Distribution

E-Plan manuals, the Station Annex and implementing procedures are distributed on a controlled basis to the Emergency Response Facilities. All controlled documents holders are issued revision changes upon approval. Selected Federal, state, and local agencies, and other appropriate locations requiring them are also issued copies. Procedures are in place that control the revision of the E-Plan and require the use of revision bars and individual page identifications (i.e. section of plan, revision number, etc.).

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6. Supporting Emergency Response Plans

Other plans that support this E-Plan are:

- NUREG-1471, US Nuclear Regulatory Commission, "Concept of Operations: NRC Incident Response"
- National Response Framework (NRF), Nuclear/Radiological Incident Annex.
- INPO Emergency Resources Manual.
- Nuclear Station Security Plans - Note: The Station Security Plan contains industrial security information that must be withheld from public disclosure under provisions of 10 CFR 2.790(d).
- State of New Jersey Radiological Emergency Response Plan for Nuclear Power Plants – Annex B: Oyster Creek
- Emergency Operations Plan for Ocean County

7. Implementing and Supporting Procedures

Appendix 2 of this plan contains a listing, by number and title, of those procedures that implement this plan during an emergency (EP-AA/MA/MW-11X series procedures). Additionally, administrative procedures that outline the steps taken to maintain the Exelon Emergency Preparedness Program have been developed (EP-AA/MA/MW-12X series procedures) and are listed in Appendix 2.

8. Cross Reference to Planning Criteria

The Plan is formatted in the same manner as NUREG-0654, FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in support of Nuclear Power Plants." The use of this format lends itself to uncomplicated comparison of the criteria set forth in NUREG-0654, FEMA-REP-1.

9. Audit/Assessment of the Emergency Preparedness Program

To meet the requirements of 10 CFR 50.54(t), Exelon Nuclear Oversight shall coordinate an independent review the Emergency Preparedness Program to examine conformance with 10 CFR 50.47, 10 CFR 50.54, and 10 CFR 50 Appendix E. Included in the audit/assessment are the following:

- The E-Plan and associated implementing procedures.
- The Emergency Preparedness Training Program including drills and exercises.
- The readiness of the station Emergency Response Organization to perform its function.

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- The readiness of facilities and equipment to perform as outlined in the plan and procedures.
- The interfaces between Exelon, the state, and county governmental agencies pertaining to the overall Emergency Preparedness Program.

Results of this audit are submitted for review to Corporate Management and the Station Vice President. The Emergency Preparedness Manager ensures that any findings that deal with offsite interfaces are reviewed with the appropriate agencies. Written notification will be provided to the state and counties of the performance of the audit and the availability of the audit records for review at Exelon facilities. Records of the audit are maintained for at least five years.

10. Maintenance of Emergency Organization Telephone Directory

Names and phone numbers of the Emergency Response Organization and support personnel shall be reviewed and updated at least quarterly.

Appendix 1: References

References consulted in the writing of this E-Plan are listed in this section. With exception of regulatory requirements, inclusion of material on this list does not imply adherence to all criteria or guidance stated in each individual reference.

1. 10 CFR 50.47, Emergency Plans
2. 10 CFR 50.72, Immediate Notification Requirements for Operating Nuclear Power Reactors
3. 10 CFR 50 Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants
4. 10 CFR 50 Appendix E, Emergency Planning and Preparedness for Production and Utilization Facilities
5. 10 CFR 20, Standards for Protection Against Radiation
6. 10 CFR 70, 73, and 100.
7. 33 CFR 153.
8. 40 CFR 110, 112, 116, 118, 302 and 355.
9. 44 CFR 350.
10. 44 CFR 401.
11. 49 CFR 171 and 172.
12. NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, November, 1980.
13. NUREG-0654, Supplement 1, "Criteria for Utility Offsite Planning and Preparedness."
14. NUREG-0654, Supplement 3, "Criteria for Protective Action Recommendations for Severe Accidents."
15. NUREG-0396, "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants," Dec. 1978.
16. NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations."
17. NUREG-0696, Revision 1, Functional Criteria for Emergency Response Facilities

