

Attachment 1

10 CFR 50.54(q)(5) Procedure Change Summary Analysis

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Procedures/Titles

Exelon Generation Company, LLC (Exelon) is submitting the following Emergency Plan Annex Addendum revisions for the Nine Mile Point Nuclear Station (NMP) and Oyster Creek Nuclear Generating Station (OCNGS):

- EP-AA-1013, Revision 4, *"Exelon Nuclear Radiological Emergency Plan Annex for Nine Mile Point Station"*
- EP-AA-1010, Addendum 3, Revision 3, *"Emergency Action Levels for Oyster Creek Station"*

Description of Procedures

The Emergency Plan Annex for NMP (EP-AA-1013) contains emergency planning information and guidance unique to the cited stations. This includes facility geography, emergency response facility locations, and process and radiation monitoring instrumentation that provides a description of the station's emergency response capabilities, as well as any station unique commitments. In conjunction with the Emergency Plan Annex, Exelon maintains a Nuclear Standardized Radiological Emergency Plan (i.e., EP-AA-1000) that outlines the basis for the response actions that would be implemented during an emergency. The planning efforts common to other Exelon nuclear stations are encompassed within the Standard Plan.

The Emergency Plan Addendum for OCNGS (EP-AA-1010) describes the Emergency Action Levels (EALs) implemented at OCNGS for entering Emergency Classification Levels (ECLs).

Description of Changes

EP-AA-1013, Revision 4

The following changes were made in this revision to EP-AA-1013:

- The pagination in the Table of Contents was revised to match the Annex content. There was no change to the Annex content. The pagination for Subsections 2.3 through 2.10 and Figures 2.1 through 2.5 was revised to reflect their position in the body of the text of the Annex. This is considered an editorial change, since there was no change to the actual content.
- Figure 2.1, *"Minimum Staffing Requirements for the ERO,"* was corrected to reflect the Health Physics Network (HPN) Communicator and a Dose Assessor as part of the Minimum Staff instead of as Augmented Staff positions. The column totals for Minimum Staff and Full-Augmentation were updated to reflect this change and to correct the column totals.
- The requirement to review and certify the Letters of Agreement (LOAs) every two (2) years was changed to annually to align with the Exelon Standard Plan (EP-AA-1000).

- LOAs were added for the Oswego County Ambulance service (an emergency medical response provider) and the Oswego County Fire Department (a local fire support and coordination provider). These services were already being provided; however, prior to this revision, there were no LOAs to document this.
- The LOAs with the James A. FitzPatrick Nuclear Power Plant and R. E. Ginna Nuclear Power Plant were removed. As Exelon now owns the three (3) stations (NMP, Ginna, and FitzPatrick) there is no longer a need for LOAs between the stations.

EP-AA-1010, Addendum 3, Revision 3

By letter dated July 28, 2015, the NRC issued license amendments to support the adoption and implementation of the NEI 99-01, Revision 6 EAL schemes for plants in the Exelon fleet, including OCNGS. The NRC's supporting Safety Evaluation Report (SER) issued in conjunction with the license amendments, included an evaluation of three (3) new EAL thresholds (RG2, RS2, and RA2.3). These thresholds were approved generically without specific threshold level values being provided. The levels are based on enhanced Spent Fuel Pool (SFP) level devices placed in service in accordance with the discussion in Section 1.4 of NRC Order EA-12-051, *"Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation."* The guidance in NEI 99-01, Revision 6 recommended that these EAL thresholds be implemented when the enhanced SFP level instrumentation is available for use. At OCNGS, the enhanced SFP level instrumentation was designed and implemented under station-approved modification, and is now in service. EALs RG2 and RS2 now use a *"site-specific level 3"* value and EAL RA2 has a third threshold that uses a *"site-specific level 2"* value. Based on implementation of OCNGS modification, the site-specific values now used are described below.

- Level 2 is defined as:

"Level 2- This is the level that is adequate to provide substantial radiation shielding for a person standing on the spent fuel pool operating deck. Designation of this level should not be interpreted to imply that actions to initiate water make-up should be delayed until SFP water levels have reached or are lower than this point. Per NEI 12-02 guidance, this level corresponds to Reactor Building Elevation 106'-1 $\frac{1}{8}$ ", which is 10 feet above the highest point of any fuel rack seated in the spent fuel pool."

The *"site-specific level value 2"* is 106'-1 $\frac{1}{8}$ " and since the level indicators read out in XXX.XX feet format, the EAL value will be 106.09 feet as indicated on Level Indicators LI-18-1A or LI-18-1B.

- Level 3 is defined as:

"Level 3 - This is the level where fuel remains covered and actions to implement make-up water may no longer be deferred. Designation of this level should not be interpreted to imply that actions to initiate water make-up should be delayed until SFP water levels have reached or are lower than this point. Per NEI 12-02 guidance this level corresponds with the top of the fuel assembly. The top of the tallest fuel rack assembly is at Reactor Building Elevation 96'-1 $\frac{1}{8}$ ". The bottom of the probe has a 4" dead band and the probe weight is positioned 3 $\frac{7}{8}$ " above the highest point of any fuel rack assembly. Therefore, a dead band of 7 $\frac{7}{8}$ " exists, which is a zone where the probe is un-able to measure. The level probe's first available measurement is 7 $\frac{7}{8}$ " above the highest point of any fuel rack, which is within the 12" requirement of NEI 12-02"

guidance. Level 3 corresponds to Reactor Building Elevation 96'-9", which is the probe's lowest possible reading."

The "site-specific level value 3" is 96'-9" and since the level indicators read out in XXX.XXX feet format, the EAL value will be 96.75 feet as indicated on Level Indicators LI-18-1A or LI-18-1B.

The applicable EAL Basis Reference section and Index reference page were also updated to add appropriate reference information to reflect the changes noted.

Description of How the Changes Still Comply with Regulations

EP-AA-1013, Revision 4

The changes made to adjust the pagination in the Table of Contents, Subsections 2.3 through 2.10, and Figures 2.1 through 2.5 were strictly administrative and editorial in nature. There was no actual change to content or description provided.

The changes made pertaining to the staffing for the HPN Communicator and Dose Assessor described above address an inadvertent administrative discrepancy that has apparently existed in the NMP Site Emergency Plan (SEP) since implementation of Revision 61 (February 10, 2014). An HPN Communicator and two (2) Dose Assessor positions were listed in the NMP SEP as required for activation (Minimum Staff positions). When Revision 61 was implemented (under the Constellation Energy Nuclear Group (CENG)), all three (3) positions were inadvertently listed as Augmented Staff. The correct staffing configuration is that two (2) of these positions are Minimum Staff and one (1) is an Augmented Staff position. The HPN communicator (reporting to the Emergency Operations Facility (EOF)) and one (1) Dose Assessor (reporting to the Technical Support Center (TSC)) are Minimum Staff positions, while the other Dose Assessor is an Augmented Staff position. Revision 4 to EP-AA-1013 reinstates the two (2) Minimum Staff positions. The earlier inadvertent omission of the two (2) ERO Minimum Staff positions on the table had no adverse impact to actual ERO staffing at NMP. The NMP ERO response requirements would be 60 minutes for the Minimum Staff positions, and four (4) hours for the Full-Augmentation positions following an event notification requiring ERO activation. The Emergency Plan was revised to correctly annotate that both the EOF HPN communicator and the EOF Dose Assessor are Minimum Staff.

The changes made to address the frequency for the review of LOAs from every two years to annually is administrative in nature. The change is not driven by any performance issue or regulatory aspect. The change aligns the station Annex with the Exelon Standard Plan (EP-AA-1000), which requires an annual review and certification. This change is made solely to align the Exelon nuclear fleet to a common standard.

The changes made to add the LOAs for the Oswego County Ambulance service and the Oswego County Fire Department are considered administrative in nature and address a minor discrepancy in that the actual LOAs were not specifically included in the NMP Emergency Plan. These services were already being provided and the providers satisfy the guidance described in NUREG-0654, Revision 1, Section II.P.4.

The changes to remove the LOAs with FitzPatrick and Ginna are considered administrative in nature. Exelon owns the three (3) stations and therefore these LOAs between stations are no longer necessary.

EP-AA-1010, Addendum 3, Revision 3

The changes to the Emergency Action Level (EAL) schemes for OCNGS pertain to the installation of the enhanced SFP level devices. The NRC's SER supporting the license amendment issued on July 28, 2015, indicated that a site-specific threshold value would be added upon installation of enhanced SFP level devices in accordance with NRC Order EA-12-051. OCNGS has subsequently installed the enhanced SFP level devices per a site-approved plant modification and the Level 2 and Level 3 values were established. For EAL RG2 and RS2, the value of 96.75 feet as indicated on Level Indicators LI-18-1A or LI-18-1B was chosen as being indicative of the immediate need to restore SFP level. For EAL RA2.3, the value of 106.09 feet as indicated on Level Indicators LI-18-1A or LI-18-1B was chosen as being the level that is adequate to provide substantial radiation shielding for an individual standing on the SFP operating deck.

Adding applicable references to the EAL Basis Reference Section and updating the index reference page are administrative changes and do not alter the meaning or intent of the EALs.

Description of Why the Changes are Not a Reduction in Effectiveness (RIE)

EP-AA-1013, Revision 4

Existing emergency response requirements, staffing, and capabilities under the NMP Emergency Plan have not been deleted or reduced as a result of the changes made in this revision. The station's Emergency Plan continues to meet the Emergency Planning (EP) regulatory requirements established in 10 CFR 50.47 and 10 CFR 50, Appendix E, as well as satisfying the guidance specified in NUREG-0654. No existing EP requirements have been deleted or minimized under this revision and all existing commitments continue to be met. Therefore, this revision does not constitute a reduction in effectiveness of the Emergency Plan for NMP.

EP-AA-1010, Addendum 3, Revision 3

This revision updates the EAL threshold values to reflect the installation of SFP level devices in accordance with NRC's SER dated July 28, 2015. The established SFP level values are based on a station-approved modification. The changes do not alter the meaning or intent of the basis of the approved EALs. The station's Emergency Plan continues to meet the EP regulatory requirements established in 10 CFR 50.47 and 10 CFR 50, Appendix E, as well as satisfying the guidance specified in NUREG-0654. No existing EP requirements have been deleted or minimized under this revision and existing commitments continue to be met. Therefore, this revision does not constitute a reduction in effectiveness of the Emergency Plan for OCNGS.

Attachment 2

**EP-AA-1013, Revision 4, "*Exelon Nuclear Radiological Emergency Plan
Annex for Nine Mile Point Station*"**

Emergency Plan Annex Revision

EXELON NUCLEAR

RADIOLOGICAL EMERGENCY PLAN ANNEX FOR NINE MILE POINT STATION

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3. Emergency Plan Implementing Procedures
4. Emergency Response Organization Responsibilities
5. Oswego County Radiological Emergency Response Plan and New York State Radiological Emergency Response Plan
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ADDENDUMS

- Addendum 1, Nine Mile Point Station On-Shift Staffing Analysis Report
- Addendum 2, Evacuation Time Estimates for the James A. Fitzpatrick/Nine Mile Point Emergency Planning Zone
- Addendum 3, Unit 1 Emergency Action Levels for Nine Mile Point Station
- Addendum 4, Unit 2 Emergency Action Levels for Nine Mile Point Station

REVISION HISTORY

| | | |
|---------------------------|--|--|
| Revision 0; February 2015 | | |
| Revision 1; February 2016 | | |
| Revision 2; June 2016 | | |
| Revision 3; July 2016 | | |
| Revision 4; January 2018 | | |
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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 Exelon Emergency Preparedness Program consists of the Exelon Nuclear Standardized Emergency Plan (E-Plan), Station Annexes, emergency plan implementing procedures, and associated program administrative documents. The Exelon E-Plan outlines the basis for response actions that would be implemented in an emergency. Planning efforts common to all Exelon Nuclear stations are encompassed within the E-Plan.

This document serves as the Nine Mile Point Nuclear Station (NMPNS) Emergency Plan Annex and contains information and guidance that is unique to the station. This includes facility geography 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 Exelon Nuclear Standardized Emergency Plan.

1.1 Purpose

This Station Annex describes the total preparedness program established, implemented and coordinated by NMPNS to assure the capability and readiness of coping with and mitigating both onsite and offsite consequences of radiological emergencies.

The Station Annex covers the spectrum of emergencies from minor localized incidents to major emergencies involving protective measures by offsite response organizations. Included are guidelines for immediate response, assessment of emergency situations, defined action criteria and delineation of support functions. Emergency Plan Implementing Procedures provide detailed information for individuals who may be involved with specific emergency response functions.

This Station Annex provides for a graded scale of response to distinct classifications for emergency conditions, action within those classifications, and criteria for escalation to a more severe classification. This classification system is compatible with that used by the State of New York and the Oswego County Emergency Management Office. The plans have four emergency categories: Unusual Event, Alert, Site Area Emergency, and General Emergency. In addition to notifying the offsite agencies of the existing emergency classification, provisions are made in the implementing procedures for the Station to advise the State and County of appropriate protective actions.

1.2 Emergency Organization

The organization for control of emergencies begins with the shift organization of the affected unit(s) and contains provisions for augmentation and extension to include other Division personnel, and outside emergency response organizations. As an incident increases in severity or potential severity, the emergency response and corresponding response organization must necessarily increase in size. Staffing levels have been established to provide appropriate response and are discussed in detail in Section 2.0 of this Station Annex.

1.3 Interrelationship Between Emergency Plan and Other Procedures

Interrelationship of this Station Annex with other procedures, plans and emergency arrangements is necessary to ensure an effective response organization. These interrelated documents include:

- a. Nine Mile Point Nuclear Station Emergency Plan Implementing Procedures are designed to detail specific actions required by Station personnel in response to radiological and non-radiological emergency conditions. A listing of these procedures is contained in Appendix C.
- b. Operating Procedures (OP), Emergency Operating Procedures (EOP) Special Operating Procedures (SOP), and Severe Accident Procedures (SAP) detail immediate and subsequent operator actions in response to various system transients. These operating procedures are coordinated with the Station Annex and its implementing procedures to ensure appropriate actions are taken on a timely basis.
- c. Station Chemistry Department and Radiation Protection Department Procedures define health physics requirements for the control and handling of radioactive materials, personnel decontamination, and respiratory protection, sampling techniques, radiation survey techniques and radiation exposure guidelines. Selected procedures, which are applicable to both normal and emergency conditions, are used in conjunction with the Station Annex and its implementing procedures.
- d. Station Physical Security and Fire Protection Plans and their implementing procedures, provide overall guidance and specific instructions to Nuclear Security and Station personnel for emergencies involving security or fire. These plans and procedures are coordinated with the Station Annex and its implementing procedures to ensure compatibility, and with Offsite Plans to ensure prompt access for Offsite Response Organization Responders when necessary.
- e. The Oswego County Radiological Emergency Preparedness Plan and the New York State Radiological Emergency Preparedness Plan, in conjunction with this Station Annex and its implementing procedures, provide for early and redundant notification schemes, continued assessment and update of radiological conditions, and the coordination of onsite and offsite protective actions.

The concept of operations, and its relationship to the Federal, State, local and private organizations that are part of the overall emergency response organizations, is described in Section 2.0 and 4.0. A block diagram, which illustrates these interrelationships, is included in Station Annex, Figures 4.1-4.3, Emergency Organizations Interfaces. Illustrations of how the interfaces between various segments of response organizations change during various phases of emergency and recovery operations are shown in Station Annex, Section 4.

Section 2: Organizational Control of Emergencies

This section describes the Exelon Emergency Response Organization (ERO) at Nine Mile Point, 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 emergency response personnel and specifies the offsite support available to respond to the nuclear generating stations.

2.1 Typical Nuclear Division/Station Organization

The typical Nuclear Division organization for normal operation is shown in GAP-POL-01, Composition and Responsibility of the Nine Mile Point Nuclear Station LLC Organization.

Personnel in certain categories, principally Operations, Chemistry and Radiation Protection work in shifts so that coverage is provided 24 hours per day. For certain station conditions, such as outages, testing, etc., personnel who do not normally work on shift may work other than normal hours to provide extended coverage.

The minimum staffing at each Unit during normal operation is contained in the NMP On-Shift Staffing Analysis Report, EP-AA-1013, Addendum 1. A detailed analysis of initial on-shift responsibilities and response to an emergency condition is contained in the NMP On-Shift Staffing Analysis Report, EP-AA-1013, Addendum 1.

2.1.1 Station Responsibility During Normal Working Hours

During normal working hours, the Vice President Nine Mile Point has overall responsibility for the site. The Plant Manager has overall responsibility for Unit 1 and Unit 2 operations. The Shift Manager (SM) on duty has responsibility for ensuring that the Unit is operated safely and within the respective license and Technical Specification requirements. The SM has the authority and responsibility to order shutdown of the reactor and/or declare an emergency if required. Also, any licensed reactor operator on duty in a Control Room can shutdown (scram) the reactor if it is in an unsafe condition.

2.1.2 Station Responsibility During Off-Normal Working Hours

During off-normal working hours, the SM's have overall responsibility for the site and safe operation of their respective units. Selected management personnel are on call and may be reached through the use of an approved notification system if a SM needs to notify them of an event that requires technical consultation or requires additional personnel. However, it is the on-duty SM who has the responsibility and authority to declare an emergency. Upon declaring an emergency, the SM immediately becomes the Shift Emergency Director.

In the event of an emergency declaration due to an initiating condition affecting both Unit 1 and Unit 2, both Units' SMs will confer and determine:

- The Shift Manager of the Unit with the higher emergency classification will become the Shift Emergency Director.
- If emergency classification levels are equal, the SM first notified will become the Shift Emergency Director.
- If there is any question as to who should initiate the Station Annex, the Unit 1 SM shall assume the Shift Emergency Director duties.

2.2 On-Shift Emergency Response Organization Assignments

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.

All emergency facilities will have minimum staffing within 60 minutes. Minimum staff positions are defined in Table 2.1.

All Exelon Nuclear stations have the capability at all times to perform detection, mitigation, classification, and notification functions required in the early phases of an emergency.

2.3 Authority Over The Emergency Response Organization

The Emergency Director in Command and Control is the designated Exelon individual who has overall authority and responsibility, management ability, and technical knowledge for coordinating all emergency response activities at the nuclear power station. The Emergency Director will immediately and unilaterally initiate any emergency actions, including providing protective action recommendations to authorities responsible for implementing offsite emergency measures.

The Shift Manager is available at all times to assume the responsibilities of Emergency Director. A qualified individual is on-call to respond to the EOF and relieve the Shift Manager of Emergency Director duties.

2.4 Criteria for Assuming Command and Control (Succession)

The responsibility for initial assessment of and response to an emergency rests with the Shift Manager. Emergency personnel assume responsibility for their positions upon receiving notification to activate when an event has been declared.

The Emergency Director responsibilities are initially assumed by the Shift Manager. If the event is classified at an Alert or Higher level, or the Shift Manager deems it appropriate, the Shift ERO will be augmented by the on-call ERO.

The on-call Corporate Emergency Director will report to the EOF and assume Command and Control. In accordance with the Nine Mile Point Emergency Plan, the TSC Emergency Director does not take Command and Control responsibilities.

The Shift Manager is relieved of Command and Control as soon as possible after the declaration of an Alert or higher classification. Command and Control does not transfer until the following criteria have been met:

- Adequate EOF 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 formal turnover between the Emergency Director relinquishing Command and Control and the Emergency Director assuming Command and Control has been made.

2.5 Non-Delegable Responsibilities

Functional responsibilities of the Emergency Director that may not be delegated are:

- Classify and declare emergencies.
- Direct and approve offsite emergency notifications to state and local authorities.
- Make Protective Action Recommendations to offsite authorities.
- Ensure appropriate evacuation actions for plant personnel.
- Approve emergency exposures and/or the issuance of KI.

2.6 Emergency Response Organization Positional Responsibilities

Table 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. 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.

The station's ERO consist of three major sub groups reporting to the Emergency Director:

- Onsite ERO, consisting of Control Room, TSC, OSC and Security staffs. The primary functions of the Onsite ERO is perform mitigative actions and ensure appropriate onsite protective actions are taken.
- Offsite ERO, consisting of EOF staff. The primary functions of the Offsite ERO are to interface with offsite authorities and perform offsite radiological assessment.
- Public Information ERO, consisting of JIC staff. The primary function of the Public information ERO is to provide accurate information to the public through News Media.

2.7 Emergency Response Organization Block Diagram

Figures 2.2 through 2.6 show the reporting chains and interfaces of the ERO.

2.8 Corporate Emergency Response Organization

In the event of a declared emergency at one of Exelon's Nuclear Stations, a Corporate Duty Officer is notified. The Duty Officer will notify senior company management personnel of the event. The Emergency Director will keep senior management informed of events and any need for assistance.

Specific departments of the company may be called on to assist as necessary to provide support for logistics, public information, finance, technical issues, etc.. Senior management may assist with interfacing government authorities and other outside organizations.

2.9 Industry/Private Support Organizations

Exelon retains contractors to provide supporting services to the company's nuclear generating stations. For station specific support, copies of current contracts and letters of agreement with these groups are maintained by the Emergency Preparedness Department.

Current contracts and letters of agreement are maintained in the Emergency Preparedness Department's files.

2.10 Coordination with Participating Government Agencies

2.10.1 Federal Agencies

The principal Federal government agencies having emergency responsibilities relative to the NMPNS, and a summary of those responsibilities, are:

a. U.S. Department of Energy (DOE)

The DOE, Brookhaven Area Office, will respond to requests from NMPNS for assistance. This assistance is limited to advice and emergency action(s) essential for the control of the immediate hazards to public health and safety.

The primary method of notification to DOE is by commercial telephone. Notification may also be made through NRC. Assistance can be requested by the NMPNS ED/RM, the Oswego County Emergency Management Director or the Commissioner of the New York State Department of Health. Medical Assistance provided by DOE could also include medical assistance by the Radiation Emergency Assistance Center/Training Site (REAC/TS) Support from Oak Ridge.

When notified of an emergency the Federal Radiological Monitoring and Assessment Plan (FRMAP) team would request a Coast Guard helicopter pick up a six person team at Brookhaven and fly them to the Nine Mile Point area with their equipment. Approximate arrival time of five (5) hours from notification is expected. This team would provide initial radiation surveys, obtain airborne samples and analyze these samples with the equipment available. The team would also act as an advance party to establish an initial base of operations for follow-on personnel. A possible location for the FRMAP team to set up operations is the Oswego County Airport, which is about ten (10) miles from the NMPNS and in close proximity to the Emergency Response Facilities yet still outside of the 10 mile EPZ. Use of this airport facility would also allow for equipment to be flown in on fixed wing aircraft close to the facilities that would be used for staging and dispatch.

b. Federal Energy Regulatory Commission (FERC)

Two (2) licensed hydroelectric developments are situated within a ten (10) mile radius of the Nine Mile Point Nuclear Station and the James A. Fitzpatrick Nuclear Power Plant. The Minetto and Varick Hydroelectric Stations are part of Project Number 2474 licensed with the Federal Energy Regulatory Commission. A plan has been developed to implement a response plan to safely shutdown and evacuate these hydroelectric facilities. This would be done in the event of a radiological emergency at either nuclear station. In addition, this plan addresses the means to minimize the impact to the public as a result of this emergency shutdown of the hydroelectric stations.

2.10.2 State and Local Agencies

This section identifies the principal State and local government agencies having action responsibilities in the event of a radiological emergency, including a Hostile Action Based event, in the vicinity of the NMPNS. The radiological emergency response plans of these agencies: describe their respective responsibilities, authorities, capabilities and emergency functions; contain provisions for preparedness and response to radiological emergencies by each organization; and contain the primary and alternate methods of emergency notifications.

a. **Oswego County Emergency Management Office (OCEMO)**

The OCEMO is the lead government agency for coordination and response at the local level. The Oswego County Radiological Emergency Preparedness Plan contains provisions for:

- Planning and coordination with local, State and Federal authorities
- Initial response to notification by NMPNS
- Alert and warning of local political subdivision
- Notification of other emergency response personnel
- Public information concerning the incident
- Evacuation and other protective measures for local populations

Normally the OCEMO is notified by NMPNS via the County Warning Point. It may, however, be notified by the New York State Office of Emergency Management (NYSOEM). A secondary method of notification is via radio from the NMPNS to the County EOC or County Warning Point.