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18. NUREG-0737, Clarification of TMI Action Plan Requirements, dated October 1980.
19. NUREG-0737, Supplement 1, Requirements for Emergency Response Capability, December 1982.
20. NUREG 0728 - "Report to Congress: NRC Incident Response Plan."
21. US NRC Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," revision 4, July, 2003.
22. U.S. NRC Response Technical Manual (RTM-96)
23. NEI 99-01, Methodology for Development of Emergency Action Levels.
24. EPA 400-R-92-001, October 1991, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents."
25. FEMA-REP-10, Guide for Evaluation of Alert and Notification Systems for Nuclear Power Plants
26. FEMA-REP-14, Exercise Evaluation Methodology
27. FEMA-Guidance Memorandum, MS-1 "Medical Services"
28. Exelon Nuclear Quality Assurance Topical Report (QATR), NO-AA-10
29. INPO Emergency Resources Manual
30. "Maintaining Emergency Preparedness Manual," dated December, 1996 INPO 96-009.
31. "Federal Bureau of Investigation and Nuclear Regulatory Commission Memorandum of Understanding for Cooperation Regarding Threat, Theft, or Sabotage in U.S. Nuclear Industry," Federal Register, Vol. 44, p. 75535, December 20, 1979.
32. "Voluntary Assistance Agreement By and Among Electric Utilities involved in Transportation of Nuclear Materials," dated November 1, 1980.
33. Comprehensive Environmental Response, Compensation and Liability Act of 1980.
34. Accidental Radioactive Contamination of Human Food and Animal Feeds; Recommendation for State and Local Agencies, Volume 47, No. 205, October 22, 1982.
35. American Nuclear Insurers Bulletin #5B (1981), "Accident Notification Procedures for Liability Insureds".

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36. "Potassium Iodide as a Thyroid Blocking Agent in a Radiation Emergency: Final Recommendations on Use," Federal Register Vol. 47, No. 125, June 29, 1982.
37. Letter from William J. Dircks, Executive Director for Operations, NRC, to Dr. Donald F. Knuth, President KMC, Inc. dated October 26, 1981.
38. INPO Coordination agreement on emergency information among USCEA, EPRI, INPO, NUMARC and their member utilities, dated April (1988).
39. Babcock and Wilcox Company, Post Accident Sample Offsite Analysis Program (1982).
40. ANI/MAELU Engineering Inspection Criteria For Nuclear Liability Insurance, Section 6.0, Rev. 1, "Emergency Planning."
41. NRC RIS 2006-12, Endorsement of Nuclear Energy Institute Guidance "Enhancement to Emergency Preparedness Programs for Hostile Action."
42. NRC Bulletin 2005-02, "Emergency Preparedness and Response Actions for Security-Based Events."
43. NRC Information Notice 2009-01, National Response Framework

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Appendix 2: Procedure Cross-Reference to NUREG-0654

Criteria	Planning Standard	Procedure/Document
NUREG-0654.II.A	Assignment of Responsibility (Organization Control)	EP-AA-120, Emergency Plan Administration
		Letters of Agreement
NUREG-0654.II.B	Onsite Emergency Organization	EP-AA-112, Emergency Response Organization (ERO) / Emergency Response Facility (ERF) Activation and Operation
		EP-AA-112-100, Control Room Operations
		EP-AA-112-200, TSC Activation and Operation
		EP-AA-112-300, Operations Support Center Activation and Operation
		EP-AA-112-400, Emergency Operations Facility Activation and Operation
		EP-AA-112-500, Emergency Environmental Monitoring
		EP-AA-112-600, Public Information Organization Activation and Operations
		EP-AA-112-700, Alternative Facility Operation
		EP-AA-130, 10 CFR 50 Appendix E, On-Shift Staffing Assessment
NUREG-0654.II.C	Emergency Response Support and Resources	EP-AA-112-400, Emergency Operations Facility Activation and Operations
NUREG-0654.II.D	Emergency Classification System	EP-AA-111, Emergency Classification and Protective Action Recommendations
NUREG-0654.II.E	Notification Methods and Procedures	EP-AA-114, Notifications
		EP-MA-114-100, Mid-Atlantic State/Local Notifications
NUREG-0654.II.F	Emergency Communications	EP-AA-114, Notifications
		EP-MA-114-100, Mid-Atlantic State/Local Notifications
		EP-AA-124, Inventories and Surveillances
		EP-MA-124-1001, Facility Inventories and Equipment Tests
NUREG-0654.II.G	Public Education and Information	EP-AA-120, Emergency Plan Administration
NUREG-0654.II.H	Emergency Facilities and Equipment	EP-AA-112, Emergency Response Organization (ERO) / Emergency Response Facility (ERF) Activation and Operation
		EP-AA-121, Emergency Response Facilities and Equipment Readiness

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Criteria	Planning Standard	Procedure/Document
		EP-AA-121-1001, Automated Call-Out System Maintenance
		EP-MA-121-1002, Exelon East Alert Notification System (ANS) Program
		EP-MA-121-1004, Exelon East ANS Corrective Maintenance
		EP-AA-120-1006, EP Reportability – Loss of Emergency Preparedness Capabilities
		EP-AA-123, Computer Programs
		EP-AA-124, Inventories and Surveillances
		EP-MA-124-1001, Facility Inventories and Equipment Tests
		EP-AA-125-1004, Emergency Response Facilities & Equipment Performance Indicators Guidance
		EP-AA-110, Assessment of Emergencies
		EP-AA-110-200, Dose Assessment
		EP-AA-110-201, On Shift Dose Assessment
EP-AA-110-301, Core Damage Assessment (BWR)		
NUREG-0654.II.I	Accident Assessment	EP-AA-123, Computer Programs
		EP-AA-113, Personnel Protective Actions
		EP-AA-113-F-04, MA Emergency Director - Site Assembly, Accountability And Evacuation
		EP-AA-123, Computer Programs
		EP-AA-113-F-03, Thyroid Blocking Agent Authorization.
		EP-AA-110, Assessment of Emergencies
NUREG-0654.II.J	Protective Response	EP-AA-120, Emergency Plan Administration
		EP-AA-115, Termination and Recovery
		EP-AA-120-1002, Offsite Readiness Evaluation
		EP-AA-122, Drills & Exercises Program
		EP-AA-122-100, Drill and Exercise Planning and Scheduling
NUREG-0654.II.K	Radiological Exposure Control	EP-AA-122-100-F-01 through F-21, [Drill and Exercise Planning and Scheduling Forms]
		EP-AA-122-200, Drill & Exercise Execution
NUREG-0654.II.L	Medical and Public Health Support	EP-AA-122-200-F-01 through F-05, [Drill & Exercise Execution Forms]
NUREG-0654.II.M	Recovery and Reentry Planning and Post-Accident Operations	EP-AA-122-300, Drill and Exercise Evaluation
		EP-AA-122-300-F-01 through F-04, [Drill and Exercise Evaluation Forms]

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Criteria	Planning Standard	Procedure/Document
NUREG-0654.II.N	Exercises and Drills	EP-AA-125-1001, EP Performance Indicator Guidance
		EP-AA-125-1002, ERO Performance – Performance Indicators Guidance
		EP-AA-125-1003, ERO Readiness - Performance Indicators Guidance
		TQ-AA-113, ERO Training And Qualification
		EP-AA-1, Emergency Preparedness
		EP-AA-10, Emergency Preparedness Program Description
		EP-AA-11, Operating Stations Emergency Preparedness Process Description
		EP-AA-1101, EP Fundamentals
		EP-AA-1102, ERO Fundamentals
		EP-AA-120, Emergency Plan Administration
NUREG-0654.II.O	Radiological Emergency Response Training	EP-AA-120-1001, 10CFR50.54(q) Change Evaluation.
NUREG-0654.II.P	Responsibility for the Planning Effort: Development, Periodic Review and Distribution of Emergency Plans	EP-AA-125, Emergency Preparedness Self Evaluation Process
		EP-AA-125-1001, EP Performance Indicator Guidance
		Emergency Response Facilities Telephone Directory

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Appendix 3: List of Corporate Letters of Agreements

<u>Organization/Agreement Type</u>	<u>Applicable To</u>
Department Of Energy (DOE) Radiation Emergency Assistance Center/Training Site, REAC/TS (Letter on File) Medical Consultant	MW / MA Sites
Environmental, Inc. (P.O.) Radiological Environmental Monitoring	MW / MA Sites
GE Nuclear Energy, BWRs (Letter on File) BWR Emergency Support	MW / MA Sites
Landauer, Inc. (P.O.) Emergency Dosimetry	MW / MA Sites
INPO (Letter on File) Emergency Event Support	MW / MA Sites
Murray & Trettel, Inc. (P.O.) Meteorological Support	MW / MA Sites
Teledyne Brown Engineering (P.O.) Bioassay Analysis/Radiochemical Analysis	MW / MA Sites
Red Alert Service (P.O.) Fire Foam Supply	MW / MA Sites