Figure 2.1: Minimum Staffing Requirements for the ERO

| Functional Area | Major Tasks | Emergency Positions | Minimum Staff (1) | Full Augmentation |
|------------------------------------|-------------------------------------|---|----------------------------------|-------------------------|
| 1. Plant Ops and Assessment | Control Room Staff | Shift Manager (Shift) Senior Reactor Operator (SRO) (Shift) Reactor Operator (RO) (Shift) Equipment Operator (EO) (Shift) RP Technician (Shift) Chemistry Technician (Shift) | 1* 1* 2* 2* 1* 1* | |
| 2. Emergency Direction and Control | Command and Control | Shift Manager (Shift) Corporate Emergency Director (EOF) Station Emergency Director (TSC) | See above 1 1 | |
| | Facility Control | TSC Director (TSC) EOF Director (EOF) | 1 1 | |
| 3. Notification & Comm. | Emergency Communications | Shift Communicator (Shift) State/Local Communicator (EOF) ENS Communicator (TSC) HPN Communicator (EOF) | 1* 1 1 1 | |
| | Plant Status & Technical Activities | All ERFs: Operations Communicators (one for TSC, EOF, OSC and each CR) | | 5 |
| | In-Plant Team Control | Team Tracker (OSC) | | 1 |
| | Governmental | EOC Communicator (EOF) State Liaison (EOF) County Liaison (EOF) Incident Command Post Liaison | | 1 1 1 (Note 8) |

| Functional Area | Major Tasks | Emergency Positions | Minimum Staff (1) | Full Augmentation |
|---|---------------------------------------|--|---------------------------------|---|
| 4. Radiological Assessment | Offsite Dose Assessment | Dose Assessor (EOF) | 1 | 1 |
| | Offsite Surveys | Environmental Coordinator (EOF) Offsite Monitoring Team (EOF) | 4 | 1 |
| | Onsite Surveys | RP Technician (OSC) | 2 | |
| | In-plant Surveys | RP Technician (OSC) | 2 | |
| | Chemistry | Chemistry Technician (OSC) | 1 | 1 |
| | RP Supervisory | TSC Radiation Protection Manager (TSC) EOF Radiation Protection Manager (EOF) | 1 1 | |
| 5. Plant System Engineering, Repair, and Corrective Actions | Technical Support / Accident Analysis | Shift Technical Advisor (Shift) Technical Manager (TSC) Electrical Engineer (TSC) Mechanical Engineer (TSC) Core Thermal Hydraulic Engineer (TSC) Operations Manager (TSC) Technical Advisor (EOF) TSC Technical Staff | 1* 1 1 1 1 1 | 1 Note 3 |
| | Repair and Corrective Actions | Maintenance Manager (TSC) OSC Director (OSC) Assistant OSC Director (OSC) Electrical Technicians (OSC) Mechanical Technicians (OSC) I&C Technicians (OSC) Operations Personnel (OSC) Leads (Ops, Elec, Main, I&C, & RP) | 1 1 2 2 2 | 1 Note 3 Note 3 Note 3 Note 3 5 (Note 4) |
| 6. In-Plant Protective Actions | Radiation Protection | RP Technician (OSC) | 4 | |
| 7. Fire Fighting | -- | Fire Brigade (Shift) | Note 5 | |

Nine Mile Point Annex

Exelon Nuclear

| Functional Area | Major Tasks | Emergency Positions | Minimum Staff (1) | Full Augmentation |
|---|------------------------------------|--|--|------------------------------------|
| 8. First Aid / Rescue | -- | First Aid provided by trained Shift Personnel Rescue support provided by shift personnel or OSC personnel. | | |
| 9. Site Access Control | Security & Accountability | Security Shift Supervisor (Shift) Security Personnel Security Coordinator (TSC) | Note 6 | 1 |
| 10. Resource Allocation and Admin Support | Logistics | EOF Logistics Manager (EOF) JIC Logistics Manager (JIC) | 1 | 1 |
| | Administration | Administrative Staff (TSC) Administrative Staff (OSC) Administrative Staff (EOF) Administrative Staff (JIC) | | 2 1 2 (Note 7) 2 (Note 7) |
| | Facility Operations | Computer Specialist (TSC / OSC) Computer Specialist (EOF / JIC) | | 1 1 |
| | | | | |
| 11. Public Information | Media Interface | Company Spokesperson (JIC) Media Liaison (JIC) | 1 | 1 |
| | Information Development | News Writer (JIC) Technical Advisor (JIC) | 1 | 1 |
| | Media Monitoring and Rumor Control | MM/RC Coordinator (JIC) Inquiry Phone Team (JIC) Media Monitoring Team (JIC) | 1 | 2 (Note 3) 2 (Note 3) |
| | Facility Operation and Control | JIC Manager (JIC) JIC Security (JIC) | 1 | 1 |
| TOTALS: | | | Shift staff: 10 Augmented Min Staff: 41 | 37 |

Notes:

- (1) Provided by On-Shift personnel, denoted by an asterisk.
- (2) (Deleted).
- (3) Personnel numbers depend on the type and extent of the emergency.
- (4) Craft Lead positions can be filled by senior technicians or craft supervisors.
- (5) Fire Brigade per FSAR/Technical Specifications, as applicable. May be a collateral duty.
- (6) Per Station Security Plan.
- (7) EOF/JIC or TSC/OSC may share Administrative Staffs
- (8) Up to 3 Incident Command Post (ICP) Liaisons may be called based on event when a near site ICP is established.

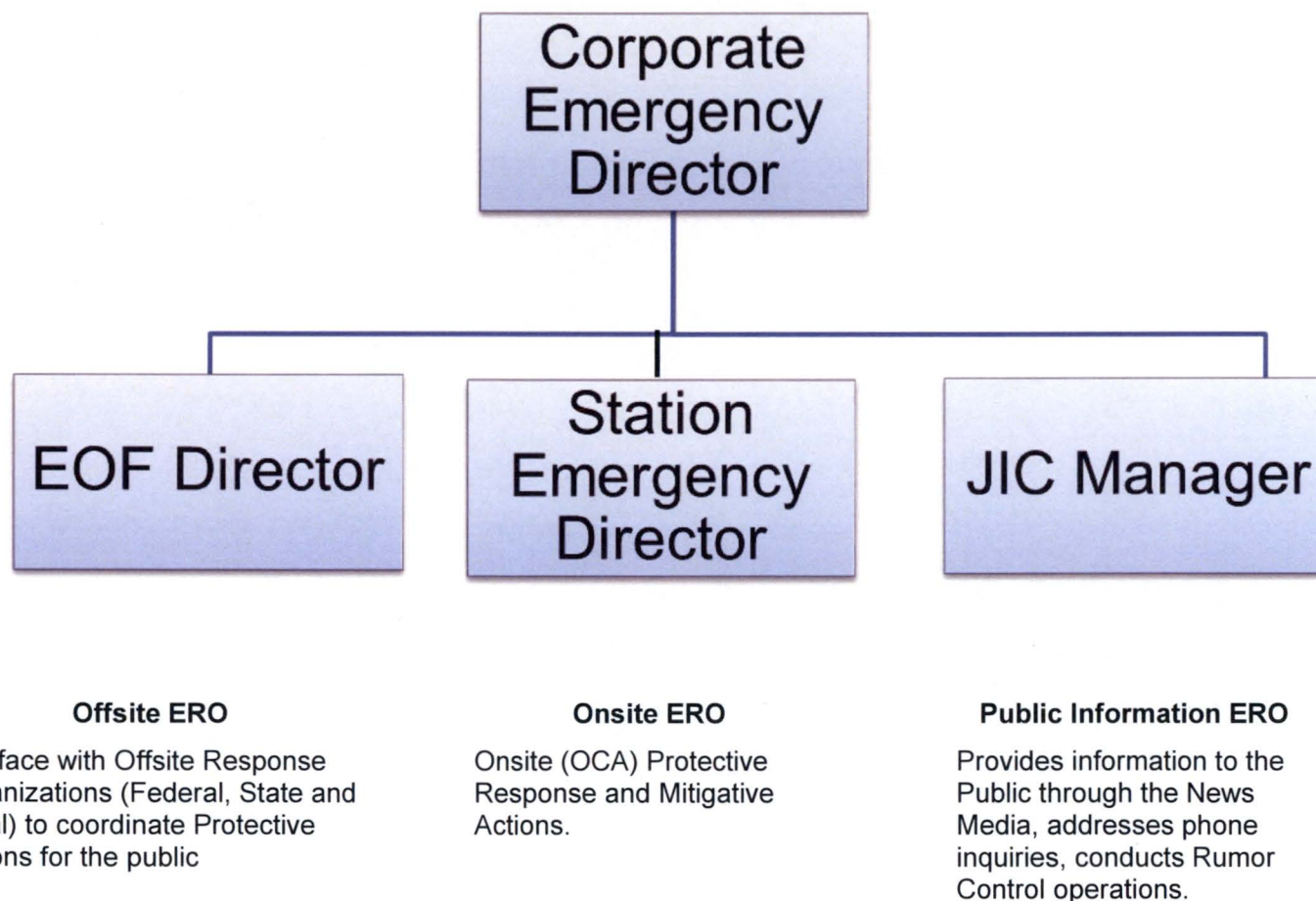
Figure 2.2: ERO Management Structure

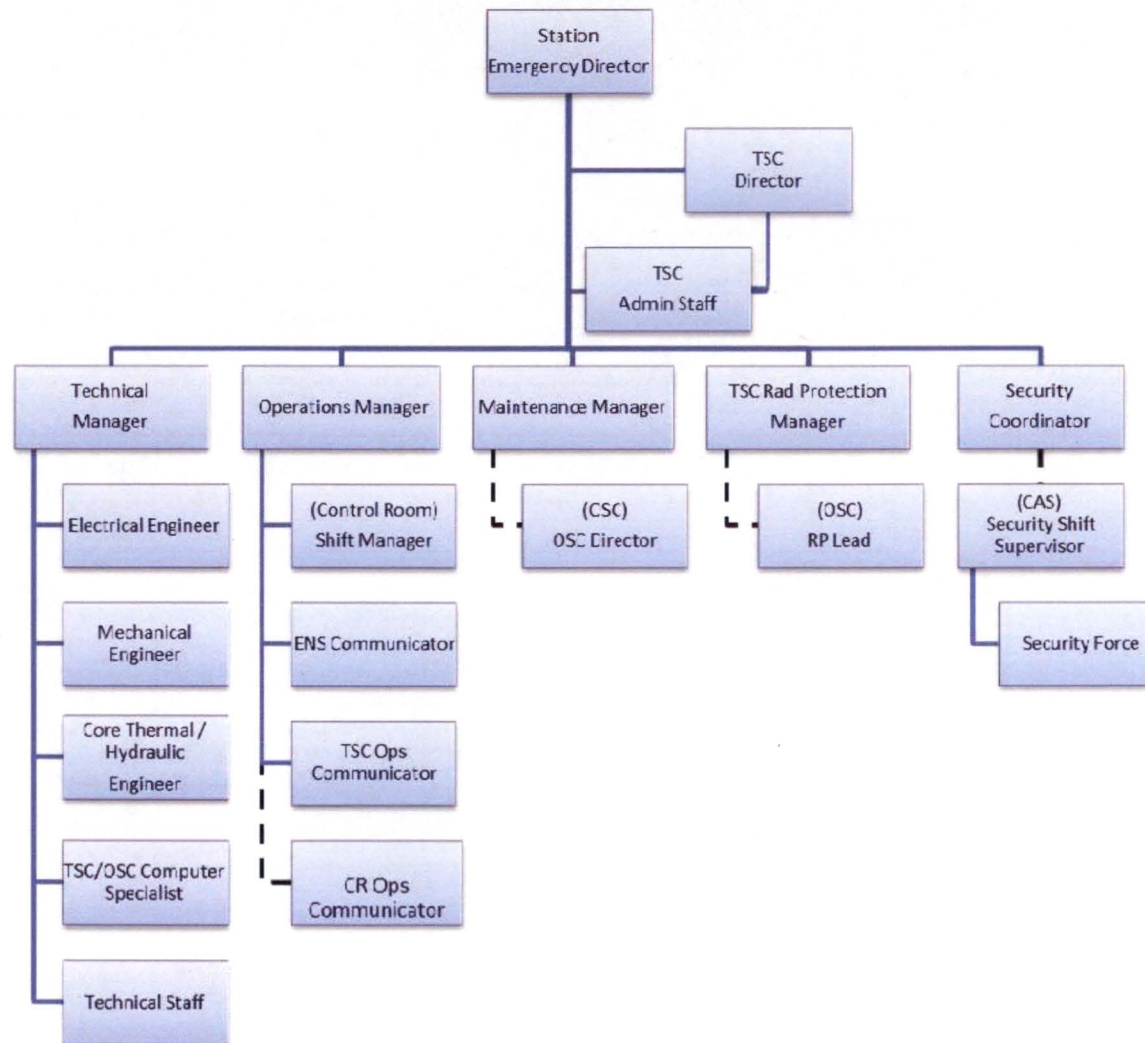
Figure 2.3: TSC Staffing

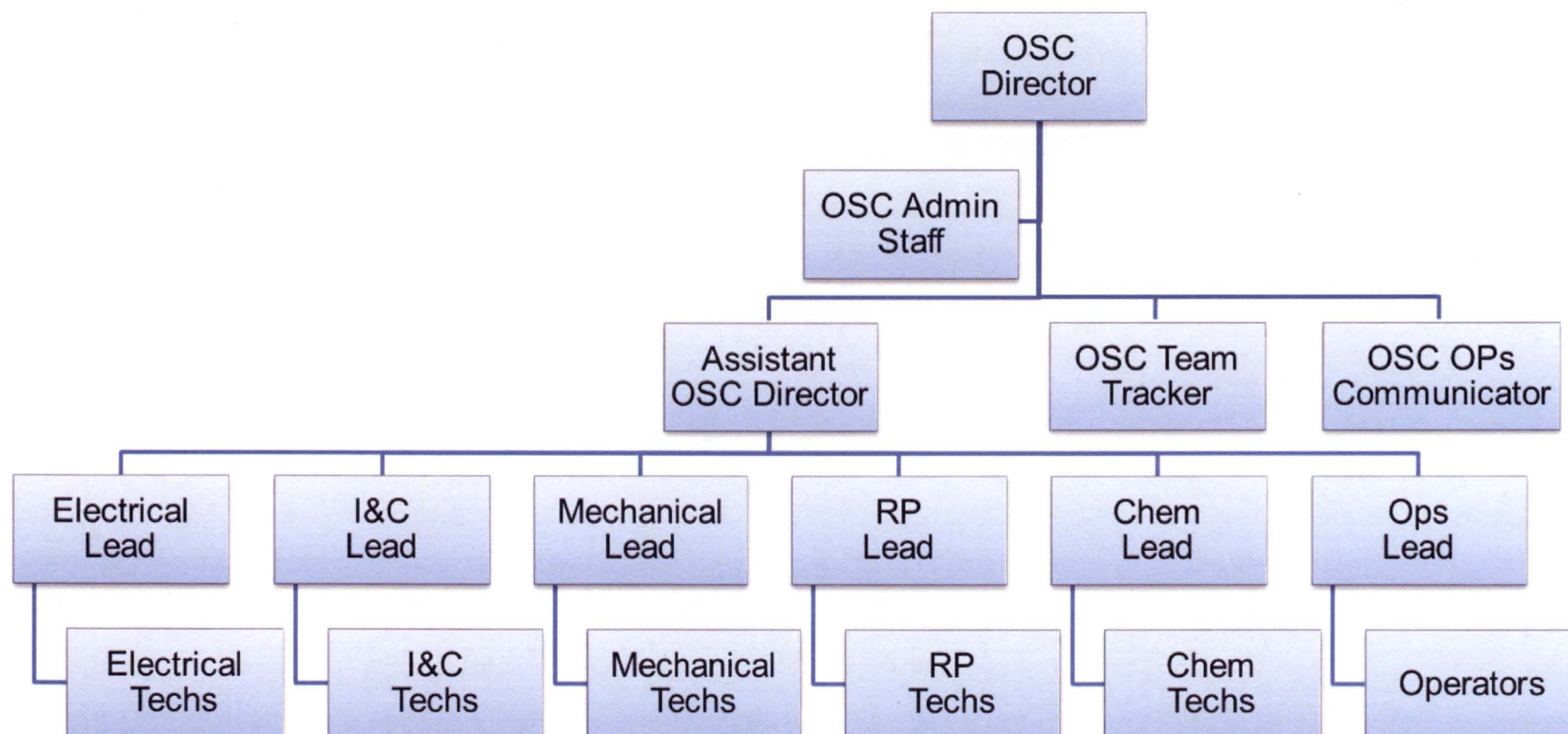
Figure 2.4: OSC Staffing

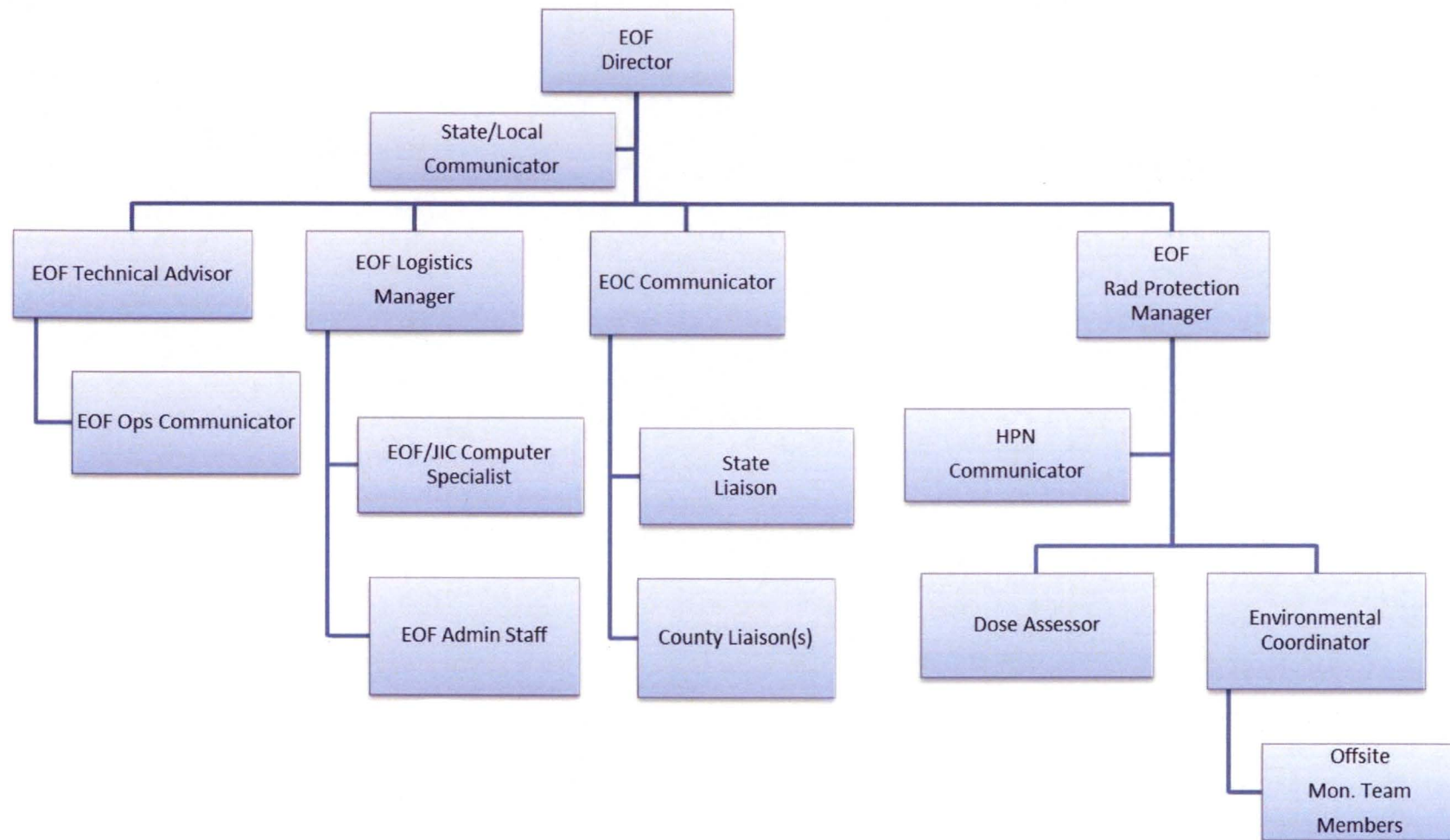
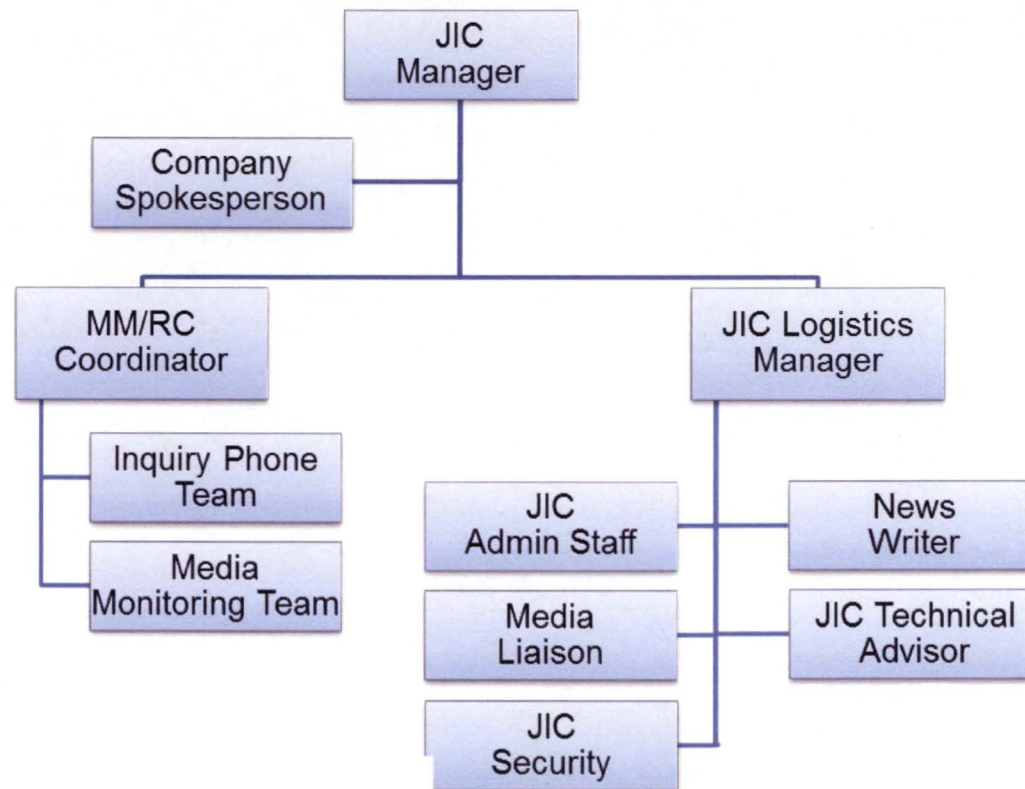
Figure 2.5 EOF Staffing

Figure 2.6 JIC Staffing

Section 3: Emergency Conditions

3.1 Classification System

The spectrum of probable and postulated emergency conditions have been categorized into four emergency classes. Emergency Action Level (EAL) criteria have been specified for recognizing, categorizing and declaring emergency classes based, to the extent feasible, on readily available information such as Control Room instrumentation. In many cases the emergency classification is immediately apparent from in-plant instrumentation and is consistent with requirements of USNRC Regulatory Guide 1.101. In other cases more extensive assessment is necessary to determine the applicable emergency classification. In any case, continuing assessment ensures that the emergency classification is commensurate with the severity of the emergency condition.