Appendix 4: Glossary of Terms and Acronyms

Accident Assessment	Accident assessment consists of a variety of actions taken to determine the nature, effects and severity of an accident and includes evaluation of reactor operator status reports, damage assessment reports, meteorological observations, seismic observations, fire reports, radiological dose projections, in plant radiological monitoring, and environmental monitoring.
Activation	<p>(1) "ERO Activation" is the process of initiating actions to notify and mobilize Emergency Response Organization (ERO) personnel following an event classification under the emergency plan.</p> <p>(2) "Facility Activation" refers to the decision to consider a facility fully operational based on the minimum staffing required in ERO staffing tables contained within the station specific Annex and the ability of facility staffing and equipment to perform its designed function(s).</p>
Annual	Frequency of occurrence equal to once per calendar year, January 1 to December 31.
Assembly/Accountability	A procedural or discretionary protective action taken for all persons within the security "Protected Area", which involves the gathering of personnel into pre-designated areas, and the subsequent verification that the location of these personnel is known.
Assessment Actions	Those actions taken during or after an emergency to obtain and process information that is necessary to make decisions to implement specific emergency measures.
Biennial	Frequency of occurrence equal to once per two calendar year periods.
Biennial Exercise	An event that tests the integrated capability and a major portion of the basic elements existing within an emergency plan. An exercise usually involves participation of personnel from state and local governments, utility personnel, and may involve participation of Federal government personnel.

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Classification	The classification of emergencies is divided into FIVE (5) categories or conditions, covering the postulated spectrum of emergency situations. The first four (4) emergency classifications are characterized by Emergency Action Levels (EALs) or event initiating conditions and address emergencies of increasing severity. The fifth, the Recovery classification, is unique in that it may be viewed as a phase of the emergency, requiring specific criteria to be met and/or considered prior to its declaration.
Command and Control	When in Command and Control, the designated Emergency Director (Shift, Station or Corporate) has overall responsibility for Exelon Nuclear's emergency response efforts, including the nondelegable responsibilities of Command and Control.
Committed Dose Equivalent (CDE)	The Dose Equivalent to organs or tissues of reference that will be received from an intake of radioactive material by an individual during the 50-year period following the intake.
Corrective Action	Those emergency measures taken to lessen or terminate an emergency situation at or near the source of the problem, to prevent an uncontrolled release of radioactive material, or to reduce the magnitude of a release. Corrective actions include, equipment repair or shutdown, installation of emergency structures, fire fighting, repair, and damage control.
Damage Assessment	Estimates and descriptions of the nature and extent of damages resulting from an emergency or disaster; of actions that can be taken to prevent or mitigate further damage; and of assistance required in response and recovery efforts based on actual observations by qualified engineers and inspectors.
Damage Control	The process of preventing further damage from occurring and preventing the increase in severity of the accident.
Decontamination	The reduction or removal of contaminated radioactive material from a structure, area, material, object, or person. Decontamination may be accomplished by (1) treating the surface so as to remove or decrease the contamination; (2) letting the material stand so that the radioactivity is decreased as a result of natural decay; and (3) covering the contamination.

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Dedicated Communications	A communications link between two or more locations, access to which is limited to designated locations, and used only for the purpose intended. The communications link may be either telephone or radio.
Deep Dose Equivalent (DDE)	The dose equivalent at a tissue depth of 1 cm (1000 mg/cm ²); applies to external whole body exposure.
Dose	A generic term that means absorbed dose, dose equivalent, effective dose equivalent, deep dose equivalent, committed dose equivalent, committed effective dose equivalent, or total effective dose equivalent.
Dose Equivalent (DE)	The product of the absorbed dose in tissue, quality factor, and all other necessary modifying factors at the location of interest. The unit of dose equivalent is the Rem.
Dose Projection	The calculated estimate of a radiation dose to individuals at a given location (normally off-site), determined from the source term/quantity of radioactive material (Q) released, and the appropriate meteorological dispersion parameters (X/Q).
Dose Rate	The amount of ionizing (or nuclear) radiation to which an individual would be exposed per unit of time. As it would apply to dose rate to a person, it is usually expressed as rems per hour or in submultiples of this unit, such as millirems per hour. The dose rate is commonly used to indicate the level of radioactivity in a contaminated area.
Dosimeter	An instrument such as a Dosimeter of Legal Record (DLR), self-reading pocket dosimeter (SRPD), or electronic dosimeter (ED) for measuring, registering, or evaluating total accumulated dose or exposure to ionizing radiation.
Dosimeter of Legal Record (DLR)	Specific station type dosimeters used for monitoring personnel and the environment.
Drill	A supervised instruction period aimed at testing, developing and maintaining skills in a particular operation.
Early Phase	The period at the beginning of a nuclear incident when immediate decisions for effective use of protective actions are required and must be based primarily on predictions of radiological conditions in the environment. This phase may last from hours to days. For the purposes of dose projections it is assumed to last four days.

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Emergency Action Levels (EALs)	A pre-determined, site-specific, observable threshold for a plant Initiating Condition that places the plant in a given emergency class. An EAL can be an instrument reading; an equipment status indicator; a measurable parameter (onsite or offsite); a discrete, observable event; or another phenomenon which, if it occurs, indicates entry into a particular emergency class.
Emergency Alert System (EAS)	A network of broadcast stations and interconnecting facilities which have been authorized by the Federal Communications Commission to operate in a controlled manner during a war, state of public peril or disaster, or other national or local emergency. In the event of a nuclear reactor accident, instructions/notifications to the public on conditions or protective actions would be broadcast by state or local government authorities on the EAS.
Emergency Director	Individual in Command and Control. One of the following: the Shift Emergency Director (Control Room), Station Emergency Director (TSC) or the Corporate Emergency Director (EOF).
Emergency Notification System (ENS)	The NRC Emergency Notification System hot line is a dedicated telephone system that connects the plant with NRC headquarters in White Flint, Maryland. It is directly used for reporting emergency conditions to NRC personnel.
Emergency Operations Facility (EOF)	Designated location from which the Licensee Emergency Response Organization conducts the company's overall emergency response in coordination with Federal, State and designated emergency response organizations.
Emergency Operating Procedures (EOPs)	EOPs are step-by-step procedures for direct actions taken by licensed reactor operators to mitigate and/or correct an off normal plant condition through the control of plant systems.
Emergency Operations Center (EOC)	A facility designed and equipped for effective coordination and control of emergency operations carried out within an organization's jurisdiction. The site from which civil government officials (municipal, county, state, and Federal) exercise direction and control in a civil defense emergency.

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Emergency Personnel	Those organizational groups that perform a functional role during an emergency condition. Within Exelon Nuclear, emergency personnel include the Managers and Directors of the Emergency Response Organization, accident assessment personnel, radiological monitoring teams, fire brigades, first aid teams and security personnel.
Emergency Planning Zones (EPZ)	That area surrounding a nuclear station in which emergency planning is conducted for the protection of the public. With respect to protecting the public from the plume exposure resulting from an incident, the EPZ is usually an area with a radius of about 10 miles surrounding the facility. With respect to the ingestion exposure pathway, the EPZ is usually an area with a radius of about 50 miles.
Emergency Preparedness	A state of readiness that provides reasonable assurance that adequate protective measures can and will be taken upon implementation of the E-Plan in the event of a radiological emergency.
Emergency Response Data System (ERDS)	ERDS is a continuous direct near real-time electronic data link between the licensee's onsite computer system and the NRC Operations Center that provides for the automated transmission of a limited data set of selected parameters.
Environmental Monitoring	The use of radiological instruments or sample collecting devices to measure and assess background radiation levels and/or the extent and magnitude of radiological contamination in the environment around the plant. This may be done in various stages such as pre-operational, operational, emergency, and post operational.
Essential Personnel	Essential personnel are those needed to achieve the goals and tasks as deemed necessary by the Station Emergency Director.
Evacuation	The urgent removal of people from an area to avoid or reduce high level, short-term exposure usually from the plume or from deposited activity.

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Exclusion Area	An Exclusion Area is an area specified for the purpose of reactor site evaluation in accordance with 10 CFR 100. It is an area of such size that an individual located at any point on its boundary for two hours immediately following onset of the postulated release would not receive a total radiation dose to the whole body in excess of 25 rem or a total radiation dose of 300 rem to the thyroid from iodine exposure.
Exercise	An event that tests the integrated capability of a major portion of the basic elements existing within emergency preparedness plans and organizations.
Exercise Cycle	A six-year period of time until the performance of the first evaluated Hostile Action based exercise. Following performance of the Hostile Action based exercise, the cycle duration time will change from a six-year period to an eight-year period.
Fission Product Barrier	The fuel cladding, reactor coolant system boundary, or the containment boundary.
Hazardous Material	A substance or material which has been determined by the United States Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated in 49 CFR 172.
Health Physics Network (HPN) Line	In the event of a Site Area Emergency, the NRC HPN line will be activated by the NRC Operations center in White Flint, Maryland. This phone is part of a network that includes the NRC Regional Office and the NRC Operations Headquarters in White Flint, Maryland. This system is dedicated to the transmittal of radiological information by plant personnel to NRC Operations Center and the Regional office. HPN phones are located in the TSC and EOF.
High Radiation Sampling System	Post-accident sampling capability to obtain and perform radioisotopic and chemical analyses of reactor coolant and containment atmosphere samples.
Imminent	Mitigation actions have been ineffective and trended information indicates that the event or condition will occur within 2 hours.