The information is presented by recognition Category with the associated Unit system/ equipment or instrument parameters clearly defined:

- Reactor Fuel
- RPV
- Primary Containment
- Secondary Containment
- Radioactivity Release
- Electrical Failures
- Equipment Failures
- Hazards
- Other

Each EAL Initiating Condition is structured in the following way:

- Recognition Category- as described above
- Emergency Class- Unusual Event, Alert, Site Area Emergency and General Emergency
- Initiating Condition- Symptom- or Event- Based, Identification and Title
- Operating Mode applicability- Power Operation, Hot Standby, Hot Shutdown, Cold Shutdown, Refueling, Defueled or All.

NMPNS maintains the capability to assess, classify and declare an emergency condition within 15 minutes after the availability of indications to plant operators that an Emergency Action Level (EAL) has been exceeded.

The 15 minute criterion does not prevent implementation of response actions to protect the public health and safety provided that any delay in declaration does not deny the State and Local authorities the opportunity to implement emergency response actions.

The 15 minute criterion commences when plant instrumentation, plant alarms, computer displays or incoming verbal reports that correspond to an EAL first

become available to any plant operator and encompasses all assessment, classification, verification and declaration actions.

As used here, "plant operator" means any member of the plant staff who, by virtue of training and experience, is qualified to assess the indications or reports for validity and to compare the same to the EALs. A "plant operator" does not encompass plant personnel such as chemists, radiation protection technicians, craft personnel, security personnel, and others whose positions require they report, rather than assess, abnormal conditions to the control room.

In the case where EALs are related to an analysis, e.g. dose assessment or sampling, the 15 minute declaration period starts with the availability of analysis results, to any plant operator, that show the conditions of the EAL to be exceeded.

Procedures EP-CE-111, Emergency Classification and Protective Action Recommendations, provide specific implementation guidance on this classification system. Figure 3.1 provides action and participation by response organizations for the various emergency classifications. EP-AA-1013, Addendums 3 and 4 provide the basis by which each of the emergency action levels was determined.

3.1.1 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. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs. Although the emergency situation can be corrected and/or controlled, notification of NMPNS Management may be performed. In addition, appropriate offsite agencies are notified of the nature and extent of the incident, even though no action may be required of them.

3.1.2 Alert

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

3.1.3 Site Area Emergency

Events are in process or have occurred which involve an actual or likely major failures of plant functions needed for protection of the public or security events that result in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) prevents effective access to equipment needed for the protection of the public. Any releases are not

expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels beyond the site boundary.

3.1.4 General Emergency

Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or security events that result in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.

3.2 Spectrum of Postulated Accidents

Postulated accidents are described in Chapter XV of the Unit 1 FSAR and Chapter 15 of the Unit 2 USAR.

Postulated accidents for dry fuel storage (ISFSI related) are described in the Transnuclear Inc. Updated Final Safety Analysis Report (NUHOMS[®] UFSAR) for the Standardized NUHOMS[®] Horizontal Modular Storage System for Irradiated Nuclear Fuel. Postulated accidents utilizing the Standardized NUHOMS[®] -61BT dry shielded canisters are described in Section K.11.2 of the NUHOMS[®] UFSAR and Section T. 11.2 of the UFSAR describes the postulated accident utilizing the Standardized NUHOMS[®] -61BTH dry shielded canisters.

FIGURE 3.1
REQUIRED ACTIONS AND PARTICIPATION BY
RESPONSE ORGANIZATIONS FOR VARIOUS EMERGENCY CLASSES

| Emergency Class | Participation By NMPNS | | | Plant Staff | Participation By Off-Site Agencies |
|---------------------|---------------------------------|--------------|---------------------------------|-----------------|------------------------------------|
| | Necessity for Protective Action | | Necessity for Corrective Action | | |
| | On-Site | Off-Site | | | |
| Unusual Event | Possible | Not Required | Possible ¹⁾ | Action Required | No Action Required |
| Alert | Possible | Not Required | Possible ²⁾ | Action Required | EOC's On Alert |
| Site Area Emergency | Probable | Not Required | Probable ³⁾ | Action Required | EOC Action Required |
| General Emergency | Probable | Required | Probable ³⁾ | Action Required | EOC Action Required |

- ¹⁾ May involve normal organizational response such as ambulance, rescue personnel and use of medical facilities as would occur for any industrial accident.
- ²⁾ May require police, firemen, ambulance, and/or medical facilities to be on alert or to respond.
- ³⁾ May involve police and Coast Guard, firefighters, ambulance and/or use of medical facilities. May involve radiological monitoring teams from NMPNS, local, State and Federal agencies.

4.0 Emergency Measures

Emergency Measures are actions taken to ensure that an emergency situation is assessed and that proper corrective and/or protective actions are taken. These actions include activation of the appropriate components of the emergency organizations, both on-site and off-site; assessment of plant systems status and radiological conditions; mitigative actions to mitigate or terminate an emergency situation; protective actions to minimize the consequences of the emergency to Station personnel and to the general public in the Station environs; decontamination and medical treatment for Station personnel; and other supporting actions such as timely and accurate emergency news releases to the public media.

This section describes the emergency measures which may be performed and applicable criteria, guidelines and methodology for performing those measures.

4.1 Initiation of Emergency Actions

Emergency actions are initiated primarily in response to alarmed instrumentation, but may be initiated through notification to the Control Rooms by individual(s) at the Nine Mile Point Nuclear Station who become aware of an apparent emergency situation or by persons outside of the plant in the case of severe weather warnings or hostile actions. The affected unit Control Room Operator (CRO) performs the necessary immediate actions to contend with the off-normal situation in accordance with instrument alarm response procedures (which are contained in the Operating Procedures), Special Operating Procedures, Emergency Operating Procedures and/or other appropriate procedures. The CRO promptly notifies the affected unit SM of the potential emergency situation. This SM assesses the situation and, if necessary, declares the emergency.

As delineated in Section 4.1 of this Emergency Plan, NMPNS maintains the capability to assess, classify and declare an emergency within 15 minutes after the availability of indications to plant operators that an Emergency Action Level (EAL) has been exceeded.

The affected unit SM assumes the role of NMPNS Shift Emergency Director until responsibilities are relieved by the Corporate Emergency Director in the EOF. In the event of an emergency declaration due to an initiating condition affecting both Unit 1 and Unit 2, both Units' SMs will confer and determine:

- The Unit with the higher emergency classification will become the Shift Emergency Director.
- If emergency classification levels are equal, the SM first notified will become the Shift Emergency Director.
- If there is any question as to who should initiate the Station Annex, the Unit 1 SM shall assume the Shift Emergency Director duties.

The Shift Emergency Director continues to assess and classify the condition and initiates the appropriate corrective and protective actions and ensures activation of the necessary segments of the total emergency organization.

The Operating Procedures contain appropriate action statements which refer the operator to the Emergency Plan Implementing Procedures when specified plant parameter values are exceeded or equipment status warrants such response. Severe Accident Procedure (SAP) entry conditions are defined in the station Emergency Operating Procedures. The Shift Emergency Director, in consultation with the Station Emergency Director, determines when SAP entry is required.

4.2 Activation of Emergency Organization

This section describes the provisions for notifying and/or activating groups and organizations within the emergency organization in response to potential or actual emergency events at the station. Procedures for notifying, alerting and mobilizing emergency response organizations, including message authentication, are contained in procedure EP-CE-114-100, Emergency Notifications (CNG). Figure 4.1 summarizes the notification/activation of both the onsite and the offsite emergency organization and designates potential action requirements for each emergency classification. A diagram identifying the major emergency facilities and their interfaces during various stages is shown in Figures 4.2 and 4.3.

4.2.1 Offsite Notification and Follow-up Messages

The contents of initial emergency notification messages which would be sent from the affected unit to New York State and Oswego County is contained in EP-CE-114-100. Notification Fact Sheets were developed in conjunction with New York State and Oswego County, and serve as the means of initial emergency notification. The contents of the Notification Fact Sheets are consistent with the guidance outlined in Section II.E of NUREG-0654. As a minimum, the following information is provided:

- o Facility name, communicator name and call back telephone number
- o Date/time of incident
- o Class of emergency
- o Brief description of event
- o Radioactive material release information
- o Protective action recommendations
- o Event prognosis
- o Meteorological information

Follow-up notifications are made at regular intervals as detailed in EP-CE-114-100 and contain information consistent with the guidance detailed in Section II.E of NUREG-0654. As a minimum the follow-up information contains the above information and the following:

- Actual or projected dose rates and projected integrated dose rates at site boundary
- Projected dose rates and integrated dose at projected peak and at 2, 5 and 10 miles
- Surface contamination estimates

A mutual agreement has been reached between New York State Licensees and New York State excluding event prognosis information from initial notification messages.

4.2.2 Offsite Emergency Organization

a. Offsite Authorities

The Corporate Emergency Director ensures that offsite authorities are notified and apprised of potential or actual emergency events at the NMPNS. Notifications are made to the Oswego County and New York State Warning Points using methods described in EP-CE-114-100. Notification to these authorities of an Unusual Event, an Alert, a Site Area Emergency or a General Emergency commences within 15 minutes following the declaration of an emergency classification. A representative from NMPNS may be sent to the State Emergency Operations Center (SEOC) and to the Oswego County Emergency Operations Center (OCEOC) for a Site Area or General Emergency when the SEOC and the OCEOC, respectively, is fully activated. These representatives aid and assist the New York State Disaster Preparedness Commissioner and the Chairman of the Oswego County Legislature, or their representatives, in defining the extent of the emergency and mitigating measures being taken.

Backup radiological emergency assistance may be provided by the U.S. Department of Energy in Brookhaven, N.Y. Notifications for assistance may be made by the NMPNS Corporate Emergency Director, by the Oswego County Emergency Management Director or by the New York State Commissioner of Health.

4.2.3 On-Site Notification and Organization

a. Notification of NMPNS personnel takes place through the following methods:

- 1) PA System (GAltronics). This system is capable of sending voice messages and signals indicating a fire, station alarm, or evacuation alarm to all areas within the protected area. It is used to alert personnel onsite of emergency conditions.

- 2) Telephone. The telephone can be used to contact any needed personnel during emergency conditions.

EP-CE-114-100 contains the implementing procedures for making appropriate notifications.

- b. Upon being informed of a potential or actual emergency condition, the affected unit SM immediately assesses the condition. The SM ensures that appropriate actions have been initiated to maintain the safe and proper operation of the plant. This SM then classifies the condition as an Unusual Event, Alert, Site Area Emergency or General Emergency. If the event is classified as an emergency (as defined in EP-CE-111) that requires implementation of this Plan, the SM assumes the role of Shift Emergency Director and takes the following actions:
 - 1) Implement immediate actions in accordance with this Plan and the applicable Emergency Plan Implementing Procedures.
 - 2) Ensure that on-site emergency response individuals and groups are notified (and off-site groups, if conditions require), using the PA system and/or direct communications.
 - 3) Notify on-site individuals to implement a Local Area/Building, Protected Area or Exclusion Area Evacuation, if appropriate, which may include accountability. These notifications are made by sounding the appropriate alarm followed by an announcement of supplementary information over the PA system. Notification is also made to the JAFNPP Control Room (who then activates their notification system).
 - 4) May notify the Plant Manager or their designated alternate to apprise them of the situation. Because of the probable short duration and/or low severity of the condition, the Shift Emergency Director responsibilities are likely to remain with the SM through termination of Unusual Event classifications.
 - 5) Ensure that off-duty station personnel are notified to provide assistance with emergency activities as necessary. This notification process is described in EP-CE-114-100. Off-duty personnel are called in as required.
 - 6) Notify appropriate TSC, OSC and EOF personnel if the condition is classified as an Alert or higher.

4.3 Assessment Actions

Provisions are made for assessment and continuing re-assessment throughout the course of an emergency to ensure the effective coordination, direction and upgrading of emergency activities in a timely manner. The assessment actions are described in detail in the Emergency Plan Implementing Procedures.

4.3.1 Unusual Event

The purpose of the Unusual Event classification is to provide early warning of minor events which could lead to more serious consequences. The Unusual Event conditions represent potential degradation of the level of safety of the plant or indicate a security threat to facility protection. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs. Declaring an Unusual Event assures that the first step for any response later found to be needed, has been carried out by bringing onsite staff and offsite organizations to a state of readiness, thus providing a system for handling information and decision making.

The NRC, State, and Oswego County authorities will be promptly notified to assure that the first step of any necessary response can quickly be initiated. Offsite organizations will standby for further information or termination. On-shift resources can be augmented to assess and respond as needed.

4.3.2 Alert

Events of the Alert classification involve actual or potential degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of intentional malicious dedicated efforts of a hostile act. Any radioactivity released would result in exposures of only a small fraction of the guidelines for required offsite action. By assuring that emergency personnel are available, protective actions, such as performing confirmatory radiation monitoring and providing offsite authorities with current status information, will be ensured.

For events which fall into the Alert classification, the Emergency Response Organization will promptly notify the NRC, State and County authorities of the Alert Classification and the reasons for the classification. The TSC and EOF will be staffed to assist in the assessment of the incident and determination of proper responses. Periodic plant status updates will be given to offsite authorities who will also be advised of any change in the classification of the event.

Non-essential personnel will normally be evacuated from the protected area (provided it is safe) to designated locations outside of the protected area at this level. All ERO personnel will assemble at their designated emergency facilities, and accountability may also be initiated. This ensures that:

- Appropriate staff is available to mitigate the event,
- The potential to over-expose non-essential personnel is minimized,
- Non-essential personnel are prepared for possible exclusion area evacuation by pre-staging these personnel outside of the protected area.

The JIC will be staffed in order to coordinate public information activities warranted by the emergency. Offsite agencies may activate their resources and facilities and may alert other emergency personnel, such as monitoring teams, communication centers, the Emergency Alert System (EAS), and law

enforcement. They will be ready to escalate to a more severe classification, if appropriate.

4.3.3 Site Area Emergency

A Site Area Emergency (SAE) is declared when events are in progress or have occurred which involve actual or likely major failures of plant functions needed for the protection of the public or security events that result in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) prevents effective access to equipment needed for the protection of the public. Any releases are not expected to exceed EPA Protective Action Guideline exposure levels except near the site boundary.

In the event that a SAE is declared, the actions to be taken by various plant groups are detailed in the implementing procedures for the plant. The Emergency Response Organization will make the initial notification to the County authorities, State, and NRC.

The purpose of declaring a SAE is to assure that non-essential personnel are protected in the event of a release of radioactive materials. Should a release be anticipated or in progress, non-essential personnel will normally be directed to evacuate to the either the Offsite Assembly Area (provided it is safe) for monitoring and if necessary decontamination, or home if there was no release of contamination from the station. If no release is anticipated or in progress, non-essential personnel will normally remain at designated locations within the exclusion area, to permit more rapid return of personnel to normal duties. Accountability of personnel remaining within the protected area, as a minimum will commence at this level, and continues until event termination or de-escalation. Also, offsite agency authorities will be available at primary response centers for consultation and updates on the situation, and to provide information to the public.

For events which fall into the SAE classification, the County, State, and NRC will be promptly notified of the SAE classification, and the reasons for the SAE classification. The TSC and EOF will be staffed to assist in the assessment of the incident and determination of proper responses. Periodic plant status updates will be given to offsite authorities who will also be advised of any change in the classification of the event.

The JIC will be staffed in order to coordinate public information activities warranted by the emergency.

Offsite agencies may activate their resources and facilities and may alert other emergency personnel, such as monitoring teams, communication centers, EAS, and law enforcement. They will be ready to escalate to a more severe classification, if appropriate.

4.3.4 General Emergency

A General Emergency (GE) is declared when events are in progress or have occurred which involve actual or imminent substantial core damage or melting with potential loss of containment integrity or security events that result in an actual loss of physical control of the facility. Releases of radioactive material can be expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.

In the event that a GE is declared, the actions to be taken by the various plant groups are detailed in the implementing procedures for the plant. The Emergency Response Organization will make the initial notification to the County authorities, State, and NRC. Initial notification of a GE shall contain initial Protective Action Recommendations. The purposes for declaring the GE are:

- To initiate protective actions for the public and site personnel as predetermined by projected, or by actual releases.
- To provide continuous assessment of information from the affected unit.
- To provide for consultation with offsite authorities.
- To keep the public informed through the JIC.
- To evacuate non-essential personnel from the exclusion area (provided it is safe) to either the Offsite Assembly Area (OAA) for monitoring and if necessary decontamination, or home if there has been no release of contamination from the station.

The TSC and EOF will be staffed to assist in the assessment of the incident and proper determination of responses. Periodic plant status updates will be given to offsite authorities who will also be advised of any change in the classification of the incident. The JIC will be staffed in order to coordinate public information activities warranted by the emergency. Offsite agencies will activate all needed resources and facilities.

4.4 Assessment Capabilities

4.4.1 Field Radiological Assessment

Field radiological data is collected by onsite and offsite survey teams. The teams may be deployed for any emergency classification involving projected or actual releases of radioactive materials. The survey teams use emergency/company vehicles (or personal vehicles, if needed) for transportation and maintain contact with the EOF or TSC.

Downwind Survey equipment is maintained for emergency use by onsite and offsite survey teams. This equipment includes portable instrumentation for performing direct radiation surveys, performing contamination surveys and collecting and analyzing airborne samples for gross and iodine radioactivity.

Rapid assessment of any radiological hazards resulting from the gaseous effluents are made in the field using the environmental samples taken. Radiation Protection Procedures will be used to implement the required radiological surveys/samples and analyze of the results of these surveys/samples taken from within the NMPNS. Procedure EP-AA-112-500-F-55, NMP Offsite Monitoring Team Guidance, will be used to analyze the offsite survey and sample results to provide an initial estimate of the offsite radiological consequences.

Rapid field assessment of liquid samples is not considered essential because the nearest drinking water supply is far enough away to provide ample time for warning the appropriate State and local authorities in the event protective measures are required. When field liquid samples are required, they will be taken and transported back to the appropriate facility for assessment.

4.4.2 Field Airborne Radioiodine Assessment

Monitoring for radioiodine is accomplished by the use of portable sampling pumps equipped with a particulate filter and silver zeolite cartridges. The particulate filter and silver zeolite cartridges can be field counted in a low background area for immediate determination of total radioiodine concentration. Cartridges and filters can be further analyzed using gamma spectrometry in either the NMPNS counting laboratory, the environmental laboratory or the adjacent JAFNPP counting laboratory. The lower limit of detection for radioiodine is less than $1.0\text{E-}7$ $\mu\text{Ci/cc}$ under all weather conditions.

4.4.3 Field Contamination Assessment

A second type of radiological data which the onsite and offsite survey teams collect is surface contamination levels for the radionuclides listed in NUREG-0654, Table 3 (Radionuclides with Significant Contribution to Dominant Exposure Modes). The data obtained from these sample measurements assist in protective action decisions affecting the general public during the emergency and post-emergency recovery/re-entry phase. This data can be used to determine 10CFR140 applicability.

Surface contamination may be estimated using procedure EP-AA-112-500-F-55 during the emergency and actual values are determined by sampling snow, grass, soil, leafy vegetation, surface water as deemed appropriate during emergency recovery activities. EP-AA-112-500-F-55 describes in detail the emergency radiological environmental sampling program.

4.5 Dose Assessment Methods and Techniques

The NMPNS has established a method for relating various measured environmental media activity levels to dose rates for key isotopes and gross radioactivity measurements. NMPNS has formulated provisions for estimating integrated dose from the projected and actual dose rates (refer to EP-AA-110-204, NMP Dose Assessment). The results of these calculations can then be tabulated and compared with applicable protective action guides.

The information most important in determining offsite consequences is source term, dose assessment, environmental measurements and dose projections. The following paragraphs describe these dose assessment terms and techniques.

4.5.1 Source Term Determination

a. Projected Source Term Determination

The release rate and/or source term from NMPNS during a nuclear emergency can be projected as described in EP-AA-110-204, and are listed as follows:

- 1) Containment High Range Monitors (CHRM) (relate CHRM to a radioactivity concentration in the drywell, then assume a flowrate from the drywell to the atmosphere).
- 2) Grab samples.
- 3) Back calculation from downwind gamma dose rate measurements.
- 4) UFSAR/USAR postulated accident release rates.

b. Actual Source Term Determination

The method for determining actual release rate for source term determination from NMPNS during a nuclear emergency are described in EP-AA-110-204, and are listed as follows:

- 1) Effluent monitors
- 2) Stack teletector (Unit 1 only)
- 3) Grab samples

4.5.2 Offsite Radiological Dose Assessment Process

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.

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:

- a. First, onset of a release to 1 hour post-accident:
 - 1) 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.
- b. Second, 1 hour post-accident to event termination:
 - 1) 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

4.5.3 Onsite Dose Assessment and Protective Actions

Health Physics procedures provides procedures for assessing the radiological conditions onsite, and protective actions needed in response to those actual or projected conditions. EP-CE-113, Personnel Protective Actions provides for control of emergency exposures.

4.5.4 Environmental Measurements

The second method available to assess dose is based on measured activity in environmental media. Dose can also be determined on the basis of plant and

environmental measurements collected per EP-AA-112-500-F-55 and the post-accident sampling procedures.

Environmental samples collected by the downwind survey teams and environmental survey teams are returned for laboratory analysis. Environmental media such as milk, human food products and water are analyzed in a laboratory environment to determine the concentrations of key isotopes which would then be converted (either by hand calculation or computer using appropriate formulas) to dose.

4.5.5 Dose Projection

- a. Preliminary estimates of total population exposure are made using the method in EP-AA-110-204, and EP-AA-112-500-F-55. These preliminary estimates are based on projected or actual field measurements made during the course of the emergency. During the recovery phase of the emergency, these estimates are refined based upon actual emergency and environmental Optically Stimulated Luminescent Dosimeters (OSLD) results, information obtained from the Oswego County Emergency Management Office on evacuated and sheltered population, and evacuation time estimates for various Emergency Response Planning Areas (ERPA's).

4.6 Mitigative Actions

Detailed Emergency Operating Procedures, Special Operating Procedures, and Severe Accident Procedures as appropriate are used by the station operating personnel to assist them in recognizing potential or actual emergency events and responding to emergency and severe accident conditions. These procedures describe the mitigative actions necessary to place the plant in a safe condition. Additionally, Emergency Plan Implementing Procedures, as listed in this Station Annex, Appendix 3, describe subsequent and/or supplemental mitigative actions for the scope of potential situations within each of the emergency classifications. These Emergency Plan Implementing Procedures are designed to guide the actions of personnel to correct or mitigate a condition as early and as near to the source of the problem as feasible.

4.7 Protective Actions

Protective actions are measures which are implemented to prevent or mitigate consequences to individuals during or after a radiological incident. Protective actions within the NMPNS site boundary are the responsibility of the NMPNS Emergency Director, but may include assistance by off-site organizations. Protective actions outside the NMPNS site boundary are primarily the responsibility of State and local emergency organizations, but may include

coordination of activities, dissemination of appropriate data and recommendations by the NMPNS Emergency Director.

4.7.1 Onsite Protective Actions

Onsite protective actions are directed by the Emergency Director and are reviewed to consider the possible impact on the activities of offsite response personnel prior to being ordered.

The primary protective measure for onsite personnel in an emergency is prompt evacuation from areas which may be affected by significant radiation, contamination or airborne radioactivity. For personnel who must stay onsite as part of the on-site emergency response team other protective measures may be used as discussed in the following sections.

In addition, a range of protective actions to protect onsite personnel during hostile action events has been developed. This range of protective actions ensures the continued ability to safely shut down the reactors and perform emergency response functions. The response functions include:

- Evacuation of personnel from target buildings
- Site evacuation by opening gates, while continuing to defend them
- Dispersal of Licensed Operators
- Sheltering personnel away from potential site targets
- Accounting for personnel after the attack

The following are the primary onsite protective actions:

a. Local Area/Building Evacuation

A local area/building evacuation is confined to local areas or buildings within the protected area. This evacuation requires all personnel within the designated area or building to rapidly exit the area/building and remain clear of the area/building until further notice. The decision to implement a local area/building evacuation is the responsibility of the Emergency Director. This decision is based largely on evaluation and judgment of the magnitude and severity of the situation on a case by case basis. Factors to be considered may include:

- the safety of personnel within the area/building
- smoke/heat or other hazards
- actual or estimated levels of radiation and/or airborne radioactivity involved, as well as the potential exposure to personnel that would result from both evacuating and not evacuating specific station areas/buildings.