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Ingestion Exposure Pathway	The potential pathway of radioactive materials to the public through consumption of radiologically contaminated water and foods such as milk or fresh vegetables. Around a nuclear power plant this is usually described in connection with the 50-mile radius Emergency Planning Zone (50 mile EPZ).
Initiating Condition	A predetermined UNIT condition where either the potential exists for a radiological emergency or such an emergency has occurred.
Integrated Drill	A drill conducted in the year that a Biennial Exercise is not scheduled including at least two Emergency Response Facilities in order to demonstrate at least two of the functions of management and control of emergency response, accident assessment, protective action decision-making, or plant system repair and corrective action.
Intermediate Phase	The period beginning after the source and releases have been brought under control and reliable environmental measurements are available for use as a basis for decisions on additional protective actions.
Joint Information Center	A Corporate Emergency Facility activated by Exelon and staffed by Exelon, state, and Federal Public Information personnel. This facility serves as the single point of contact for the media and public to obtain information about an emergency.
Late Phase	The period beginning when recovery action designed to reduce radiation levels in the environment to acceptable levels for unrestricted use are commenced and ending when all recovery actions have been completed. This period may extend from months to years (also referred to as the recovery phase).
Local Evacuation	The evacuation of personnel from a particular area, such as a room or building.
Low Population Zone (LPZ)	As defined in 10 CFR 100.3, the area immediately surrounding the exclusion area which contains residents, the total number and density of which are such that there is a reasonable probability that appropriate protective measures could be taken in their behalf in the event of a serious accident.

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Main Control Room	The operations center of a nuclear power plant from which the plant can be monitored and controlled.
Monthly	Frequency of occurrence equal to once per calendar month.
Non-Essential Site Personnel	Those personnel not needed for the continuing existence or functioning of the ERO. They are personnel not required to fill certain positions in the ERO. Identification of non-essential personnel is circumstance-oriented as determined by the Station Emergency Director.
Notification, Public	Public notification means to communicate instructions on the nature of an incident that prompted the public alerting/warning and on protective or precautionary actions that should be taken by the recipients of the alert. A state and local government process for providing information promptly to the public over radio and TV at the time of activating the alerting (warning) signal (sirens). Initial notifications of the public might include instructions to stay inside, close windows, and doors, and listen to radio and TV for further instructions. Commercial broadcast messages are the primary means for advising the general public of the conditions of any nuclear accident. (See Emergency Alert System.)
Off-Site	The area around a nuclear generating station that lies outside the station's "site boundary".
Offsite Dose Calculation Manual (ODCM)	The ODCM presents a discussion of the following: <ol style="list-style-type: none">1. The ways in which nuclear power stations can affect their environment radiologically2. The regulations which limit radiological effluents from the nuclear power stations; and3. The methodology used by the nuclear power stations to assess radiological impact on the environment and compliance with regulations.
On-Site	The area around a nuclear generating station that lies within the station's "site boundary".
Owner Controlled Area	Company owned property on which a Nuclear Station is located and may include Exelon Nuclear leased lands adjacent to that Nuclear Station.

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Operations Support Center (OSC)	An emergency response facility at the Plant to which support personnel report and stand by for deployment in an emergency situation.
Personnel Monitoring	The determination of the degree of radioactive contamination on individuals, using standard survey meters, and/or the determination of dosage received by means of dosimetry devices.
Plume Exposure Pathway	The potential pathway of radioactive materials to the public through: (a) whole body external exposure from the plume and from deposited materials, and (b) inhalation of radioactive materials.
Population-at-Risk	Those persons for whom protective actions are being or would be taken. In the 10-mile EPZ the population-at-risk consists of resident population, transient population, special facility population, and industrial population.
Potassium Iodide	(Symbol KI) A chemical compound that readily enters the thyroid gland when ingested. If taken in a sufficient quantity prior to exposure to radioactive iodine, it can prevent the thyroid from absorbing any of the potentially harmful radioactive iodine-131.
Potential	Mitigation actions are not effective and trended information indicates that the parameters are outside desirable bands and not stable or improving.
Projected Dose	That calculated dose that some individuals in the population group may receive if no protective actions are implemented. Projected doses are calculated to establish an upper limit boundary.
Protected Area	That onsite area within the security boundary as defined in each station's Security Plan.
Protection Factor (PF)	The relation between the amount of radiation that would be received by a completely unprotected person compared to the amount that would be received by a protected person such as a person in a shielded area. $PF = \text{Shielded dose rate} / \text{Unshielded dose rate}$.
Protective Action	Those emergency measures taken for the purpose of preventing or minimizing radiological exposures to affected population groups.

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Protective Action Guide (PAG)	Projected radiological dose values to individuals in the general population that warrant protective action. Protective Action Guides are criteria used to determine if the general population needs protective action regarding projected radiological doses, or from actual committed (measured) dose values.
Protective Action Recommendations (PARs)	Recommended actions to the States for the protection of the offsite public from whole body external gamma radiation, and inhalation and ingestion of radioactive materials. Access control and other recommendations concerning the safeguards of affected food chain processes may be issued by the States as PARs.
Public Alerting/Warning	The process of signaling the public, as with sirens, to turn on their TV's or radios and listen for information or instructions broadcast by state or local government authorities on the Emergency Alert System (EAS).
Puff Release	A controlled containment vent that will be terminated prior to exceeding 60 minutes in duration and is less than the limit as defined in the Station Annex.
Quarterly	Frequency of occurrence equal to once in each of the following four periods: January 1 through March 31; April 1 through June 30; July 1 through September 30; October 1 through December 31.
Recovery	The process of reducing radiation exposure rates and concentrations of radioactive material in the environment to levels acceptable for unconditional occupancy or use.
Release	A ' <i>Release in Progress</i> ' is defined as <u>ANY</u> radioactive release that is a result of, or caused by, the emergency event.
Restricted Area	Any area, access to which is controlled by Exelon for purposes of protection of individuals from exposure to radiation and radioactive materials.
Restricted Area Boundary	For classification and dose projection purposes, the boundary is a 400-meter (1/4-mile) radius around the plant. The actual boundary is specified in the ODCM.

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Safety Analysis Report, Updated Final (UFSAR)	The UFSAR is a comprehensive report that a utility is required to submit to the NRC as a prerequisite and as part of the application for an operating license for a nuclear power plant. The multi-volume report contains detailed information on the plant's design and operation, with emphasis on safety-related matters.
Semi-Annual	Frequency of occurrence equal to once in each of the following periods: January 1 through June 30; July 1 through December 31.
Shall, Should, and May	The word "shall" is used to denote a requirement, the word "should" to denote a recommendation and the word "may" to denote permission, neither a requirement nor a recommendation.
Shielding	Any material or barrier that attenuates (stops or reduces the intensity of) radiation.
Site Boundary	Oyster Creek's Site Boundary is described in detail in the ODCM.
Site Evacuation	The evacuation of non-essential personnel from the plant site.
Source Term	Radioisotope inventory of the reactor core, or amount of radioisotope released to the environment, often as a function of time.
Technical Support Center (TSC)	A center outside of the Control Room in which information is supplied on the status of the plant to those individuals who are knowledgeable or responsible for engineering and management support of reactor operations in the event of an emergency, and to those persons who are responsible for management of the on-site emergency response.
Threshold Value	Measurable, observable detailed conditions which must be satisfied to determine an EAL applicability.
Thyroid Blocking Agent	An agent which when properly administered to an individual will result in sufficient accumulation of stable iodine in the thyroid to prevent significant uptake of radioiodine. Potassium Iodide is such an agent.
Total Effective Dose Equivalent (TEDE)	The sum of the deep dose equivalent (for external exposure) and the committed effective dose equivalent (for internal exposure) and 4 days of deposition exposure.

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Unrestricted Area	Any area to which access is not controlled by the licensee for protecting individuals from exposure to radiation and radioactive materials, and any area used for residential quarters.
Vital Areas	Areas within the station security fence which contain vital equipment. Examples include Control Rooms, Containment/Reactor Buildings, Turbine Buildings and Electrical Equipment Rooms.
Vital Equipment	Any equipment, system, device or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation. Equipment or systems which would be required to function to protect public health and safety following such failure, destruction, or release are also considered to be vital.
Weekly	Frequency occurrence equal to once per calendar week: Monday through Sunday.