The warning of personnel in the station can be accomplished in less than 15 minutes. (This includes visitors, contractor and construction personnel).

Notification is made by sounding the evacuation alarm, followed by an announcement over the plant PA system. (Refer to EP-CE-113, Personnel Protective Actions)

b. Protected Area Evacuation

A Protected Area Evacuation is confined to areas within the protected area. This evacuation requires that ERO members assemble at their designated ERF, and non-essential personnel leave the protected area and assemble at designated locations outside of the protected area. (refer to EP-CE-113).

The decision to implement a protected area evacuation is the responsibility of the Emergency Director (as appropriate). A protected area evacuation is automatically implemented at an Alert or Site Area Emergency provided it is safe to perform. The warning of personnel in the protected area can be accomplished in less than 15 minutes. (This includes visitors, contractor and construction personnel)

Notification of a protected area evacuation is made by sounding the evacuation alarm, followed by an announcement over the plant PA system.

c. Owner Controlled Area (OCA) Evacuation

EP-CE-113 describes the evacuation of non-essential personnel from the NMPNS protected area via the Security Buildings to the Offsite Assembly Area. It also includes, as appropriate, the evacuation of individuals from the NMPNS OCA, including the Nuclear Learning Center, Energy Center, Sewage Treatment Facility and all other NMPNS site locations to their homes or Offsite Assembly Area

The Off-site Assembly Area is normally the Oswego County Airport, Hanger K, in Volney (Fulton). The Emergency Director may specify alternate routes or alternate locations, if appropriate. Personnel will use privately owned vehicles to evacuate. Security personnel help ensure that personnel proceed to the Offsite Assembly Area. JAFNPP is advised of the NMPNS OCA evacuation and the projected dose rates which could affect their personnel. The decision to implement an OCA evacuation is the responsibility of the Emergency Director. The decision is based on the declaration of a Site Area Emergency in which a radioactive release is anticipated or in progress, the declaration of a General Emergency, or upon declaration of a site evacuation by JAFNPP.

Notification of an OCA evacuation is made by sounding the evacuation alarm, followed by an announcement over the station PA system.

Other persons who may be in public access areas, passing through the site, or within a NMPNS controlled location, will be notified by methods outlined in EP-CE-113. The warning of personnel in the OCA can be

accomplished in less than 15 minutes. (This includes visitors, contractors and construction personnel)

d. Personnel Accountability

To ensure that station personnel present in affected areas have been accounted for and to determine the whereabouts of personnel who have not been accounted for within the protected area, measures have been established to provide for personnel accountability. Accountability for personnel remaining within the protected area following an accountability order is performed in accordance with EP-CE-113.

Initial accountability results in the generation of a list of missing persons within 30 minutes of an announcement to evacuate non-essential personnel or an announcement to perform accountability and/or identifying any individuals not accounted for.

NOTE: The personnel accountability process is considered initiated when the announcement has been completed.

The accountability system works as follows: Personnel enter the protected area through security access points. Upon entering the area personnel position their security identification proximity card (Owner Controlled Area Card) near the entrance Proximity Card Readers. Their access is tracked by the security department computer. In the event of an emergency, personnel within the protected area report to onsite assembly areas, or exit the protected area activating a Proximity Card Reader at the accountability area or at the protected area exit. After a number of personnel have completed this process (about 20 minutes after the announcement), a report is produced. The information on the report yields the names of individuals who are present in the protected area, but who have not activated a Proximity Card Reader (activations are subtracted from the overall database). The personnel accountability process continues throughout the event. Search and rescue efforts begin at the completion of the initial accountability process, and are performed in accordance with EP-AA-113, Personnel Protective Actions.

e. Contamination Control

The NMPNS Radiation Protection Procedures contain provisions governing the control of contamination including access control, use of protective clothing, contamination monitoring, and the release of potentially contaminated items from Restricted Areas.

The requirements and guidelines of these procedures apply to contamination control during emergency conditions.

Specific onsite contamination control measures for food supplies is not necessary since no agricultural products for consumption are grown within the NMPNS exclusion area. Also, no drinking water supplies

originate onsite. Drinking water is obtained from City of Oswego water supplies or bottled water suppliers.

f. Exposure Control

The radiation exposure of station personnel during emergency operations is maintained As Low As Reasonably Achievable (ALARA), and should be maintained less than the administrative guides established in the NMPNS Radiation Protection Procedures and/or less than the Federal radiation exposure standards established in 10CFR20. In order to accomplish this objective, administrative means used during normal operations to minimize personnel exposure, such as Radiation Work Permits, Authorization to Exceed Radiation Exposure Guides, and ALARA measures should remain in force to the extent consistent with timely implementation of emergency measures.

If necessary actions require personnel exposures to exceed normal limits, or if normal access control and radiological work practices results in unacceptable delays, the established exposure control criteria and methods may be waived or modified at the discretion of the Shift Emergency Director or Corporate Emergency Director (as appropriate). In the event of a declared emergency, the emergency dose limits outlined in EPA-400 have been proceduralized in EP-CE-113, Personnel Protective Actions, and may be used. EP-CE-113 also provides procedures for expeditious decision making, a reasonable consideration of relative risks, and the capacity for just-in-time authorization or emergency exposures.

Emergency dose limits are as follows:

| TEDE Limit (rem) | Activity |
|------------------|--|
| 5 | All activities during the emergency |
| 10 | Protecting valuable property |
| 25 | Lifesaving or protection of large populations |
| >25 | Lifesaving or protection of large populations, only if individuals receiving exposure is a volunteer, and fully aware of risks involved. |

Dosimetry equipment is provided at the station as part of the normal Radiation Protection Program, and such dosimetry continues to be used during emergency situations. Dosimetry consists of OSLDs (or equivalent) and Self-Reading Dosimeters (SRD) (or equivalent, e.g. electronic dosimeters), also known as Pocket Direct-Reading Dosimeters. A limited number of such dosimetry are also available in emergency

supplies. Personnel are available 24 hours a day during an emergency to issue and/or process dosimetry devices.

The NMPNS Radiation Protection Procedures contain provisions for administration of the Facility Bioassay Program. EP-CE-113 provides guidance for accelerated or additional bioassays in the event there are individuals who are suspected of being exposed to elevated levels of airborne activity as a result of the emergency. Radiation Protection Procedures provide for issuing, using, and reading/processing dosimetry devices and provisions for exposure record keeping. During an emergency the processing frequency is based upon the exposure rates and/or the exposure received by emergency personnel.

g. Respiratory Protection

The NMPNS Radiation Protection Procedures contain provisions governing the use of respiratory protection equipment and administration of the NMPNS Respiratory Protection Program. Site specific ERO Respirator qualification requirements contained in the ERO Training and Qualification procedure take precedence over requirements contained in the Exelon Standardized Radiological Emergency Plan for Nine Mile Point Station.

Exceptions to normal respiratory protection practices may be instituted by the Shift Emergency Director or ED (as appropriate), with the advice of the RP Director.

h. Potassium Iodide (KI)

Potassium iodide (KI) is available for use by NMPNS employees in the event of an emergency. Indications and when KI should be used are contained with EP-CE-113.

4.7.2 Offsite Protective Actions

a. Protective Actions Within Oswego County

The responsibility for actions to protect offsite individuals rests with the County of Oswego, New York State Office of Emergency Management and New York State Department of Health as described in the New York State Radiological Emergency Preparedness Plan.

The NYS Department of Health is responsible for evaluating information obtained from the NMPNS and/or other sources and recommending appropriate offsite protective actions to the OEM/OCMO.

The principal offsite local coordinating agency for providing response to radiological emergencies in the vicinity of the NMPNS is the OCEMO. The entire 10-mile Emergency Planning Zone is contained within Oswego County.

A detailed study has been conducted of the status and capacities of roads, traffic patterns and demography within the 10-mile radius Emergency Planning Zone. This study includes the estimated times to evacuate all or specific segments of the population, identifies potential problem areas and provides contingencies for dealing with adverse conditions. The time estimates for various scenarios were performed: 1) Nighttime, normal weather; 2) Nighttime, adverse weather; 3) School in session, normal weather; 4) School in session, adverse weather. This study, "Evacuation Travel Estimates (ETE) for the James A. Fitzpatrick/Nine Mile Point Emergency Planning Zone" is contained in EP-AA-1013, Addendum 2 and was used in the development of detailed evacuation plans by the OCEMO. The ETE meets the criteria established in NUREG-0654.

b. Oswego County Prompt Notification System

The physical and administrative means for alerting and warning the population of an incident at the Nine Mile Point Nuclear Station is described in detail in EP-CE-111 and the Oswego County Radiological Emergency Response Plan.

The responsibility for activation of the Prompt Notification System (PNS) rests with the Chairman of the Oswego County Legislature or designee. The Oswego County Emergency Management Office administratively activates the warning system and supplies appropriate emergency messages to the Emergency Alert System (EAS) station serving the jurisdiction in accordance with the provisions of their emergency response plans. Siren activation equipment is located at the OCEMO and the Oswego County 911 Center.

The PNS consists of:

- Outdoor sirens.
- Reverse calling system (as back-up to the above).
- Emergency Alert System.

This system meets NUREG-0654 and FEMA-REP-10 design and testing criteria. System design and testing requirements are detailed in the approved FEMA Design Report.

c. Protective Action Guides and Recommendation of Protective Action Recommendations

Protective Action Guides (PAG's) identify protective actions to be taken prior to or following a significant release of radioactive material. They are based on NUREG-0654/FEMA-REP-1, Rev 1, Supplement 3, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" and Frequently Asked Questions (FAQ) documented in "EPFAQ 2013-004 Final

Response". PAGs for the "plume phase" have been established by the US Environmental Protection Agency.

The numerical guides for TEDE and CDE_{Thyroid} (child) dose to the general public are listed below. The procedure used by NMPNS personnel in determining the appropriate protective action recommendation (PAR) is detailed in EP-CE-111. PARs are reviewed prior to issuance to assess their potential impact on offsite response organization activities.

| Protective Action Guidelines Early or Plume Phase | | |
|--|------------|---------------|
| | TEDE (rem) | CDE_T (rem) |
| Evacuate | >1 | >5 |

The following principles guide the formulation of PARs for the NMPNS:

- Evacuation is the preferred method of protecting the public in the event of a significant radiological release. EPA 400 Protective Action Guidelines are used.
- NMPNS does consider sheltering due to Controlled Containment Venting with release durations of < 1 hour and dose assessments do not exceed the EPA PAGs.
- If determined to be appropriate by New York State or Oswego County Officials, thyroid prophylaxis may be provided to the general public. NMPNS recommendations include implementation of the KI Plan in order to be consistent with offsite plans.

4.8 Aid to Affected Personnel

Procedures are established which provide for control of radiation exposure, including emergency exposure, personnel contamination, assistance to injured persons, and situations involving complications due to the presence of radiation or radioactive contamination.

4.8.1 Decontamination

Personnel contamination in emergency situations is controlled to the extent feasible by the normal methods of using protective clothing and surveying for contamination following the removal of such clothing. Designated personnel decontamination areas consisting of showers and sinks which drain to the radwaste system, are available for either routine or emergency use at the NMPNS. Similar facilities are available at the JAFNPP. Station radiation protection personnel are instructed in the proper methods of removing minor contamination from skin surfaces. Efforts involving significant amounts of contamination, particularly in the vicinity of facial openings, will normally be performed under the direction of Radiation Protection personnel. Detailed methods for personnel decontamination are described in Radiation Protection Procedures. Decontamination limits are detailed in station Radiation Protection Procedures.

4.8.2 First Aid

Individuals are onsite who can administer first-aid. First aid to injured personnel is normally performed in conjunction with any necessary decontamination methods. However, if immediate treatment of the injury is vital, that treatment shall take precedence over decontamination. This philosophy also extends to offsite emergency assistance involving radioactive contamination. For that purpose, measures are established to ensure timely offsite medical treatment and limiting the spread of contamination, as described in Station Annex Sections 4.8.3 and 4.8.4.

4.8.3 Medical Transportation

Arrangements have been made with the Oswego County 911 Center to transport from the NMPNS to a medical treatment facility any injured personnel, including radioactively contaminated personnel and those involved in radiation exposure incidents, or a Hostile Action Based event.

Copies of the agreements from facilities/organizations which provide emergency services are contained in Station Annex Appendix 2. Ambulance emergency supplies are available for use and are stored at designated points of access to the NMPNS.

4.8.4 Medical Treatment

Arrangements have been made with the Oswego Hospital (Oswego, N.Y.) for the medical treatment of patients from the NMPNS who may have a radiation exposure injury or injuries complicated by radioactive contamination, or been involved in a Hostile Action Based event. The Oswego Hospital has developed a detailed procedure for handling radioactively contaminated patients or those involved in radiation exposure incidents at the NMPNS. Similar arrangements have been made with the State University of New York University Hospital at Syracuse (Syracuse, N.Y.) for medical treatment of contaminated injuries and significant overexposures to radiation or been involved in a Hostile Action Based

event. University Hospital has developed detailed procedures for handling radioactively contaminated or those patients involved in radiation exposure incidents at the NMPNS.

Medical treatment facilities and on-site personnel may also contact a radiation management expert who is contracted to provide radiological treatment advice upon request. Radiation Protection Procedures describe actions necessary for decontamination of emergency worker wounds, and waste disposal. The Emergency Equipment Inventory procedure lists decontamination equipment available at Oswego Hospital. This service is available 24 hours per day year-round as specified in the Letter of Agreement in Appendix 2.

4.9 Emergency Public Information and Rumor Control

A telephone inquiry response program and a rumor control program has been established by NMPNS. NMPNS in conjunction with state and county governments cooperate on responses to inquiries which may occur as a result of an emergency situation at the NMPNS. Implementing procedures are contained in EP-AA-112-600, Public Information Organization.

FIGURE 4-1
ACTIVATION OF EMERGENCY ORGANIZATION
SUMMARY OF NOTIFICATION AND RESPONSE

| Class | Criteria | Notifications | | Response | |
|------------------|---|---|---|---|---|
| | | Onsite | Offsite | Onsite Personnel | Offsite Personnel |
| UNUSUAL EVENT | Off-normal events which could indicate a potential degradation in the level of plant safety | 1) The following notifications are made on an as-needed basis: <ul style="list-style-type: none"> • Nine Mile Point Fire Brigade • Damage Control Teams • Control Room Advisory Staff • Security Force • Survey Teams • Other Personnel | 1) The following shall be notified: <ul style="list-style-type: none"> • Oswego County • State of New York • NRC Hdqtrs 2) The following notifications are made on an as-needed basis: <ul style="list-style-type: none"> • Fire units • Rescue units • Ambulance service • Hospital • Local Area/Building Evacuation | 1) Make prompt offsite notifications 2) Perform continuing assessment 3) The following actions are performed on an as-needed basis: <ul style="list-style-type: none"> • Emergency Repairs • Administer First Aid, and • Other medical treatment • Accountability | 1) The following are performed on an as-needed basis: <ul style="list-style-type: none"> • Provide firefighting assistance • Assist in rescue operations • Provide medical transportation • Provide medical treatment • Assist in damage control • Perform onsite monitoring • Institute security measures |

FIGURE 4.1 (Cont.)
ACTIVATION OF EMERGENCY ORGANIZATION
SUMMARY OF NOTIFICATION AND RESPONSE

| Class | Criteria | Notifications | | Response | |
|-------|--|---|---|---|--|
| | | Onsite | Offsite | Onsite Personnel | Offsite Personnel |
| ALERT | Events which indicate an actual degradation in the level of plant safety | 1) The following notifications are made on an as-needed basis: <ul style="list-style-type: none"> • Nine Mile Point Fire Brigade • Damage Control Teams • Control Room Advisory Staff • Security Force • Survey Teams • Dose Projection Personnel • Other Personnel (as necessary) • Notify TSC, OSC, and EOF personnel | 1) The following shall be notified: <ul style="list-style-type: none"> • Oswego County • State of New York • NRC Hdqtrs 2) The following notifications are made on an as-needed basis: <ul style="list-style-type: none"> • Fire units • Ambulance service • Hospital | 1) Make prompt offsite notifications 2) Perform continuing assessment 3) Staff TSC, OSC, EOF 4) The following actions are performed on an as-needed basis: <ul style="list-style-type: none"> • Administer first aid • Conduct rescue operations • Perform onsite and offsite monitoring • Perform offsite dose projections • Institute security measures • Fight fire • Perform emergency repairs • Protected Area Evacuation • Accountability | 1) The following are performed on an as-needed basis: <ul style="list-style-type: none"> • Provide firefighting assistance • Assist in rescue operations • Provide medical transportation • Provide medical treatment • Assist in damage control • Provide onsite assistance as required • Activate primary response centers • Alert key personnel • Conduct confirmatory dose projections • Maintain emergency communications |

FIGURE 4.1 (Cont.)
ACTIVATION OF EMERGENCY ORGANIZATION
SUMMARY OF NOTIFICATION AND RESPONSE

| Class | Criteria | Notifications | | Response | |
|---------------------|---|---|---|--|--|
| | | Onsite | Offsite | Onsite Personnel | Offsite Personnel |
| SITE AREA EMERGENCY | Events which involve actual or likely major failures of plant functions needed for protection of the public | 1) The following notifications are made on an as-needed basis: <ul style="list-style-type: none"> • Nine Mile Point Fire Brigade • Damage Control Teams • Control Room Advisory Staff • Security Force • Survey Teams • Dose Projection Personnel • Other Personnel (as necessary) • Notify TSC, OSC, and EOF personnel | 1) The following shall be notified: <ul style="list-style-type: none"> • Oswego County • State of New York • NRC Hdqtrs 2) The following notifications are made on an as-needed basis: <ul style="list-style-type: none"> • Fire units • Rescue units • Ambulance service • Hospital | 1) Make prompt offsite notifications 2) Perform continuing assessment 3) Staff TSC, OSC, and EOF 4) Accountability 5) The following actions are performed on an as-needed basis: <ul style="list-style-type: none"> • Administer first aid • Conduct rescue operations • Perform onsite and offsite monitoring • Perform offsite dose projections • Institute security measures • Firefighting • Emergency Repairs • Recommend offsite protective actions • Augment resources • Protected Area Evacuation • Implement Exclusion Area Evacuation | 1) The following are performed on an as-needed basis: <ul style="list-style-type: none"> • Provide firefighting assistance • Assist in rescue operations • Provide medical transportation • Provide medical treatment • Assist in damage control • Provide onsite assistance as required • Activate primary response centers • Alert key personnel to standby • Conduct confirmatory dose projections • Maintain emergency communications • Place public notification system in standby status • Implement appropriate near site protective measures |

FIGURE 4.1 (Cont.)
ACTIVATION OF EMERGENCY ORGANIZATION
SUMMARY OF NOTIFICATION AND RESPONSE

| Class | Criteria | Notifications | | Response | |
|-------------------|--|--|---|---|---|
| | | Onsite | Offsite | Onsite Personnel | Offsite Personnel |
| GENERAL EMERGENCY | Events which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity | 1) The following notifications are made on an as-needed basis: <ul style="list-style-type: none"> • Nine Mile Point Fire Brigade • Damage Control Teams • Control Room Advisory Staff • Security Force • Survey Teams • Dose Projection Personnel • Other Personnel (as necessary) • Notify TSC, OSC and EOF personnel | 1) The following shall be notified: <ul style="list-style-type: none"> • Oswego County • State of New York • NRC Hdqtrs 2) The following notifications are made on an as-needed basis: <ul style="list-style-type: none"> • Fire units • Rescue units • Ambulance service • Hospital | 1) Make prompt offsite notifications 2) Perform continuing assessment 3) Staff TSC, OSC, and EOF 4) Exclusion Area Evacuation 5) Accountability 6) Recommend offsite protective actions 7) The following actions are performed on an as-needed basis: <ul style="list-style-type: none"> • Administer first aid • Conduct rescue operations • Perform onsite and offsite monitoring • Perform offsite dose projections • Institute security measures • Firefighting • Emergency Repairs • Augment resources | 1) The following are performed on an as-needed basis: <ul style="list-style-type: none"> • Provide firefighting assistance • Assist in rescue operations • Provide medical transportation • Provide medical treatment • Assist in damage control • Provide onsite assistance as required • Activate primary response centers • Alert key personnel to standby • Conduct confirmatory dose projections • Maintain emergency communications • Implement appropriate protective measures • Mobilize emergency response personnel • Continuously evaluate dose projections • Place public notification system in standby status |