Any abbreviation followed by a lower case 's' denotes the plural form of the term.

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ACRONYMS

ac	alternating current
ALARA	as low as reasonably achievable
ANI	American Nuclear Insurers
ANS	Alert and Notification System
ANSI	American National Standards Institute
ARM	Area Radiation Monitor
ASLB	Atomic Safety Licensing Board
BNE	Bureau of Nuclear Engineering (New Jersey)
BWR	boiling water reactor
CB	citizen band
cc	cubic centimeter
CDE	Committed Dose Equivalent
CEOC	County Emergency Operation Center
CFR	Code of Federal Regulations
CHRMS	Containment High Range Monitoring System
CHRRMS	Containment High Range Radiation Monitoring System
cm ²	square centimeter
CNO	Chief Nuclear Officer
cpm	count per minute
CR	Control Room
CRO	Control Room Operator
CRT	Cathode Ray Tube
Cs	Cesium
dc	direct current

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DEP..... Department of Environmental Protection (New Jersey)

DEP..... Drill and Exercise Performance

DEQ..... Department of Environmental Quality

DFO..... Disaster Field Office

DGI..... Digital Graphics Incorporated

DHFS..... Department of Health and Family Services

DLR..... Dosimeter of Legal Record

DOE..... U. S. Department of Energy

DOT..... U. S. Department of Transportation

DPH..... Department of Public Health

dpm..... disintegration per minute

EAL..... Emergency Action Level

EAS..... Emergency Alerting System

EMA..... Emergency Management Agency

ENC..... Emergency News Center

ENS..... Emergency Notification System (NRC)

EOC..... Emergency Operations (or Operating) Center

EOF..... Emergency Operations Facility

EOP..... Emergency Operating Procedure

EPA..... U. S. Environmental Protection Agency

EPDS..... Emergency Preparedness Data System

EPZ..... Emergency Planning Zone

ERF..... Emergency Response Facility

ESF..... Engineered Safety Feature

FEMA..... Federal Emergency Management Agency

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FRMAC	Federal Radiological Monitoring and Assessment Center
FRMAP	Federal Radiological Monitoring and Assessment Plan
FRPCC	Federal Radiological Preparedness Coordinating Committee
FSAR	Final Safety Analysis Report
Ge	Germanium
GET	General Employee Training
GM	Geiger Mueller (radiation detection tube)
HEPA	high efficiency particulate air
HPN	Health Physics Network (NRC)
hr	hour
I	Iodine
INPO	Institute of Nuclear Power Operations
JIC	Joint Information Center
LGEOC	Local Government Emergency Operations Center
Li	Lithium
LOCA	Loss of Coolant Accident
LPZ	Low Population Zone
MAELU	Mutual Atomic Energy Liability Underwriters
MCP	Municipal Command Post
mR	milliroentgen
NARS	Nuclear Accident Reporting System
NCRP	National Council on Radiation Protection
NJ-OEM	New Jersey-Office of Emergency Management
NOP	Nuclear Organization Procedure
NRC	U. S. Nuclear Regulatory Commission

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NRF..... National Response Framework

NRR..... Nuclear Reactor Regulation (NRC)

NWS..... National Weather Service

NSRAC.....Nuclear Safety Review and Audit Committee

OEM.....Office of Emergency Management (NJ State Police)

OSC..... Operations Support Center

PAG.....Protective Action Guide

PANS.....Prompt Alert and Notification System

PAR..... Protective Action Recommendation

PASS..... Post Accident Sampling System

QATR.....Quality Assurance Topical Report

R..... roentgen

RAA..... Remote Assembly Area (off-site)

RAC.....Regional Advisory Committee (FEMA)

REP..... Radiological Emergency Preparedness

RERP..... Radiological Emergency Response Plan

RMS..... Radiation Monitoring System

SAMG..... Severe Accident Management Guidelines

SCBA..... Self Contained Breathing Apparatus

SEOC..... State Emergency Operations Center

SFCP..... State Forward Command Post

SGTS..... Standby Gas Treatment System

SPCC..... Spill Prevention Control and Countermeasure

SPDS.....Safety Parameter Display System

Sr..... Strontium

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SRC.....State Radiological Coordinator
SSC.....State Staging Center
STA.....Shift Technical Advisor
TDD.....Telecommunications Device for the Deaf
TEDE.....Total Effective Dose Equivalent
TSC.....Technical Support Center
 μ Ci.....microcurie
UFSAR.....Updated Final Safety Analysis Report