**FIGURE 4.2 - EMERGENCY ORGANIZATION INTERFACES
(INITIAL NOTIFICATION)**

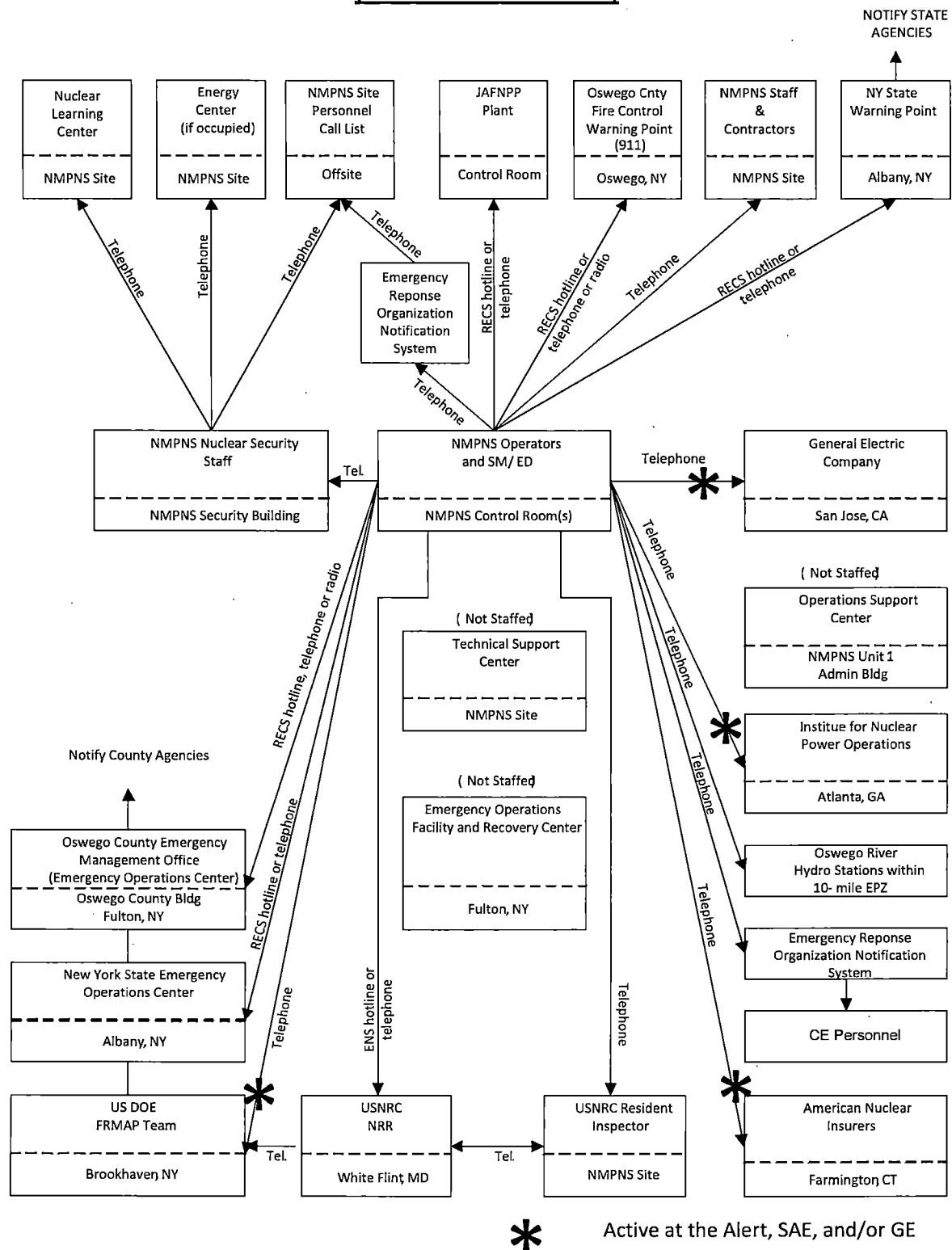
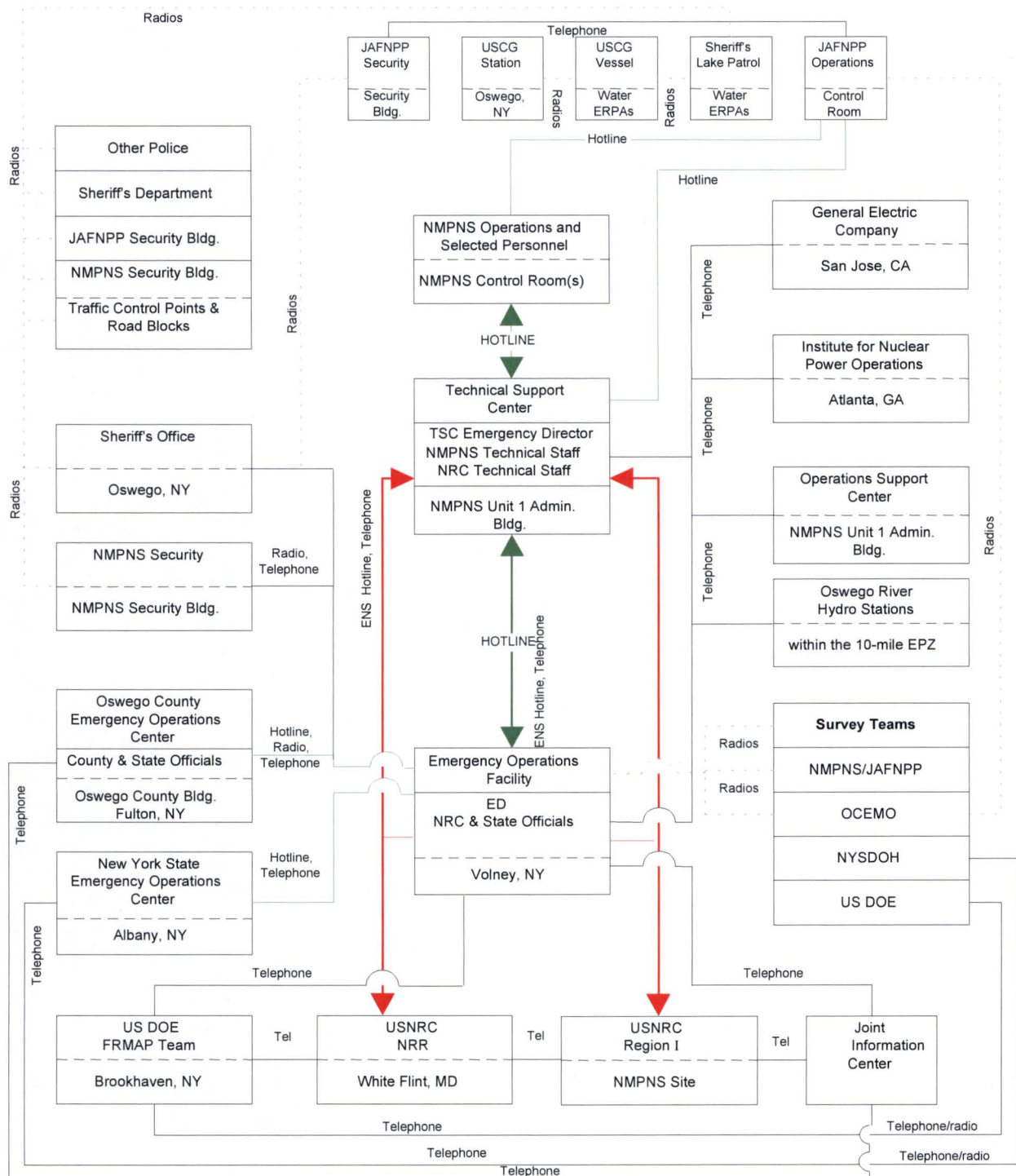


FIGURE 4.3
EMERGENCY ORGANIZATION INTERFACES
(AFTER EMERGENCY FACILITIES STAFFED)
 (Supersedes Standard Plan EP-AA-1000, Figures F-1 & F-2)



Section 5: Emergency Facilities and Equipment

Emergency facilities, equipment and communications are provided to ensure the capabilities for the prompt, efficient assessment and control of situations exists. Access to emergency facilities and equipment is governed by EPIP-EPP-14.

5.1 Emergency Response Facilities

5.1.1 Control Room(s)

The Unit 1 and Unit 2 Control Rooms are equipped with indications and controls for major plant systems. A portion of the indications for each Unit is the Safety Parameter Display System (SPDS). The purpose of SPDS is to display plant parameters in the Control Room(s) and TSC. The type and number of indications may be changed if future requirements change. Indications and assessment aids interrelated with meteorological and radiological dose calculation data are also provided, as well as access to emergency communications systems. The Control Rooms are designed for continuous occupancy following the most limiting accident.

5.1.2 Technical Support Center (TSC)

The NMPNS TSC is a facility located in the Unit 1 Administration Building at floor elevation 248. This is where station management and technical personnel can access technical data and displays necessary to assist Control Room personnel during emergency conditions. As part of their assistance, TSC personnel monitor station parameters to ensure prompt corrective and mitigating actions are taken.

The TSC is in close proximity to the Unit 1 and Unit 2 Control Rooms and has similar radiological habitability as the Control Rooms under accident conditions. The TSC provides access to site document control computer files which can provide any permanent plant record, as described in ANSI N45.2.9-1974, including as-built drawings. In addition, the TSC document control facility has copies of the NMPNS Emergency Plan and Implementing Procedures, Final Safety Analysis Reports, Technical Specifications, Administrative Procedures, Operating Procedures and other documents which may be used during an emergency. Space has been provided for five (5) NRC personnel.

5.1.3 Operations Support Center (OSC)

The OSC is an on-site assembly area at NMPNS to which designated station personnel report for accountability and special assignment. It is located in the Unit 1 Administration Building and includes the 261' Maintenance and Electrical Shops, Locker Rooms, Storeroom, and 248' Radiation Protection offices, and the Contractor staging area. The OSC Core Area is located adjacent to the TSC Core Area and within the TSC envelope on elevation 248'. The OSC has sufficient space to assemble station ERO personnel, and maintain them immediately available for assignment. After activation, the ERO personnel may

be instructed to resume duties or may be assigned new duties in support of emergency operations.

The OSC has installed and readily available communications equipment with which to control OSC related activities. Emergency cabinets with supplies and equipment for various teams (e.g., survey equipment, protective clothing, respiratory protection equipment, radios etc.) are located near the OSC. The First Aid Room and a personnel decontamination room are located nearby with appropriate supplies. In addition, the Maintenance Shops can be used to obtain necessary equipment and tools for damage control teams. A listing of OSC emergency equipment is included in the Emergency Equipment Inventory procedure and is representative of equipment specified in NUREG 0654 to support OSC operations.

5.1.4 Emergency Operations Facility (EOF)

The EOF is a Co-located Licensee (NMP and JAF) controlled and operated emergency response facility located approximately 12 miles from the reactor site on County Route 176, just outside Fulton, NY, adjacent to the Oswego County Airport. The purpose of the EOF is to provide continuous coordination with local, State and Federal agencies and to provide evaluation of NMPNS activities during an emergency. Space is provided so that Federal, State and local response agencies can monitor and coordinate with the utility response activities from this location. Utility recovery operations are also handled at this facility. It is expected that manufacturer and vendor representatives may require twenty-four (24) hours to arrive following notification. Federal, State and County Officials could arrive at any time following notification.

The EOF has facilities and capabilities for the following:

- Management of the overall NMP emergency response
- Coordination of radiological and environmental assessment
- Determination of Protective Action Recommendations (PAR)
- Notification of offsite agencies
- Coordination of event, plant and response information provided to public information staff for dissemination to the media and public
- Staffing within 60 minutes and activating the facility within the same time requirement or as soon as possible thereafter
- Coordination of emergency response activities with Federal, State and local agencies
- Obtaining and displaying key plant data and radiological information for NMP Units 1 and 2

- Analyzing plant technical information and providing technical briefings on event conditions and prognosis to staff and offsite agency responders for NMP Units 1 and 2
- Effectively responding to and coordinating response efforts for events occurring simultaneously at more than one site for Co-located licensees

5.1.5 Security Tactical Operations Center (STOC)

The STOC is a security command center that may be activated during a safeguards contingency or site emergency to ensure effective nuclear security program direction under unusual conditions. The STOC is located on the second floor of the west security annex building.

5.1.6 Joint Information Center (JIC)

The JIC is located near the Oswego County Airport, on County Route 176 in the Town of Volney, New York approximately 12 miles from the site. The function of this facility is to provide a single point of contact for disseminating information to the public. This dedicated facility has a large open area, used for briefings, and numerous small offices with telephones which can be used by news media personnel. A listing of equipment necessary to perform this function is in the Emergency Equipment Inventory procedure. The JIC is activated for an Alert, Site Area, or General Emergency.

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 located at the Nine Mile/Fitzpatrick EOF on County Route 176, just outside Fulton, NY, adjacent to the Oswego County Airport.

5.1.8 Oswego County Emergency Operations Center (OCEOC)

The OCEOC is located in the Emergency Management Office, County Branch Building, Fulton, N.Y. The County Warning Point is located at Oswego County 911 Center. Communications are available 24 hours per day at this warning point. Upon activation by the Oswego County Emergency Management Office, communications, planning, and coordination personnel become available at the OCEOC. A representative from NMPNS may be dispatched to this facility to act as liaison between the County and the site for a Site Area Emergency or General Emergency.

5.1.9 State Emergency Operations Center (SEOC)

The SEOC is located in the substructure of the Public Security Building, State Office Building Campus, Albany, New York. The State Warning Point communication systems and the State Emergency Management Office are also located in this center. Communication systems operate on an around the clock basis. State direction and control of emergency operations is conducted from the SEOC. Field operations are implemented through the State Emergency Management Office, Lake District Office, in Newark, N.Y. Upon activation, planning and coordination personnel become available at the SEOC. A representative from NMPNS may be dispatched to this facility to act as liaison between the State and the site for a Site Area Emergency or General Emergency.

5.2 Communication Systems

The Nine Mile Point communication capabilities include multiple systems and redundancies which ensure the performance of vital functions in transmitting and receiving information throughout the course of an emergency. Multiple modes and paths are available for necessary emergency communications. Typical communications capabilities and the interfaces between expected supporting agencies are provided in Figure 4.2 and Figure 4.3. Systems available at the various emergency facility locations or available for use by response organizations are:

5.2.1 Telephone Systems

The telephone system at NMPNS consists of an in plant dial system with connections to the local telephone system. The main emergency response facilities or organizations which have telephones are listed below:

- Control Rooms
- Technical Support Center
- Operations Support Center
- Emergency Operations Facility
- Security Tactical Operations Center
- Joint Information Center
- Oswego County Emergency Operations Center
- Oswego County Warning Point (Oswego County 911 Center)
- Oswego Hospital
- University Hospital
- New York State Warning Point

- New York State Emergency Operations Center
- NRC
- Other Emergency Response Organizations

5.2.2 NRC Emergency Notification System (ENS) Hotline

The ENS is a separate and completely independent telephone system which is part of the Federal Telephone System from the local telephone system. It is used to provide initial notification of an emergency and continuing emergency information. NMPNS facilities at which these telephones are located include:

- Control Rooms
- Technical Support Center
- Emergency Operations Facility

5.2.3 Radiological Emergency Communications System (RECS)

The RECS is a separate and completely independent system from the local telephone system and is similar to the ENS. This system is used to provide initial notification of an emergency and continuing emergency information to New York State and Oswego County Authorities. Facilities at which these telephones are located include:

- Control Rooms
- Technical Support Center
- Emergency Operations Facility
- JAFNPP Control Room, TSC
- Oswego County Warning Point (Oswego County 911 Center)
- Oswego County Emergency Operations Center
- NYS Warning Point
- NYS Alternate Warning Point (State Police Communications Center)
- NYS Emergency Operations Center
- NYS Department of Health (Headquarters in Albany)

5.2.4 NRC Health Physics Network (HPN)

The HPN telephone system is also a part of the Federal Telephone System. It is primarily used to transmit health physics (radiological) data to the NRC during an emergency. NMPNS facilities at which these HPN telephones are located include:

- Technical Support Center
- Emergency Operations Facility

5.2.5 Other Dedicated Telephone Line Systems

Dedicated telephone systems provide direct communication between the points shown. As appropriate these points are linked by one or more dedicated lines. They can be used in any situation but are primarily for emergency use. These systems include:

- Control Rooms to Technical Support Center
- Technical Support Center to Operations Support Center
- Emergency Operations Facility to Technical Support Center

5.2.6 Public Address and Page System

This system (commonly referred to as the GAltronic) is located in the various NMPNS facilities and includes outdoor speakers. It is a communications system which can be used by all station personnel.

Public Address Systems (other than GAltronic) are also located in the TSC, JIC, OSC and EOF. The system in the TSC allows announcements to be heard throughout the TSC and the OSC Core Area. The EOF and JIC systems allow announcements to be heard throughout the EOF or JIC. The OSC PA System permits announcements to be made throughout the OSC.

5.2.7 Radio Systems

NMPNS has various radio frequencies assigned for use. These frequencies include off-site and in-plant repeater channels, NMPNS channels and Oswego County public safety frequencies. All radio systems used for emergencies have significant redundancies (that is, separate power sources, antennas, feed lines, and consoles) that preclude loss of radio capability during emergencies. All NMPNS emergency facilities are equipped with consoles that allow use of all frequencies that may be used for emergencies. Thus, all emergency facilities (including the Control Rooms) are capable of contacting radio-equipped personnel within the plant and the 10-mile EPZ, and with Oswego County 911 Center and County emergency facilities. Additionally, all ambulances that service NMPNS have direct communication with Oswego and University Hospitals. NMPNS utilizes a telephone activated notification system to notify ERO personnel.

5.2.8 Emergency Response Data System (ERDS)

A computer system that collects a variety of information regarding plant operating parameters, meteorological data, effluent information and other data, and transmits it to the NRC.

5.3 Assessment Facilities and Systems

5.3.1 Onsite Assessment Facilities

- a. Initially following an emergency, the primary on-site emergency assessment facility is the affected unit Control Room. This assessment function is transferred to the TSC after that on-site facility has been activated. These facilities are described in the Station Annex Section 5.1.1.
- b. If background radiation levels permit, post-accident radiological samples may be analyzed on-site in the NMPNS Chemistry laboratory located at Unit 1 or the Unit 2 Chemistry Counting Room located at Unit 2. These in-plant laboratories have full computer/gamma isotopic, gross beta and gross alpha analysis capabilities. These facilities are available 24 hours per day seven days per week as needed.

5.3.2 Offsite Assessment Facility

- a. The offsite emergency assessment facility is the EOF. This facility is described in Station Annex, Section 5.1.4.
- b. NMPNS maintains an agreement with JAFNPP to have environmental samples evaluated by a vendor maintained by JAFNPP. Post-accident radiological samples can be sent off-site to the JAFNPP vendor in the event that the NMPNS in-plant laboratory is unavailable for any reason. If the JAFNPP vendor cannot perform the analyses or cannot handle the number of analyses required, samples can be sent to the Calvert Cliffs Nuclear Plant laboratory, located in Lusby Maryland. This laboratory also has similar capabilities to the NMPNS Health Physics laboratory. These facilities are available 24 hours per day seven days per week as needed.

5.3.3 Assessment Systems

- a. Plant Process Computer (PPC) and Safety Parameter Display System (SPDS)

The PPC and SPDS provide historical and real time plant data via displays and hard-copy devices that are located in the Control Rooms, TSC, and EOF.

Both systems are designed to assist emergency response staff and Control Room operators in the decision making process during normal and abnormal plant conditions. These systems are described in greater detail in the Unit 1 UFSAR and Unit 2 USAR.

- b. Radiological Monitoring

1) Plant Radiation Monitoring Systems

These systems, consisting of process and area radiation monitors, provide accident assessment by measuring and recording radiation levels and radioactivity concentrations at strategically selected

locations throughout the plant. Local alarm functions associated with the monitors provide for plant personnel protection. A listing of these monitors is contained in Volume 3 Section XII Unit 1 UFSAR and Unit 2 USAR Chapter 12.3.

2) Onsite Radiological Monitoring System

There are 6 environmental radiological monitoring stations which surround the site or are located within the site boundary. Onsite monitoring stations surround the plant as specified in the Offsite Dose Calculation Manual (ODCM) and are designed to continuously collect particulate and iodine air samples. The capability to collect precipitation samples is also available.

Environmental Thermoluminescent Dosimeters (TLD), are located at approximately 70 stations, both onsite and offsite. The TLD's are collected, and evaluated quarterly. The TLD stations (on-site and off-site) exceed the NRC Radiological Assessment Branch Technical Position in total number and quality of monitors. In addition to the environmental TLD monitoring, a group of Optically Stimulated Luminescent Dosimeters (OSLD) called Emergency Preparedness OSLD's and 10CFR20 OSLD's have been placed in various locations around the site and the county. These OSLD's are evaluated during or after an emergency situation has occurred and as part of the facilities 10CFR20 program. The emergency OSLD's and 10CFR20 OSLD's are also renewed quarterly.

3) Containment High-Range Radiation Monitor

Unit 1 is equipped with two, containment high-range radiation monitors with a gamma detection range of 10^0 to 10^8 R/hr. Unit 2 is equipped with four high range gamma detectors capable of monitoring radiation in the range of 10^0 to 10^7 R/hr. The purpose of these monitors is to detect gross fuel failure.

4) Offsite Radiological Monitoring Systems

There are approximately nine offsite radiological monitoring stations. These stations surround the plant and are described in the ODCM. Each of these monitoring stations is designed to continuously collect particulate and iodine air samples, and each has the capability for collecting precipitation samples, if required. Four (4) of the monitoring stations are along the site boundary and have radiation monitors. The radiation monitors are used to measure dose rates resulting from possible plume releases of radioactive material from the plant.

Environmental Thermoluminescent Dosimeters (TLD) and Optically Stimulated Luminescent Dosimeters (OSLD) are as described in Section b.2 above.

5) Emergency Radiological Survey Teams

In addition to the monitoring capabilities provided by the fixed assessment systems, survey teams may be dispatched on-site and off-site to take direct radiation readings and collect samples for field or laboratory evaluation in the field. Survey team members are notified through normal station communications systems, the standard call-out procedure by telephone or radio activated beepers. Survey teams can be deployed within approximately 60 minutes of notification.

Direction of the survey teams may be initiated by the affected control room, but is normally transferred to the TSC when it is activated. Following activation of the EOF, direction of the teams, including receipt and analysis of data is transferred to this facility. Monitoring information from the State and/or County may also be available and would be used.

c. Containment Monitors

Containment monitor data may be used to determine the extent of core damage. EPIP-EPP-09 provides the required implementation steps to determine the extent of core damage, using information obtained from these monitors.

1) Containment High-Range Radiation Monitor

See Station Annex, Section 5.3.3.b.3.

2) Containment Pressure Monitor

Continuous indication and recording of containment pressure from -5 psig to 250 psig is provided in the Unit 1 Control Room for each pressure transmitter.

The Unit 2 drywell pressure monitors provide continuous indication and recording of containment pressure from -5 psig to 150 psig in the Unit 2 Control Room.

3) Containment Water Level Monitor

Continuous indication and recording of the torus pool water level from 15 inches above the bottom of the torus to 3 feet, 8.5 inches above the normal water level of the torus pool is provided in the Unit 1 Control Room for each transmitter.

The Unit 2 suppression pool water level from the 192' level to the 217' level is continuously indicated and recorded in the Unit 2 Control Room.

4) Containment Hydrogen Monitor

Redundant continuous indication of hydrogen concentration in the containment is provided in the control room over the range from 0

to 20% for Unit 1 and over the range from 0 to 30% for Unit 2 by the H₂-O₂ Sampling System.

d. Sampling Systems

Data obtained from sampling systems may be used to determine the extent of core damage. EPIP-EPP-09 provides the required implementation steps to determine the extent of core damage, using information obtained from these systems.

1) Plant Effluent Monitoring System

The Unit 1 OffGas Effluent Stack Monitoring Systems (OGESMS) performs a continuous analysis of stack gross radioactivity via an isokinetic probe. Particulate and iodine samples are collected by standard cartridges which are manually inserted into the main sample lines, allowed to collect samples for a specified period of time, removed from the lines and analyzed.

The Unit 2 Wide Range Gaseous Monitoring Systems (WRGMS) performs a continuous analysis of stack and vent gross radioactivity via isokinetic probes. Particulate and iodine samples are collected by standard cartridges which are manually inserted into the stack and vent main sample lines, allowed to collect samples for a specified period of time, removed from the lines and analyzed.

2) In-Plant Iodine Instrumentation

Portable instrumentation is used for the sampling of in-plant iodine levels. Samples are taken on silver zeolite or TEDA impregnated charcoal sampling cartridges. The charcoal sample cartridges are then taken to the Station Laboratory where they are purged to remove entrapped noble gases and then analyzed. The silver zeolite cartridges have an iodine retention efficiency in excess of 99% while retaining only trace amounts of noble gases and thus do not have to be purged prior to analysis.

3) Grab Samples

A grab sample can be taken for determination of liquid or gaseous activity.

e. Fire Protection Systems

Fire protection at each Unit is provided by a complete network of fire detection, suppression and extinguishing systems. These systems are activated by a variety of thermal and products of combustion fire detection devices located throughout the station. At present the fire zones cover the turbine generator unit, vital areas and general station areas. Station Operating Procedures identify fire detectors and their locations.

f. Geophysical Phenomena Monitoring System

Monitors are provided to detect and record natural phenomena events which could result in plant damage due to ground motion or structural vibration and stress. Backup information can be obtained from: the other NMPNS Unit, the JAFNPP which also has seismic detectors; a contracted weather service; a local National Weather Service station, etc.

Hydrologic conditions (e.g., floods, low water, hurricanes) would be observed by the shift operating crew and/or information would be provided by the U.S. Coast Guard, a contracted weather service or a local National Weather Service station.

g. Meteorological Measuring System

Wind speed, wind direction and temperature sensors are installed on a suitably isolated tower at elevations of approximately 30, 100 and 200 feet above plant grade. The data collected by these sensors are telemetered to the NMPNS Unit 1 and Unit 2 Control Rooms and are designed to be continuously recorded on strip charts in the Control Rooms and the TSC (wind speed/direction only). In addition to this primary tower, a single level, 90-foot tall, backup tower and a single level, 30-foot tall inland tower are maintained as alternate sources of meteorological data. This data is also available in the TSC and the EOF. Meteorological data can also be supplied by local weather stations. Regional National Weather Service offices may provide access to their meteorological data, as required. Other sources include several supplemental towers located in the general area outside the 10-mile EPZ. Wind Roses may be obtained from Unit 1 UFSAR or Unit 2 USAR.

5.4 Protective Facilities

Onsite facilities and designated assembly locations are provided which ensure adequate radiological protection for personnel assigned to emergency duties in the plant, and for the accommodation of other personnel evacuated from areas that may be affected by radiation and/or airborne radioactivity.

5.4.1 Control Rooms

In addition to serving as the first line control for emergency situations, each Unit Control Room has the following features which provide protection for personnel who have control room duties throughout the course of any emergency:

- a. Adequate shielding by concrete walls to permit continuous occupancy under severe accident conditions.
- b. An independent emergency air supply system, equipped with absolute and activated charcoal filters.

- c. Continuous monitoring of radiation levels in the Control Room and throughout the plant by the Area Radiation Monitors (ARM) system, with readout in the Control Rooms.
- d. Emergency lighting and power, supplied by a 125 V dc System.
- e. Communications systems, as described in Station Annex Section 5.2.

Additional details regarding the design and inherent protective capabilities of each Unit's Control Room are discussed in the respective Nine Mile Point Nuclear Station UFSAR/USAR as appropriate.

5.4.2 Technical Support Center (TSC)

The TSC serves as the long range emergency control facility for the station. To allow for long-term human occupancy during an emergency situation, the following personnel protective features have been incorporated into the design:

- a. Adequate shielding to permit continuous long term occupancy under severe accident conditions.
- b. An independent emergency air supply system, equipped with absolute and activated charcoal filters.
- c. Emergency lighting and reliable power supplies.
- d. Communications systems as described in Station Annex Section 5.2.
- e. Continuous monitoring of radiation and airborne activity levels in the TSC.

5.4.3 Onsite Assembly Areas/ Evacuation Assembly Areas

Specific locations at the station are designated for assembly of personnel in the event of the need to account for all personnel within the protected area. These areas provide space to accommodate personnel who may be at the station. They are located on the basis of logical access routes and physical separation from likely areas of radiation and/or airborne radioactivity. Other areas outside of the protected area but within the exclusion area are designated locations (evacuation assembly areas) to which non-essential personnel are required to report during a Protected Area Evacuation. The purpose of these locations is to provide a location close to the protected area to allow for rapid return of personnel following termination of the emergency, yet outside of the protected area and away from any potential unnecessary exposure.

Upon announcement of a Protected Area Evacuation, personnel in the protected area, including office personnel and visitors, evacuate immediately to the designated Evacuation Assembly Areas. As they exit through the security access, they card out. The Control Room Operators remain in the Control Rooms and other operators on-site (on-shift, relief or operators in training) report to the OSC. TSC and OSC staff card in and remain in their respective emergency facilities, which are designated as assembly areas. Designated security personnel assemble at the Main Security Building, and the Alternate Access Point.

Adequate shelter from inclement weather is provided. Onsite Assembly Areas are described in procedure EP-CE-113. The responsibility to ensure that a visitor evacuates to the proper area rests with the individual accompanying the visitor at the time evacuation occurs.

5.4.4 Off-site Assembly Area

The purpose of the Off-site Assembly Area (OAA) is to provide a location for the assembly, monitoring, and, if necessary, decontamination of the personnel who leave the site following an Exclusion Area Evacuation.

The Oswego County Airport, Hanger K; in Volney, New York, is designated as the Off-site Assembly Area. This facility is located approximately 12 miles from the site.

Personnel may be monitored for contamination upon arrival at the OAA. Decontamination will be done in accordance with normal station procedures. Supplies are available at the OAA such as: protective clothing and decontamination supplies. Detailed personnel and equipment decontamination methods, and techniques for removal of radioiodine and other particulates are contained in station Radiation Protection procedures.

5.5 On-Site First Aid and Medical Facilities

A first aid treatment facility, equipped with industrial first aid supplies, is located near the Locker Rooms in the Unit 1 Administration Building. The Site Medical Facility is also equipped with industrial first aid supplies and is located in the P Building at Unit 2. A listing of first aid equipment that is located within the Protected Area is contained in Operations procedures.

Additional medical equipment is provided at designated locations throughout the station.

5.6 Decontamination Facilities for Emergency Personnel

Personnel decontamination rooms are located in the Unit 1 Administration Building and the Unit 2 Control Building. These are the primary facilities for decontaminating emergency personnel. If these facilities are unavailable for any reason, emergency personnel may be decontaminated at the JAFNPP facility.

The liquid waste from each of these decontamination facilities is disposed of via the respective plants liquid radwaste system. Solid waste is disposed of in containers provided for this purpose located at each decontamination facility. If additional decontamination facilities are necessary, the station locker room shower facilities can be used on an interim basis for performing decontamination, even though they do not drain to radwaste.

5.7 Damage Control Equipment

Damage control equipment consists of normal and special purpose tools and devices used for emergency maintenance functions throughout the station. Personnel assigned to damage control teams are cognizant of the locations of specific equipment which may be required in an emergency. The Rescue Cabinet inventory, Damage Control Tool Box inventory and shoring materials, including scaffolding (stored in the Unit 1 Turbine Building), and various shapes of angle iron, plate and bar stock are available through the warehouse. Heavy duty and specialized equipment, and trained equipment operators, can be provided if necessary.

5.8 Emergency Vehicles

NMPNS has access to helicopters and fixed wing aircraft. Their use can be requested to assist in an emergency response effort through the Emergency Operations Facility (EOF). The EOF also coordinates the use of helicopters operated by the New York State Police, Oswego County and Onondaga County. Also, keys for selected site vehicles are maintained in Control Rooms, and the OSC.

5.8 CATEGORIES OF EMERGENCY EQUIPMENT

- 5.8.1 Equipment available for use during emergencies is described in the Emergency Equipment Inventory procedure. Equipment/Facilities important to maintaining Emergency Preparedness is detailed in EP-CE-121-1004, Nine Mile Point Equipment Matrix.
- 5.8.2 Equipment for use in coping with a radiation emergency which would necessitate site evacuation is stored in a number of strategic locations: the Technical Support Center, the Control Room, the Operational Support Center, and the EOF. Sufficient variety and quantities of equipment are stored in each location. Dedicated equipment is inventoried to insure it is available, using the equipment list in the Emergency Equipment Inventory procedure. Equipment includes radiation monitors, protective breathing equipment, communications and data retrieval capability, dosimetry and protective clothing.
- 5.8.3 The Operations Support Center contains equipment for general use, as well as equipment for specific survey team use. The general use equipment includes communications equipment, reference material, survey instruments, dosimeters, counting equipment, sampling equipment, protective clothing, and decontamination equipment.

Section 6: Maintaining Emergency Preparedness

A concept of in-depth preparedness is employed regarding the Nine Mile Point Nuclear Station Emergency Preparedness Program. This concept is accomplished through training, emergency drills and exercises. Personnel are trained to provide an in-depth response capability for required actions in an emergency situation. Similarly, members of the population within the emergency planning zone are informed as to their expected response to an emergency at the Nine Mile Point Nuclear Station. This section of the Station Annex includes the means to achieve and maintain emergency preparedness and to ensure maintenance of an effective emergency program.

6.1 Organizational Preparedness**6.1.1 Training**

The Site Training Director is responsible for the Emergency Preparedness Training and Qualification Program provided to ERO personnel in accredited programs (Operations, Maintenance, Radiation Protection, Engineering and Chemistry).

The Emergency Preparedness Manager is responsible for maintenance of all non-accredited ERO personnel position specific qualifications. Training requirements for ERO personnel are detailed in the ERO Training and Qualification procedure.

The NMP Senior Nuclear Site Communications Specialist coordinates with the Oswego County Emergency Management Office to schedule public news organization training, administer the training and provide records of the activities to the Emergency Preparedness Department for record retention. The Director, Oswego County Emergency Management Office is responsible for planning and conducting emergency preparedness training for emergency response personnel in Oswego County.

Emergency training includes, as appropriate:

- a. Unescorted personnel entering or working within the Nine Mile Point Nuclear Station Protected Area receive, as a minimum, orientation regarding individual employee responsibilities, response to station alarms, the use of applicable station communications systems and requirements associated with personnel accountability and evacuations.
- b. Temporary work force personnel onsite are informed of their emergency response in accordance with applicable procedures for evacuations, and accountability.
- c. Personnel assigned to the NMPNS ERO with specific emergency preparedness duties and responsibilities receive specialized training for

their respective assignments. Station Annex Figure 6.2 delineates which personnel receive specialized training, the type of training and the required frequency of such training.

- d. The New York State Office of Emergency Management develops, conducts, and coordinates a training program for State personnel and may assist the County in developing training policy for disaster operational readiness. The Oswego County Emergency Management Director is responsible for planning and conducting emergency preparedness training of county emergency response personnel. The New York State Division of Military and Naval Affairs, has the responsibility for a statewide warning and communication system and may be requested to assist State and local agencies in specific disasters.
- e. The key personnel from the emergency/disaster services organizations listed below are invited, on an annual basis, to participate in a training program. The program, as appropriate, identifies interfaces between the NMPNS emergency organizations and the offsite (i.e., State, County and Federal) emergency organizations.

The program shall include a review of appropriate sections of the NMPNS Station Annex and appropriate Emergency Plan Implementing Procedures including: classification of emergencies; emergency action levels; reporting requirements; assessment, protective and mitigative actions; and communications networks. The organizations invited include but are not limited to:

- 1) New York State Office of Emergency Management
 - 2) New York State Department of Health
 - 3) Oswego County Emergency Management Office
- f. NMPNS provides for training to local offsite support organizations as specified in respective letters of agreement and as required to ensure a high state of emergency preparedness and response capability of these organizations. The local organizations that may provide onsite emergency assistance are encouraged to become familiar with the Nine Mile Point Nuclear Station (including the physical plant layout, site access arrangements and procedures, and key station personnel), and are invited to attend emergency preparedness training conducted by NMPNS. Such training is provided annually to the appropriate organizations and individuals:
 - 1) The local fire, local law enforcement and ambulance companies are invited to participate in a training program that may include but is not limited to:
 - i. Interface with the NMPNS Security Force during emergencies
 - ii. Basic health physics training

- iii. Nine Mile Point Nuclear Station facility layout including arrangements and procedures for site access for Offsite Response Organization Responders
 - iv. Onsite fire protection system equipment (permanent and portable)
 - v. Differences between onsite firefighting equipment and fire company supplied equipment
 - vi. Communications system
 - vii. Review of appropriate sections of the NMPNS Emergency Plan and Emergency Implementing Procedures
 - viii. The onsite emergency organization including the interface with the Nine Mile Point Nuclear Station Fire Brigade
- 2) The local medical support organizations and individuals are invited to participate in a training program that may include but is not limited to:
- i. Communications systems
 - ii. The onsite emergency organization including the interface between NMPNS Radiation Protection personnel, the local medical support personnel, and the radiation medicine consultants (Oswego Hospital, University Hospital or others)
 - iii. Radiological aspects of emergency medical treatment
 - iv. Nine Mile Point Nuclear Station Emergency Plan Implementing Procedures and Radiation Protection Procedures for decontamination
 - v. Review of appropriate sections of the radiation emergency plans and/or procedures of the Oswego Hospital and University Hospital
- g. Annually, a program to acquaint the news media (that is, major public news organizations serving the NMPNS area, such as local radio/TV stations, newspapers, local wire service offices and local correspondents to national new media) with the NMPNS emergency plan, information concerning radiation, the emergency classification scheme and points of contact for release of public information during an emergency, will be conducted.
- h. Personnel responsible for the Nine Mile Point emergency preparedness effort receive appropriate training to maintain their level of competency. The Site Emergency Preparedness Manager and staff attend relevant seminars and meetings on emergency preparedness issues, such as those held by the NRC/FEMA and Nuclear Energy Institute. In addition,

appropriate technical literature (such as any information received from NEI, FEMA, NRC, etc.) is reviewed to assist in maintaining this competency. Training requirements for NMP personnel responsible for the emergency planning effort are contained in EP-AA-120, Emergency Plan Administration.

6.1.2 Exercises and Drills

Exercises are realistic, pre-planned simulations of accidents, designed and conducted so that the response of the emergency organization closely approximates their response to an actual incident. Drills are pre-planned simulations in which the participants are "walked" or "talked" through one or more procedures, or aspects of the Station Annex. The primary purpose of drills is to provide individuals with hands-on training in a controlled situation. During practical drills on-the-spot correction of erroneous performance may be made and a demonstration of the proper performance offered by the instructor/controller. Drills are evaluated by drill controllers and observers. The response of Division personnel to an actual emergency condition may be allowed to satisfy a particular drill requirement, provided that a critique is performed and documented in the manner specified for a drill. In addition, selected training sessions can satisfy drill requirements as allowed by procedure.

Biennial exercises and annual drills are conducted in order to test the state of emergency preparedness of participating individuals, organizations, and agencies. An exercise or drill may be conducted that simulates an emergency that results in offsite radiological releases requiring response by offsite authorities to: 1) ensure that the participants are familiar with their respective duties and responsibilities; 2) verify the adequacy of both the NMPNS Emergency Plan and the methods used in the appropriate Implementing Procedures; 3) test communications networks and systems; 4) check the availability of emergency supplies and equipment; 5) verify the operability of emergency equipment; and 6) verify adequate interrelationships with offsite agency plans. Exercise scenarios provide the ERO with the opportunity to demonstrate proficiency in the key skills necessary to implement the principal functional areas of emergency response. Principal functional areas include: Management and coordination of the emergency response, Accident assessment, Event Classification, Notification of Offsite authorities, Assessment of the Onsite/offsite impact of radiological releases, Protective Action Recommendation development, Protective Action decision making, Plant system repair and mitigative action implementation, Public Notification /Information processes. Biennial Exercise scenarios are submitted to the NRC for review and approval. Biennial Exercises are evaluated and graded by the NRC and FEMA to determine that there is "reasonable assurance" that adequate protective measures will be taken in the event of an emergency. The NRC may require a remedial exercise if they cannot find reasonable assurance or determine that the

ERO has maintained the key skills specific to emergency response. All Drills and exercises that provide performance opportunities to develop, maintain or demonstrate key skills, provide for a formal critique with controllers and players following the completion of the drill. The critiques are to identify weak or deficient areas that need correction. During the critique, comments are gathered which are used to improve the emergency preparedness program, and a final assessment of the drill or exercise is made. Weaknesses or deficiencies identified in critiques are corrected and tracked through the Corrective Action Program.

The Site Emergency Preparedness Manager is responsible for planning, scheduling, and coordinating emergency planning related exercises and drills. The Fire Marshal, in conjunction with the Manager Operations and the Manager Training, is responsible for planning, scheduling, and coordinating Fire Brigade related drills. Drills are subject to management review. The Site Emergency Preparedness Manager is responsible for reviewing pre-exercise information to ensure only appropriate information is provided to the participants. In addition, participants are not permitted to review or otherwise view exercise scenarios.

Exercises and drills are conducted to simulate actual emergency conditions as closely as possible and may be scheduled such that more than one drill or exercise can be conducted simultaneously. Scenarios are prepared that emphasize coordination among onsite and offsite organizations as appropriate and may involve participation by the Nine Mile Point Fire Brigade; monitoring teams; varying degrees of participation of county, state, and Federal agencies and organizations and local offsite support personnel and organizations.

Scenarios are varied and include a wide spectrum of radiological releases and events. These events include hostile actions, no or minimal radiological release, initial or rapid Site Area or General Emergency declarations, Severe Accident Management and Large Area Loss (10CFR50.54(hh)(2)), integration of offsite resource and events that simultaneously involve both NMP and JAF.

Emergency Preparedness Drills and Exercises may include: communications drills, fire drills, medical emergency drills, radiological monitoring drills, and health physics drills. EOF activation drills are periodically conducted to maintain the proficiency of the EOF staff. Drills/Exercises are planned, scheduled and evaluated in accordance with EP-AA-122, Exercise and Drills.

6.1.3 Site Emergency Preparedness Manager

The Site Emergency Preparedness Manager is the individual with overall responsibility and authority for radiological emergency response preparedness for the NMPNS. See Figure 6.1 for Emergency Preparedness organization.

The primary duties of the Site Emergency Preparedness Manager include, but are not limited to:

- a. Ensuring the coordination of the NMPNS Emergency Plans with:
 - 1) Federal Plans
 - 2) State Plans
 - 3) County Plans
 - 4) NMPNS Physical Security Plan
 - 5) NMPNS Fire Protection Plan
- b. Ensuring that the information, in the Emergency Plan Implementing Procedures are consistent with the NMPNS Station Annex.
- c. Ensuring that the Emergency Plan Implementing Procedures interface properly with the Administrative Procedures, Security Procedures, Chemistry Procedures, Radiation Protection Procedures, Special Operating Procedures, Emergency Operating Procedures, Severe Accident Management Guidelines, and Training Procedures.
- d. Assisting the Manager Training in coordinating emergency planning related specialty training.
- e. Coordinating emergency preparedness related drills and exercises.
- f. Coordinating the review and update of the NMPNS Emergency Plan and Emergency Plan Implementing Procedures.
- g. Ensuring the maintenance and inventory of emergency equipment and supplies by scheduling inventory surveillances.
- h. Keeping abreast of changes in Federal regulations and guidance that may affect emergency planning.
- i. Ensuring qualified review of exercise materials and scenarios.

6.2 Reviewing and Updating of Plans and Procedures

6.2.1 Responsibility for Reviewing and Updating

Reviewing and updating of the NMPNS Emergency Plan and Emergency Plan Implementing Procedures are the responsibilities of the Site Emergency Preparedness Manager. Reviews of the plan and procedures are performed annually by the Site Emergency Preparedness Manager and/or the Emergency Preparedness staff. Recommended changes are reviewed and approved in accordance with NMPNS Administrative Procedures. An independent review of the emergency preparedness program and implementing procedures shall be conducted, in accordance with 10CFR50.54(t), at least every 24 months or as necessary based on an assessment by the licensee against performance indicators, and as soon as reasonably practicable after a change occurs in

personnel, procedures, equipment, or facilities that potentially could adversely affect emergency preparedness, but no longer than 12 months after the change. This review will be conducted by Nuclear Oversight as part of the Nuclear Oversight Audit program, under the cognizance of the Nuclear Safety Review Board (NSRB).

6.2.2 Changes to the Plans or Procedures

Any recommendation for corrective actions or revisions to the NMPNS Emergency Plans and the Emergency Plan Implementing Procedures shall be forwarded to the Site Emergency Preparedness Manager. These recommendations may result from audits, exercises, drills, changes in operating procedures or conditions, or changes in organization, equipment, personnel, phone numbers or methods of communication or operation. The Site Emergency Preparedness Manager shall implement approved recommendations for changes in accordance with station procedures. Review and approval of these recommended changes shall be conducted in accordance with Technical Specifications and Administrative Procedures. The letters of agreement will be reviewed and certified current annually. Verification of the telephone numbers found in the Station Annex and Implementing Procedures occurs quarterly in accordance with the Emergency Equipment Inventory procedure.

6.2.3 Recertification of Plans and Procedures

The Emergency Plan and procedures are reviewed annually in accordance with site administrative procedures. The Emergency Plan is recertified annually in accordance with EP-AA-120, Emergency Plan Administration. Emergency plans and procedures are written to comply with the guidance in the Procedure Writers Manual. Changes will be submitted for approval in accordance with Technical Specifications and Administrative procedures and distributed to official copy holders.

6.2.4 Distribution

Holders of official copies of the Nine Mile Point Nuclear Station Annex (SEP) receive approved changes to the SEP so that they can maintain their copies current.

6.3 Maintenance and Inventory of Emergency Equipment and Supplies

6.3.1 Responsibility for Maintenance and Inventory

The Site Emergency Preparedness Manager is responsible for ensuring the maintenance and inventory of emergency equipment and supplies. The authority for planning, scheduling, and performing the quarterly inventory and inspection of designated emergency equipment and supplies has been delegated as outlined in the Emergency Equipment Inventory procedure.

6.3.2 Maintenance and Inventory

Emergency supplies are inspected and inventoried as specified in the Emergency Equipment Inventory procedure. Instruments will be inspected for operability and calibration status in accordance with station calibration procedures. Instruments with expired calibrations or instruments with calibrations which will expire prior to the next inspection/inventory will be removed and calibrated, or replaced with calibrated equipment prior to their expiration date. Sufficient instruments are available to replace those removed from service for calibration or repair. Procedures for instrument calibration are contained in the station procedures. Calibration intervals meet or exceed any written recommendations of the manufacturers of the equipment. In addition, emergency communications systems involving dedicated telephone lines, base station, portable and console radios are tested periodically in accordance with the Emergency Equipment Inventory procedure.

6.3.3 Discrepancies

Any discrepancies found during inventory and inspection will be corrected as detailed in the Emergency Equipment Inventory procedure

6.4 Public Education and Information

6.4.1 Instructional Material

The NMPNS, in cooperation with the James A. Fitzpatrick Nuclear Power Plant and with state and county authorities, develop and periodically disseminate emergency planning instructional material to residents and transient populations in the Emergency Planning Zone (EPZ). This ensures that the permanent and transient adult population is provided an adequate opportunity to become aware of this information. This instructional material includes basic education information on:

- Basic educational information on radiation
- Public notification system
- Public response to warning signals
- Protective measures
- Sheltering procedures
- Evacuation routes and procedures
- Special needs of the handicapped
- Contact for additional information

6.4.2 Dissemination of Instructional Material

The following methods may be used to ensure that emergency planning information is transmitted to residents and transients in the EPZ:

- Advertisements summarizing the actions to be taken by residents are published annually in the local newspapers
- Printed instructions and evacuation maps are distributed to EPZ residents
- Printed instructions are included in the local telephone directory
- Printed instructions and evacuation maps are distributed to motels, hotels and recreation areas

A sample of this material is retained in the Emergency Preparedness Permanent Plant File. This material is developed and distributed periodically as required by EP-AA-120.

FIGURE 6.1
EMERGENCY PREPAREDNESS DEPARTMENT

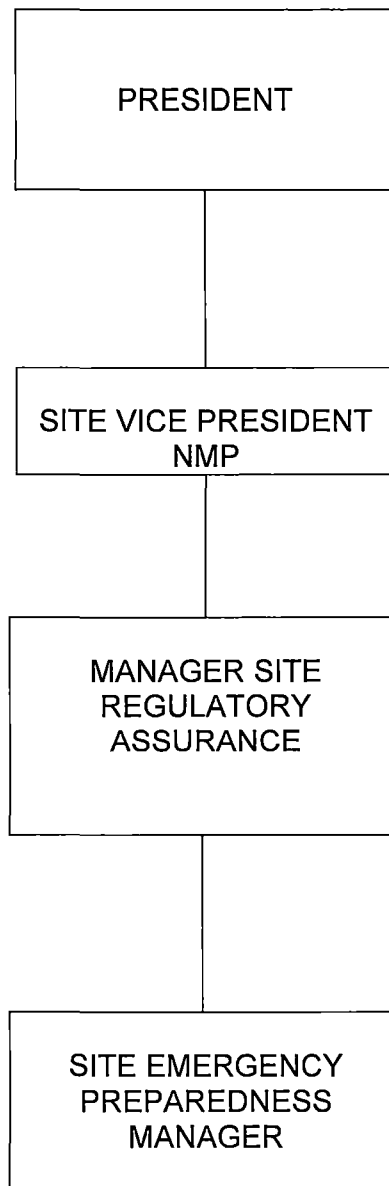


FIGURE 6.2
INITIAL TRAINING AND PERIODIC RETRAINING*

| Emergency Response Category | Involved Personnel (Typical) | Initial Training and Periodic Retraining |
|---|--|---|
| 1. <u>Emergency Plan Indoctrination</u> | Persons granted unescorted access to the Protected Area | <u>Initial</u> - Emergency Plan content and implementation; specifically: personal actions, warnings, assembly areas, use of station communications, personnel accountability and evacuation to an offsite assembly area. |
| 2. <u>Emergency Directors/ ERF Coordinators</u> | Plant Manager; Managers of Operations, SMs, Initial responders, and others as designated | <p><u>Initial</u> - Instruction on the scope, responsibilities, and function of the Emergency Plan and Implementing Procedures, including Incident Command System (ICS) concepts, position titles and terminology.</p> <p><u>Periodic</u> - Once per calendar year not to exceed 18 months between training sessions. Review of any changes made since the last training period.</p> |
| 3. Personnel responsible for <u>accident assessment</u> and/or <u>accident management</u> | SM/Emergency Director and the Emergency Director at EOF, TSC, OSC and EOF Managers; and Alternates | <p><u>Initial</u> - Instruction on the NMPNS Emergency Plan and Implementing Procedures and Technical Support Guidelines germane to their particular assessment/management function, including Incident Command System (ICS) concepts, position titles and terminology.</p> <p><u>Periodic</u> - Retraining will be once per calendar year not to exceed 18 months between training sessions and will include a review of the above material and any changes made since the last training period.</p> |
| 4. <u>Radiological Monitoring /Analysis personnel</u> | Radiation Management Supervisors, Radiation Protection Technicians, and others as designated | <p>Selected Radiation Protection personnel receive substantial training in radiation monitoring.</p> <p><u>Initial</u> - Training for personnel performing radiation monitoring and analysis duties will consist of instruction in the downwind and/or in plant radiation monitoring and sampling Implementing Procedures, including Incident Command System (ICS) concepts, position titles and terminology.</p> <p><u>Periodic</u> - Retraining will be once per calendar year not to exceed 18 months between training sessions with hands-on instrumentation usage including interpretation of results.</p> |

FIGURE 6.2 (Cont.)
INITIAL TRAINING AND PERIODIC RETRAINING*

| Emergency Response Category | Involved Personnel (Typical) | Initial Training and Periodic Retraining |
|--|--|--|
| 5. <u>Fire Response /First Aid/Rescue/Medical Support</u> | NMPNS Fire Brigade/Offsite Fire Departments Ambulance and Hospital Personnel | Designated members will receive training as appropriate in basic patient care and treatment. Members will also be instructed on the availability of onsite medical treatment supplies and equipment; communication systems; access controls radiological hazards; and roles, interfaces and responsibilities with local fire/medical support personnel, including Incident Command System (ICS) concepts, position titles and terminology. |
| 6. <u>Damage Control/Repair Teams personnel</u> | Nuclear Operators, Nuclear Auxiliary Operators, Maintenance Supervision, I&C Supervision, Radiation Protection Supervision Selected Maintenance, I&C and Radiation Protection Personnel, and others as designated | Repair and Damage Control are considered a normal part of the job functions of the listed personnel and, as such, special training in these functions, other than appropriate emergency plan and procedures training, is not required. |
| 7. <u>Security Personnel/Local Law Enforcement Officials</u> | Security personnel assigned responsibilities for Emergency Plan function, and Local Law Enforcement Officials. | Training and retraining requirements are outlined in the Nine Mile Point Nuclear Security Training and Qualification Plan, including Incident Command System (ICS) concepts, position titles and terminology. |
| 8. <u>Communication Personnel</u> | As designated | <p><u>Initial</u> - Training shall consist of a review of appropriate Implementing Procedures, communications equipment and messages, including Incident Command System (ICS) concepts, position titles and terminology.</p> <p><u>Periodic</u> - Retraining will be conducted once per calendar year not to exceed 18 months between training sessions.</p> |

Section 7: Recovery

Actions taken during an emergency situation fall into two general categories; response and recovery. Response actions are those taken to manage the consequences of an emergency and to bring the emergency under control. Recovery actions are those longer term actions taken to restore the station, as nearly as possible, to its pre-emergency condition.

This section describes recovery actions and establishes typical criteria for declaring that an emergency has entered the recovery phase.

7.1 Progression From Emergency Response to Recovery

The two general action categories, response and recovery, are directed by separate organizations: the On-Site Emergency Organization is responsible for initial response while the Recovery Organization is responsible for long term response and recovery.

7.1.1 Re-entry Phase

The Re-entry Phase is the period following evacuation during which access to the station is restricted. This period can commence with the start of the emergency, or can develop as the emergency progresses, and may last into the recovery phase. Re-entry may be made to perform essential tasks such as saving human life, controlling release of radioactive materials, and preventing additional damage to plant and equipment.

Additional actions to be taken during the Re-entry Phase are controlled by implementing procedures and will be directed by the Emergency Director or the Recovery Manager (RM). Planning for re-entry will include evaluation of available survey data, review of exposures incurred, projection of manpower and equipment needs, and re-entry survey team activation. Upon re-entry a comprehensive survey of the plant will be made to define radiological problem areas. Data gathered during the re-entry operation and additional information developed by the various technical support groups will be assessed and used in developing subsequent recovery plans.

The planned radiation exposure limits for re-entry should be consistent with 10 CFR 20. If the need arises for exposures in excess of the limits of 10 CFR 20, the ED may institute the higher limits identified in Section 4.0 of the NMPNS Station Annex.

7.1.2 Termination of Emergency Phase

The Corporate Emergency Director will periodically evaluate and assess the status of the emergency, the effectiveness of emergency actions, and the need to update the emergency class. The Corporate Emergency Director, in consultation with the Station Emergency Director and offsite authorities, will determine when the emergency phase has ended. Notification of the appropriate authorities (e.g., county, state, and federal agencies, etc.) and the Emergency Response Organization will then take place. Criteria for declaring an emergency situation resolved is dependent on the emergency classification declared but may

include: Radiation levels in all in-plant areas are stable or are decreasing with time.

- Reactor and associated systems are in a safe, stable condition, a reactor cool-down is in progress and it has been determined that the plant has the ability to achieve and maintain a cold shutdown condition.
- Releases of radioactive materials to the environment are under control or have ceased.
- Any fire, flooding or similar emergency conditions are under control or have ceased.
- Drywell pressure is at normal levels.

Emergency Plan Implementing Procedure EP-CE-115, Termination and Recovery provides the specific guidance on termination of the emergency phase and commencement of the recovery phase.

7.1.3 Recovery Phase

During the initial stage of the Recovery Phase, data gathered from re-entry operations and additional information developed by the various technical support groups will be assessed. A plan of action for returning the plant to a condition within Technical Specifications limits will be developed using the guidance provided in EP-CE-115.

7.2 Recovery Operations

Recovery operations necessary to restore the plant to an operational condition will be conducted within the framework of the Recovery Organization. From the EOF, the CED or Recovery Manager (RM) and EOF staff will direct entry into recovery operations.

Specific recovery tasks and the sequence in which they are performed will be at the direction of the Recovery Manager. The Recovery Manager will be responsible for deactivating the Recovery Organization. Activities for which the Recovery Organization is responsible during the recovery phase include, but are not necessarily limited to, the following:

- a. Logistical
- b. Corrective Actions
- c. Engineering
- d. Radiological
- e. Administrative

Procedures detailing performance of the above tasks will be developed if required, during the recovery phase.

During recovery operations, the radiation exposure limits of 10 CFR 20 apply. Compliance with those limits will be the responsibility of the Recovery Manager via the applicable Health Physics organization.

Recovery actions that plan for or may result in radioactive releases will be evaluated by the Recovery Manager and EOF staff as far in advance of the action as possible. These actions and data pertaining to the release will be reported to the appropriate off-site emergency response organizations and agencies.

7.3 Emergency Organization Transformations

The emergency response organization may go through a series of transformations depending upon the time of initiation, type, severity and duration of the emergency condition.

A long-term recovery organization that is general in nature has been defined. The transition to the Recovery Organization will be communicated to concerned parties by the Recovery Manager, via the ERF managers/coordinators.

7.4 Recovery Organization

The Recovery Organization is comprised of two major groups: Functional and Support. (See Figure 7-1)

The Functional Group is essentially comprised of the normal station organization and would be responsible for the development and implementation of plans and procedures necessary for the long-term emergency response and recovery operations. The Functional Group is directed and coordinated by the RM through the Plant Manager, the Engineering Director, the Maintenance Director and the Director, Work Control and Outage Management. The Functional Group utilizes personnel performing duties they normally perform, such as; Operations, Maintenance, Engineering, Chemistry, Radiation Protection and Outage Management.

The Support Group is comprised essentially of those positions established in the augmentation of the initial on shift emergency response at the Emergency Operations Facility with the addition of the following managers/directors providing support functions as required/needed from the following organizations: Human Resources, Training, Business Planning, JIC Director, Nuclear Oversight, Security and Emergency Preparedness (Corporate), Procurement and Warehouse Services (Corporate), IT and Telecommunications Services (Corporate). The Support Group would assist the Functional Group in areas such as plant modification, design, construction, recovery engineering, quality assurance/control, and administrative support functions such as purchasing, transportation, treasury, materials management, communications, legal, claims, and risk management, etc.

Other personnel may be called upon to enable the Recovery Organization to function on a 24 hour per day basis for extended periods or to provide special expertise in specific areas as dictated by the type and severity of the particular emergency.

7.4.1 Recovery Organization Staff

As stated above, the recovery organization is comprised of positions already in place during the emergency, and other staff performing normal functions. Examples of additional staff that may be called on to support the recovery operations are described below. It is expected that the additional staff will be performing duties similar to those they are normally expected to perform on a day to day basis, thus additional training for these positions is not required.

7.4.1.1 Functional Group

a. Plant Manager

The Plant Manager is the typical designee for this position. The Plant Manager reports to the Recovery Manager during the recovery phase of an emergency and is responsible for obtaining and coordinating services from the various departments that are the normal direct reports to this position. Additionally, the Plant Manager has responsibility for oversight of the Plant Operations Review Committee (PORC). These services/departments may include:

- Operations
- Chemistry
- Radiation Protection
- Reactor Engineering

The Plant Manager will be expected to ensure that staffing and work schedules are setup as required to support the recovery organization.

b. Director Engineering

The Director Engineering is the typical designee for this position. This position reports to the Recovery Manager during the recovery phase of an emergency and is responsible for obtaining and coordinating services from the various departments that are the normal direct reports to this position. These services/departments may include:

- Electrical Engineering
- Structural Engineering
- Mechanical Engineering
- Systems Engineering
- Thermo-hydraulic Engineering

The Director Engineering Services will be expected to ensure that staffing and work schedules are setup as required to support the recovery organization.

c. Director Maintenance

The Director Maintenance is the typical designee for this position. This position reports to the Recovery Manager during the recovery phase of an emergency and is responsible for obtaining and

coordinating services from the various departments that are the normal direct reports to this position. These services/departments may include any of the maintenance disciplines (electrical, mechanical, I & C).

The Director Manager will be expected to ensure that staffing and work schedules are setup as required to support the recovery organization.

d. Director, Work Management

The Director, Work Management is the typical designee for this position. This position reports to the Recovery Manager during the recovery phase of an emergency and is responsible for obtaining and coordinating services from the various departments that are the normal direct reports to this position. These services/departments may include: work control, outage planning and scheduling, project management and onsite material procurement services.

The Director, Work Management will be expected to ensure that staffing and work schedules are setup as required to support the recovery organization.

7.4.1.2 Support Group

a. Director, Training

The Director, Training is the typical designee for this position. This position reports to the Recovery Manager during the recovery phase of an emergency and is responsible for providing whatever training services are required.

b. Manager, Human Resources

The Manager, Human Resources is the typical designee for this position. This position reports to the Recovery Manager during the recovery phase of an emergency and is responsible for providing all necessary aspects of human resources, including occupational health and safety aspects as required.

c. Manager, Finance and Business Operations

The Director Finance and Business Operations is the typical designee for this position. This position reports to the Recovery Manager during the recovery phase of an emergency and is responsible for ensuring all necessary business management aspects of the emergency recovery are provided for as required.

d. Manager, Quality & Performance Assessment

The Manager Nuclear Oversight is the typical designee for this position. This position reports to the Recovery Manager during the recovery phase of an emergency and is responsible for ensuring all quality aspects of the emergency recovery as required.

e. Directors (Corporate)

The Directors of Security and Emergency Preparedness, Procurement and Warehouse Services, and Information Technology and Telecommunications are the typical designees for these positions. These positions, as requested, report to the ALM during the recovery phase of an emergency and are responsible for obtaining and coordinating services from their departments. These services may include:

- Nuclear Security
- Procurement
- Emergency Preparedness
- Site Services
- Technical Services

The Directors (Corporate) will be expected to ensure that staffing and work schedules are setup as required to support the recovery organization.

7.4.2 Augmentation of the Emergency Response/ Recovery Organization

Additional augmentation may be necessary, as the situation dictates, by the Institute for Nuclear Power Operations (technical personnel and equipment), by the NSSS vendor (technical personnel, equipment and replacement parts as needed) and by other local nuclear power plants (survey teams and laboratory facilities).

7.4.2.1 Contract Services

Long-term emergency response and recovery activities may require additional personnel and equipment.

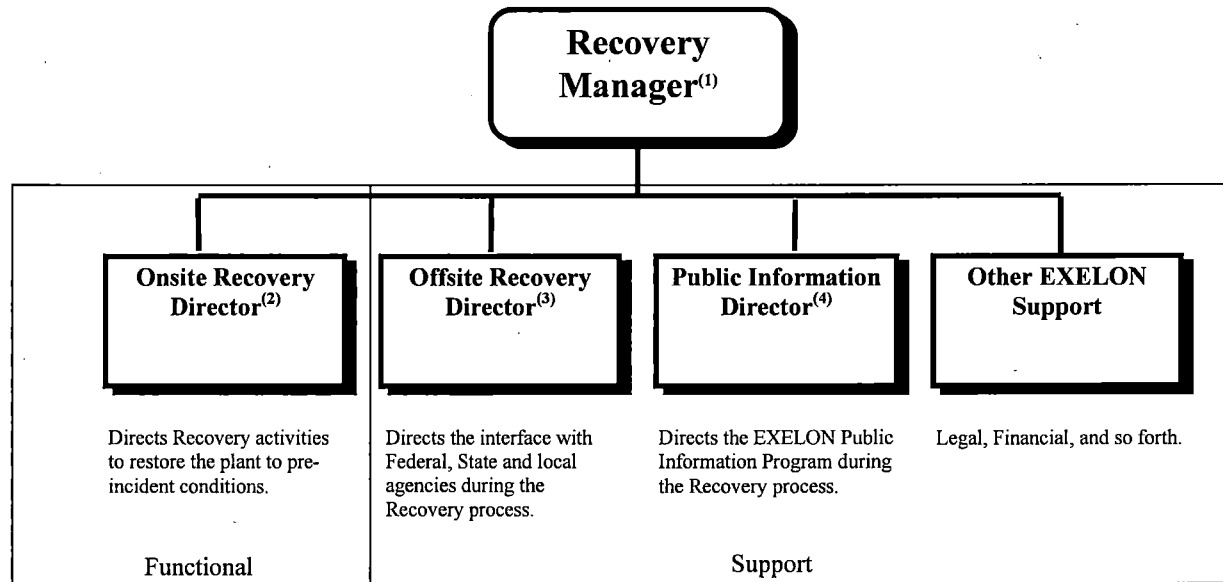
When contracted services are required, the normal practice of assigning a NMPNS employee to administer the contracted service, i.e., provide overall technical direction, coordination, and review, will be employed to ensure the actions of the contractor support the needs of the recovery operation.

7.4.2.2 Local Support Services

Local support services necessary to support a large influx of personnel from the contractors, vendors and government support organizations may be required. These services include items such as:

- Lodging
- Food
- Transportation

There are sufficient facilities in the vicinity of the station to supply these basic services. Individual contracts will be negotiated for these facilities as necessary.

Figure 7.1: Typical Recovery Organization (for Site Area or General Emergency)**NOTES:**

- (1) The Recovery Manager position will normally be filled by a Vice President- or designee. IF the station VP does not fill position the Recovery Manager reports to the VP.
- (2) The Onsite Recovery Director position will normally be filled by the Plant Manager or designee. The normal plant staff will support recovery activities as required. A special Radiation Protection Manager and/or Administrative and Logistics Manager may need to be appointed for events which involving severe plant damage or large releases of radioactive materials inside or outside the plant.
- (3) The Offsite Recovery Director position will normally be filled by the Site Emergency Preparedness Manager or designee. Radiological support positions should be designated to support offsite recovery activities if there was a significant release of radioactive materials.
- (4) The Public Information Manager position will normally be filled by the Communications Department personnel.
- (5) Other positions may be designated to support completion of the Recovery Plan as needed.

SECTION 8: ACRONYMS AND DEFINITIONS**8.1 Acronyms**

This section contains the acronyms of terms that are used in a special context in this plan and/or are unique to Nine Mile Point Nuclear Station (NMPNS).

- o ALARA - As Low As Reasonably Achievable
- o ARM - Area Radiation Monitor
- o CDE_T - Committed Dose Equivalent - Thyroid (Child)
- o CRS – Control Room Supervisor
- o CWP - County Warning Point
- o DOE - U.S. Department of Energy
- o EAL - Emergency Action Level
- o EAS - Emergency Alert System
- o ED - Emergency Director
- o EDE - Effective Dose Equivalent
- o ENS - Emergency Notification System
- o EOC - Emergency Operations Center
- o EOF - Emergency Operations Facility
- o EPA - U.S. Environmental Protection Agency
- o EPIP - Emergency Plan Implementing Procedure
- o EPMP - Emergency Plan Maintenance Procedure
- o EPZ - Emergency Planning Zone
- o ERF - Emergency Response Facilities
- o ETE - Evacuation Time Estimate
- o FRMAP - Federal Radiological Monitoring and Assessment Plan
- o FSAR - Final Safety Analysis Report
- o ISFSI - Independent Spent Fuel Storage Installation
- o JAFNPP - James A. Fitzpatrick Nuclear Power Plant
- o JIC – Joint Information Center

- o KI - Potassium Iodide
- o LCO - Limiting Condition for Operation
- o MMS - Meteorological Monitoring System
- o NED - Nuclear Engineering Department
- o NMPNS - Nine Mile Point Nuclear Station
- o NRC - U.S. Nuclear Regulatory Commission
- o NSRB - Nuclear Safety Review Board
- o NSSS - Nuclear Steam Supply System
- o NWS - National Weather Service
- o NYSDOH - New York State Department of Health
- o OCEMO - Oswego County Emergency Management Office
- o OCEOC - Oswego County Emergency Operations Center
- o ODAM - NMPNS Offsite Dose Assessment Manager
- o OEM - Office of Emergency Management (New York State)
- o OSC - Operations Support Center
- o OSLD - Optically Stimulated Luminescent Dosimeter
- o PAG - Protective Action Guide
- o PAR - Protective Action Recommendation
- o PNS - The Oswego County Prompt Notification System
- o PORC - Plant Operations Review Committee
- o QATR - Quality Assurance Topical Report
- o RAM - NMPNS Radiological Assessment Manager
- o RECS - Radiological Emergency Communications System
- o RO - Reactor Operator
- o SEP - NMPNS Station Annex
- o SEOC - State Emergency Operations Center
- o SM - Shift Manager

- o SOP - Special Operating Procedure
- o SRD - Self-Reading Dosimeters
- o SRO - Senior Reactor Operators
- o STA - Shift Technical Advisor
- o STOC - Security Tactical Operations Center
- o SUNY - State University of New York
- o SWP - State Warning Point
- o TEDE - Total Effective Dose Equivalent
- o TIBL - Thermal Internal Boundary Layer
- o TLD - Thermoluminescent Dosimeter
- o TSC - Technical Support Center
- o USAR - Updated Safety Analysis Report
- o WSFO - Weather Service Forecasting Office

8.2 Definitions

This section contains the definitions of terms that are used in a special context in this plan and/or are unique to Nine Mile Point Nuclear Station (NMPNS).

- o ACCESS CONTROL POINTS - Checkpoints for incoming traffic to be stopped and identification verified. These points are established by Nuclear Security at the Alert, or higher emergency classification, or as directed by the Emergency Director. The Access Control Points are pre-designated at two locations:
 - Owner Controlled Area (OCA) Checkpoint, Lake Road
 - NMP/Fitzpatrick Property Line, Lake Road
- o AFFECTED UNIT - The affected unit is NMPNS Unit 1 and/or Unit 2 whichever has declared an emergency.
- o ALTERNATE STATE WARNING POINT - The Alternate SWP is located in the N.Y. State Police Communications Center in the Public Security Building, State Office Building Campus, Albany, N.Y. This facility is manned 24 hours per day and could perform the same functions as the State Warning Point (see State Warning Point).

- o AREA RADIATION MONITOR (ARM) - A fixed instrument which typically measures gross gamma radiation levels in a local area and alarms when the radiation exposure rate reaches the preset alarm level.
- o ASSESSMENT ACTIONS - Those actions taken during or after an accident to obtain and process information that is necessary to make decisions to implement specific emergency measures.
- o ASSESSMENT FACILITY - A facility used for evaluation of information including instrument data, to assess the scope and severity of an emergency condition. Such facilities available to Nine Mile Point include:
 - Onsite
 - Control Rooms
 - Technical Support Center
 - Off-Site
 - Emergency Operations Facility
- o CDE_T - Represents the dose equivalent to the child thyroid, weighted on the basis of the relative detriment to the individual, for an exposure period of 50 years.
- o MITIGATIVE ACTIONS - Those emergency measures taken to mitigate or terminate an emergency situation at or near the source of the problem in order to prevent an uncontrolled release of radioactive material or to reduce the magnitude of a release.
- o COUNTY WARNING POINT (CWP) - The communications center at Oswego County 911 Center in Oswego, N.Y. is the County Warning Point. It serves as a 24-hour notification point for messages from the utilities to appropriate officials in the county.
- o DOSE PROJECTION - A calculated estimate of the potential dose to individuals at a given location onsite or offsite. It is determined from the quantity of radioactive material released and the appropriate meteorological transport and diffusion parameters.
- o EMERGENCY - A situation outside of routine operational events or minor equipment malfunction which could lead to a radiological hazard affecting the health and safety of workers or the public, or result in significant damage to property
- o EMERGENCY ACTIONS - A collective term encompassing the assessment, corrective and protective actions taken during the course of an emergency.
- o EMERGENCY ACTION LEVELS (EAL) - Specific indications or conditions used as thresholds for initiating specific emergency actions.

- o EMERGENCY ALERT SYSTEM (EAS) - A system of radio stations organized to permit designated government officials to issue emergency information and instructions in threatened or actual emergencies.
- o EMERGENCY CLASSIFICATION - A condition which falls into one of the following categories: Unusual Event, Alert, Site Area Emergency, or General Emergency.
- o EMERGENCY DIRECTOR - The individual responsible for the implementation and administration of the NMPNS Station Annex. Directs the emergency response organization and has overall authority for control of the emergency situation and for assuring continuity of resources.
- o EMERGENCY OPERATIONS CENTERS (EOC) - Local and State facilities for assessment of emergency information and direction of local and State emergency response personnel.
- o EMERGENCY PLAN IMPLEMENTING PROCEDURES - A procedure that provides detailed instructions to NMPNS personnel and implements an action or activity described in the Station Annex. These procedures are considered Technical Specification related and are listed in Appendix 3.
- o EMERGENCY PLAN MAINTENANCE PROCEDURES - Procedures which provide instructions, checklists, and guidance to maintain the emergency preparedness program, equipment and associated documents.
- o EMERGENCY PLANNING ZONE (EPZ) - A designated area around NMPNS used to facilitate offsite emergency planning. There are two Emergency Planning Zones: the plume exposure pathway and the ingestion exposure pathway.
- o EMERGENCY RESPONSE FACILITY (ERF) - A generic term referring to a facility that is used for emergency purposes. These facilities include the Control Room, Technical Support Center, Emergency Operations Facility, Operations Support Center, Joint Information Center, Oswego County Emergency Operations Center, etc.
- o EMERGENCY RESPONSE/RECOVERY ORGANIZATION - The organization, which consists of Nuclear Division, corporate and outside personnel, that manages the large scale or long-term response to and recovery from an accident.
- o ENVIRONMENTAL MONITORING TEAMS - These teams are characterized by personnel from the station staff (Radiation Protection or Environmental Departments) or contractor staff that collect environmental measurements as part of the Expanded Radiological Environmental Monitoring Program.

- o EVACUATION ASSEMBLY AREAS - Areas outside of the protected area where personnel evacuated from the protected area are assembled. The two primary areas typically designated are the P-Building at Unit 2 for personnel exiting the protected area via the Unit 2 security access, and the Nuclear Learning Center for personnel exiting the protected area via the Unit 1 security access.
- o EXCLUSION AREA - The area controlled by NMPNS surrounding the station, in which the licensee has the authority to determine all activities including exclusion or removal of personnel and property from the area. For emergency preparedness purposes, the NMPNS/JAFNPP exclusion areas are considered to be one exclusion area.
- o EXPANDED RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM - This program is characterized by an increase in the number and frequency of samples collected, plus other additional sampling of critical pathways (such as snow, ground deposition, surface water, etc.)
- o FEDERAL RADIOLOGICAL MONITORING AND ASSESSMENT PLAN (FRMAP) - The Federal government's means of providing in-depth assistance to licensees, States, and local governments in the event of a radiological emergency. The monitoring and assessment teams are normally provided by the Department of Energy (DOE).
- o HAZARDOUS MATERIALS - Any element, compound or combination thereof, which is detonable, flammable, corrosive, toxic, an oxidizer, an etiologic agent, or highly reactive and which because of handling, storage processing, or packaging may have detrimental effects upon operating personnel and emergency personnel, the public, plant equipment, and/or the environment.
- o INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) - The ISFSI is a complex designed and constructed for the interim storage of spent fuel, solid reactor-related greater than Class C (GTCC) waste, and other radioactive materials associated with spent nuclear fuel assemblies discharged from NMPNS Unit 1 and Unit 2 reactors.
- o INGESTION EXPOSURE PATHWAY - The principal exposure from this pathway would be from ingestion of contaminated water or foods such as milk or fresh vegetables. The duration of principal exposures could range in length from hours to months.
- o LOCAL AREA EVACUATION - Evacuation of personnel from localized areas within the station with assembly outside the affected local area.
- o NINE MILE POINT NUCLEAR STATION L.L.C (NMPNS) - A limited liability corporation and operator of Nine Mile Point Nuclear Station.

- o NUCLEAR SAFETY REVIEW BOARD (NSRB) - a committee which provides independent review and audit of designated activities affecting the safe operation of the stations.
- o OFFSITE - Any area outside of the joint property controlled by NMPNS and JAFNPP.
- o OFFSITE ASSEMBLY AREA (OAA) - Specific location outside the NMPNS 10 mile EPZ for the assembly of personnel in the event of an exclusion area evacuation. This area is typically the Oswego County Airport, Hanger K; in the town of Volney.
- o ONSITE - The area within the joint property controlled by NMPNS and JAFNPP, the exclusion area.
- o ONSITE ASSEMBLY AREAS - These are areas within the protected area where personnel will gather to allow for continuous accountability of personnel remaining within the protected area.
- o OSWEGO COUNTY EMERGENCY OPERATIONS CENTER (OCEOC) - A facility that serves as the county command post from which emergency operations will be directed and coordinated. The OCEOC is located in the Oswego County Emergency Management Offices in the basement of the Oswego County Branch Building, Route 481, Fulton, N.Y.
- o OWNER CONTROLLED AREA (OCA) EVACUATION - Evacuation of all non-essential personnel from the NMPNS OCA to either the designated Offsite Assembly Area or to their home. This includes, as appropriate, the evacuation of individuals from the NMPNS OCA including the Nuclear Learning Center; Energy Center, Sewage Treatment Facility, all other NMPNS site locations, and a notification to the James A. Fitzpatrick Nuclear Station of the evacuation.
- o PERSONNEL ACCOUNTABILITY SYSTEM - A system of accounting for personnel within the Protected Area. The system was developed in response to NUREG-0654 (Section II.J.5) and uses the Nuclear Security Proximity Cards assigned to personnel entering the Protected Area, Emergency Accountability Card readers located throughout the protected area, and a computerized database. The system provides timely identification of individuals who have NOT reported to Onsite Assembly Areas or exited the protected area and generates a personnel accountability report.
- o PA SYSTEM - A generic term used throughout the Site Emergency Plan referring to a Public Address system where an announcement or alarm can be made and heard throughout the protected area. Other terms used for the PA system are the GAltronics, Plant Paging System, Page Party/Public Address Communications Subsystem (PP/PA), etc.

- o PREVENTIVE PAG - These are projected dose commitment values at which recommendations should be made to responsible offsite officials. These actions should have minimal impact to prevent or reduce the radioactive contamination of human food or animal feed.
- o PLANT OPERATIONS REVIEW COMMITTEE (PORC) - A review group which, in accordance with the QATR, functions by advising the PORC Chairman and the Nuclear Safety Review Board concerning the safety aspects of proposed courses of action.
- o PLUME EXPOSURE PATHWAY - A pathway by which individuals can be exposed to radiation. The principal exposure sources from this pathway are: (a) whole body external exposure to gamma radiation from the plume and from deposited material; and (b) inhalation exposure from the passing radioactive plume.
- o PROTECTED AREA - This is the area within the station security fence designated to implement the security requirements of 10CFR73. It is sometimes referred to in the context of Unit 1 and/or Unit 2 protected area.
- o PROTECTED AREA EVACUATION - Evacuation of nonessential individuals within the stations' protected area, to assembly areas outside of the protected area designated as Evacuation Assembly Areas. These areas are typically the Nuclear Learning Center and the P-Building.
- o PROTECTIVE ACTIONS - Those emergency measures taken before or after a release of radioactive material has occurred for the purpose of preventing or minimizing radiological exposures to persons that would be likely to occur if the actions were not taken. Some of the possible protective actions are:
 - Evacuation
 - Isolation of Ingestion Pathway and Sources
 - Radioprotective Drug Administration
- o PROTECTIVE ACTION GUIDES (PAGs) - Projected radiological dose or dose commitment values to individuals in the general population that warrant protective action before or following a release of radioactive material. Protective actions would be warranted provided that the reduction in individual dose expected to be achieved by carrying out the protective action is not offset by excessive risks to individual safety in taking the protective action. The PAG does not include the dose that has unavoidably occurred prior to the assessment.
- o RADIOLOGICALLY CONTROLLED AREA (RCA) - Major plant areas to which access is limited for the purpose of protecting personnel from exposure to radiation and contamination.

- o RADIOLOGICAL EMERGENCY COMMUNICATIONS SYSTEM (RECS) - A dedicated telephone system used to provide initial notification of an emergency, and continuing emergency information, to the State and to Oswego County.
- o RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM - Characterized by the collection of normal radiological samples required by technical specifications and additional optional samples not covered in technical specifications (such as soil, meat, poultry, etc.)
- o RECOVERY ACTIONS - Those actions taken after an emergency to restore the plant as nearly as possible to its pre-emergency condition.
- o REQUISITE TRAINING - The training specified for an emergency position, and contained within Training Department Procedures for Emergency Preparedness.
- o RESTRICTED AREA - Any area to which access is controlled by NMPNS for purposes of protection of individuals from exposure to radioactive materials.
- o SAFE SHUTDOWN SYSTEM - A descriptive term applying to a combination of systems that can be used to provide a decay heat removal path.
- o SAFETY ANALYSIS REPORT (SAR) - A periodically updated multi volume report describing a nuclear power station's site, design features, safety features and the utility's intended methods of operation. The SAR must be submitted to the U.S. NRC by the utility when applying for an operating license for the nuclear station. The Unit 1 SAR may be referred to as UFSAR and Unit 2 to as USAR.
- o SAFETY ANALYSIS REPORT FOR THE ISFSI - The Standardized NUHOMS® Updated Final Safety Analysis Report (NUHOMS® UFSAR) provides the generic safety analysis for the Standardized NUHOMS® system for storage of light water reactor spent nuclear fuel assemblies (No. NUH-003, Revision 11, NRC Docket No. 72-1004). This system provides for the safe dry storage of spent fuel in a passive ISFSI which fully complies with the requirements of 10CFR72 and ANSI 57.9. This UFSAR formed the basis for generic NRC certification of the standardized NUHOMS® system and is used by 10CFR50/10CFR72 general license holders in accordance with 10CFR72 Subparts K and L.
- o SAFETY PARAMETER DISPLAY SYSTEM (SPDS) - This system provides a display of plant parameters from which the safety status of station operations may be assessed in the Control Rooms and Technical Support Center.

- o SECURITY CONTINGENCY EVENT - A deliberate act or perceived threat of an act which could imperil the station and endanger the public health and safety by exposure to radiation.
- o SECURITY TACTICAL OPERATIONS CENTER (STOC) - A security command center that may be activated during a security contingency event, or activation of the site emergency plan.
- o SHIFT MANAGER/EMERGENCY DIRECTOR - The individual responsible for the implementation and administration of the NMPNS Site Emergency Plan. Directs the emergency response organization and has overall authority for control of the emergency situation and for assuring continuity of resources until relieved by the Emergency Director in the EOF.
- o SITE EMERGENCY PREPAREDNESS MANAGER - The individual responsible for the coordination of emergency planning efforts.
- o SPECIAL OPERATING PROCEDURES (SOP) - These procedures contain instructions for station operators usually attributed to emergency procedures in the regulatory guides and standards.
- o STATE EMERGENCY OPERATIONS CENTER (SEOC) - The State command post from which emergency operations will be directed and coordinated.
- o STATE WARNING POINT (SWP) - Serves as a notification point for messages from the utilities to appropriate officials in the State. The SWP is manned on a 24-hour per day basis.
- o STATION - As used in the Site Emergency plan, Station refers to the site containing the two Nine Mile Point reactors, associated outbuildings and all personnel working to support the operation of the site.
- o TECHNICAL SUPPORT CENTER DIRECTOR - The individual responsible for implementation of on-site support activities necessary to effectively implement the SEP and mitigate the emergency. The TSCM has the leadership role to ensure on-site emergency activities are carried out in accordance with the SEP and implementing procedures at the direction of the Shift Emergency Director or ED.
- o TOTAL EFFECTIVE DOSE EQUIVALENT (TEDE) - Represents the sum of the effective dose equivalent and the committed effective dose equivalent.
- o UNRESTRICTED AREA - Any area to which access is not controlled by NMPNS for purposes of protection of individuals from exposure to radiation and radioactive materials, and any area used for residential quarters.

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LETTERS OF AGREEMENT

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| Current Letters of Agreement exist between NMPNS and: | In regards to |
|--|---|
| 1) EA Engineering, Science, and Technology | Provides technical assistance |
| 2) General Electric | Provide assistance per SIL #324 |
| 3) INPO | Provide information on the availability of personnel and equipment able to assist |
| 4) New York State | Provide assistance as per the New York State Radiological Emergency Preparedness Plan |
| 5) Derek R. Cooney, MD, FF/NREMT-P. FACEP | Provide emergency medical care |
| 6) County of Oswego | |
| a) Oswego County Emergency Management Office | Provide assistance as per the Oswego County Radiological Emergency Preparedness Plan |
| b) Oswego County 911 Center | Provides 24 hour, 7 day a week contact point for local fire and ambulance service. |
| c) Oswego County Sheriff's Department | Provides for support from all local law enforcement agencies. |
| 7) Oswego Hospital | Provide medical care of radioactivity contaminated patients |
| 8) State University of New York, University Hospital | Provide emergency medical care for radioactively contaminated patients |
| 9) Department of Energy | Provide radiological assistance Provide emergency medical assistance (REAC/TS) |

APPENDIX 2
LETTERS OF AGREEMENT

The up-to-date Letters of Agreement are maintained under separate cover in the Emergency Preparedness Group's file but are considered to be incorporated as part of this document by reference.

| Current Letters of Agreement exist between NMPNS and: | In regards to |
|--|---|
| 10) Oswego County Airport | Provide support for the following via service level agreement: <ul style="list-style-type: none">• Use of Hanger K for Alternate and Alternative facilities for NMPNS |
| 11) Dr. Padma Ram, MD | Provide emergency medical care |
| 12) Local transportation providers | Provide for fixed wing and helicopter air service and ground transport equipment/service |
| 13) Oswego County Ambulance | Provide Emergency Medical Response |
| 14) Oswego County Fire | Provides local fire support and coordination |

APPENDIX 3**Emergency Plan Implementing Procedures**

| Number | Title |
|--------------------|--|
| EP-CE-113 | Personnel Protective Actions Methods used to conduct evacuations including protected area, exclusion area and accountability for those remaining in the protected area. |
| EP-AA-112-500-F-55 | NMP Offsite Monitoring Team Guidance Responsibilities and actions for performing onsite and offsite emergency and environmental surveys. |
| EP-CE-111 | Emergency Classification and Protective Action Recommendations Criteria to classify emergencies. |
| EP-CE-113 | Personnel Protective Actions Actions to provide radiological controls for emergency exposure, use of KI and emergency respiratory protection |
| EP-CE-114-100 | Emergency Notifications Instructions for prompt notification to offsite authorities, emergency response agencies and selected NMP personnel. |
| EP-AA-112-600 | Public Information Organization Guidance for dissemination of emergency information |
| EP-AA-112-400 | Emergency Operations Facility Activation and Operations Emergency responsibilities and duties of the EOF ERO members. |
| EP-AA-112-100 | Control Room Operations Responsibilities and duties of on-shift ERO in the event of Emergency Plan activation. |
| EP-AA-112-200 | Technical Support Center Activation and Operations Emergency responsibilities and duties of the TSC ERO members. |
| EP-AA-112-300 | Operations Support Center Activation and Operations Emergency responsibilities and duties of the OSC ERO members. |
| EP-CE-115 | Termination and Recovery Transition into and conduct of operations during termination phase of a classified event. |

APPENDIX 3**Emergency Plan Implementing Procedures**

| Number | Title |
|------------------------|--|
| EP-AA-110-204 | NMP Dose Assessment Method to perform dose assessment and projections |
| EPIP-EPP-01-EAL | Emergency Action Level Matrix Unit 1 |
| EPIP-EPP-02-EAL | Emergency Action Level Matrix Unit 2 Multi-colored matrices used to evaluate initiating conditions for entry into an emergency classification. |
| EPIP-EPP-09 | Determination of Core Damage Under Accident Conditions Method to determine the degree of reactor core damage utilizing sampling and calculations based on core inventory. |
| OP-NM-106-104 | Security Contingency Actions Process to establish and maintain interface during Security Contingency Events. |
| EPIP-EPP-21 | Radiation Emergencies Handling radiation emergencies with consequences limited to the Nine Mile Point Site. |
| EP-AA-1013, Addendum 3 | Unit 1 Emergency Action Levels for Nine Mile Point Station |
| EP-AA-1013, Addendum 4 | Unit 2 Emergency Action Levels for Nine Mile Point Station Explanation and rationale for each Emergency Action Level (EAL). |

APPENDIX 4**Emergency Response Organization Responsibilities**

Note: The positions and responsibilities described in this Appendix apply to Nine Mile Point station and supersede the list of ERO positions and respective ERO responsibilities identified in the Exelon Standard Plan.

1.0 ON-SHIFT STAFF POSITIONAL RESPONSIBILITIES**1.1 Shift Emergency Director / Shift Manager:**

NOTE: * Indicates Non-Delegable responsibilities when performing Emergency Director duties.

- Coordinate between CR, OSC and TSC to set OSC team task priorities.
- Perform or direct emergency PA announcements.
- Ensure flow of information within and between the emergency response facilities.
- Integrate ERO activities with the Incident Command Post (ICP) response activities.
- Assume overall command and control of emergency response.
- Classify and declare emergencies.*
- Direct notification and activation of the ERO.
- Direct and approve offsite emergency notifications to state and local authorities*.
- Direct ENS communications with the NRC.
- Oversee the performance and evaluate the results of dose projection activities.
- Ensure appropriate accountability and search and rescue actions for plant personnel.
- Ensure appropriate evacuation actions for plant personnel*.
- Approve the issuance of KI.
- Make Protective Action Recommendations to offsite authorities*.
- Approve emergency exposures.*
- Terminate the emergency event.

1.2 Shift Manager (After Transfer of Command and Control)

- Coordinate between CR, OSC and TSC to set OSC team task priorities.
- Perform or direct emergency PA announcements.
- Ensure flow of information within and between the emergency response facilities.
- Participate in Inter-Facility Briefings to communicate and obtain event and response information.
- Authorize and prioritize requests for external assistance (police, fire, medical) as necessary.
- Assist with Emergency Classification.

APPENDIX 4**Emergency Response Organization Responsibilities**

- 1.3 Shift Technical Advisor (STA), SROs and ROs
 - Assist with emergency classification.
- 1.4 Designated Shift Communicator
 - Notify the ERO.
 - Perform offsite emergency notifications to state and local authorities.
 - Provide plant data and plant information to the NRC via the ENS.
- 1.5 Designated Shift Dose Assessor
 - Perform dose assessments.
- 1.6 Shift Radiation Protection Technician(s)
 - Ensure habitability is established and maintained for occupied onsite areas.
 - Monitor in-plant radiological conditions.
 - Coordinate RP support for personnel dispatched into the plant.
- 1.7 Shift Chemistry Technician
 - Conduct sampling to assist with emergency assessment activities.
- 1.8 Security Shift Supervisor
 - Supervise security force activities.
 - Perform offsite emergency notifications to state and local authorities.
 - Establish and maintain Protected Area accountability.
 - Establish and supervise plant access controls.
 - Supervise security actions for site evacuation.
 - Coordinate administration of KI to the security officers.
- 1.9 Other Shift Personnel (Non-licensed Operators, Security Force, Maintenance Personnel)
 - Support emergency response as directed.

2.0 TECHNICAL SUPPORT CENTER (TSC)

- 2.1 Station Emergency Director
 - Manage all onsite emergency activities in support of plant operations.
 - Establish plant/station response priorities.
 - Integrate ERO activities with the Incident Command Post (ICP) response activities.
 - Authorize and prioritize requests for external assistance (onsite technical support, manpower) as necessary.
 - Assist with emergency classification.

APPENDIX 4**Emergency Response Organization Responsibilities**

- Provide informational updates and recommendations to the ED, regarding plant status and activities.
- Direct ENS communications with the NRC.
- Authorize emergency response facility relocations.
- Evaluate event assessments and mitigative strategies to determine operational and response actions.
- Ensure appropriate accountability and search and rescue actions for plant personnel.
- Ensure accountability, once established, is maintained in all occupied areas of the station.
- Ensure appropriate evacuation actions for plant personnel.
- Coordinate between CR, OSC and TSC to set OSC team task priorities.
- Conduct facility briefs and updates.
- Participate in the Inter-Facility briefing to communicate and obtain event and response information.
- Coordinate integration of the NRC Site Team
- Assist in the development of recovery plans.

2.2 TSC Director

- Activate the Facility.
- Establish and maintain facility accountability.
- Manage the operation of the facility.
- Review and ensure facility displays are maintained current.
- Coordinate ERO shift relief rosters for the onsite facilities.
- Develop ERO shift relief rosters for the facility.
- Perform or direct emergency PA announcements.
- Coordinate integration of the NRC Site Team.
- Arrange for logistics support.
- Ensure flow of information within and between the emergency response facilities.
- Provide input for facility briefs and updates.
- Coordinate TSC relocation.

2.3 Technical Manager

- Manage the activities of the TSC engineering / technical staff.
- Ensure additional personnel and/or equipment is arranged for, as necessary.
- Provide engineering support for accident detection and assessment.
- Develop mitigative strategies based on assessment of the event.
- Analyze and develop extreme measures actions (SAMGs, EDMGs, §50.54(x) or suspend security controls).

APPENDIX 4**Emergency Response Organization Responsibilities**

- Provide input for facility briefs and updates.
- 2.4 Electrical Engineer
- Provide engineering support for accident detection and assessment.
 - Provide input into mitigative strategies.
 - Analyze and develop extreme measures actions (SAMGs, EDMGs, §50.54(x) or suspend security controls).
- 2.5 Mechanical Engineer
- Provide engineering support for accident detection and assessment.
 - Provide input into mitigative strategies.
 - Analyze and develop extreme measures actions (SAMGs, EDMGs, §50.54(x) or suspend security controls).
- 2.6 Core/Thermal Hydraulic Engineer
- Provide engineering support for accident detection and assessment.
 - Provide input into mitigative strategies.
 - Perform core damage estimations.
 - Analyze and develop extreme measures actions (SAMGs, EDMGs, §50.54(x) or suspend security controls).
- 2.7 Technical Staff
- Provide input for mitigative strategies
 - Support the setup of systems and equipment within the facility.
- 2.8 TSC/OSC Computer Specialist
- Support the setup of systems and equipment within the facility.
 - Monitor facility equipment (computer related and communications) to ensure adequate operation.
 - Resolve any IT related malfunctions.
- 2.9 TSC Operations Manager
- Manage the activities of the TSC Operations staff.
 - Assist with emergency classification.
 - Provide technical assistance communication path to the Shift Manager.
 - Support the establishment of plant/station response priorities.
 - Provide operations support for accident detection and assessment.
 - Recommend operations actions to the Shift Manager in support of restoration and accident mitigation.

APPENDIX 4**Emergency Response Organization Responsibilities**

- Analyze and develop extreme measures actions (SAMGs, EDMGs, §50.54(x) or suspend security controls).
 - Coordinate between CR, OSC and TSC to set OSC team task priorities.
 - Coordinate operations activities outside of the Control Room between the Shift Manager and OSC.
 - Provide input for facility briefs and updates.
- 2.10 ENS Communicator
- Provide event data and plant information to the NRC via the ENS.
 - Verify Emergency Response Data System (ERDS) operation.
 - Monitor assigned communication line and provide key information to facility staff.
 - Monitor event information on the facility display systems.
- 2.11 TSC Operations Communicator
- Communicate key information between the facilities over the Technical Information Line.
 - Monitor assigned communication line and provide key information to facility staff.
 - Display, monitor and trend plant data and event information on the facility display systems.
- 2.12 CR Operations Communicator
- Communicate key information between the facilities over the Technical Information Line.
 - Monitor assigned communication line and provide key information to facility staff.
- 2.13 Maintenance Manager
- Provide input into mitigative strategies.
 - Coordinate between CR, OSC and TSC to set OSC team task priorities.
 - Coordinate repair and OSC team task information between the TSC and OSC.
 - Provide input for facility briefs and updates.
- 2.14 TSC Radiation Protection Manager
- Manage and direct the radiological activities of the RP personnel.
 - Ensure additional personnel and/or equipment is arranged for, as necessary.
 - Provide radiological support for accident detection and assessment.
 - Monitor, evaluate and communicate conditions involving any release of radioactivity.

APPENDIX 4**Emergency Response Organization Responsibilities**

- Provide support and logistics for site evacuation activities.
- Evaluate the need for and ensure proper use of KI.
- Ensure habitability is established and maintained for occupied onsite areas.
- Ensure proper emergency exposure controls are taken for personnel.
- Provide radiological assistance for planning rescue operations and repair team monitoring.
- Direct personnel decontamination activities.
- Provide radiological assistance for the transfer of injured and/or contaminated personnel.
- Provide input for facility briefs and updates.

2.15 Security Coordinator

- Integrate ERO activities with the ICP response activities.
- Manage the activities of the site security force.
- Request and coordinate emergency activities with Local Law Enforcement Agencies (LLEAs).
- Provide security related communications with the NRC.
- Direct accountability and search & rescue activities.
- Direct site evacuation activities.
- Direct site access controls activities.
- Coordinate security activities between the SSS and OSC.
- Determine radiation protection measures for security force personnel and law enforcement agency personnel on site.
- Provide input for facility briefs and updates.

2.16 TSC Administrative Staff

- Perform administrative and logistic support functions for facility personnel.
- Establish and maintain facility accountability.

APPENDIX 4**Emergency Response Organization Responsibilities****3.0 Operations Support Center (OSC):****3.1 OSC Director**

- Activate the Facility.
- Manage the operation of the facility.
- Develop ERO shift relief rosters for the facility.
- Ensure flow of information within and between the emergency response facilities.
- Support the establishment of plant / station response priorities.
- Direct accountability and search & rescue activities.
- Establish and maintain facility accountability.
- Coordinate between CR, OSC and TSC to set OSC team task priorities.
- Coordinate OSC team dispatch and control.
- Conduct facility briefs and updates.
- Participate in the Inter-Facility Briefing to communicate and obtain event and response information.

3.2 Assistant OSC Director

- Coordinate between CR, OSC and TSC to set OSC team task priorities.
- Participate with OSC team dispatch and control.
- Assemble and dispatch OSC and offsite monitoring teams.
- Provide input for facility briefs and updates.

3.3 OSC Group, Chemistry and Operations Leads

- Manage OSC manpower needs.
- Assist with formation of OSC teams.
- Participate with OSC team dispatch and control.
- Provide technical support to dispatched OSC teams.

3.4 OSC Group, Chemistry and Operations Personnel

- Perform job duties as an OSC team member.

3.5 OSC Radiation Protection (RP) Lead

- Manage OSC manpower needs.
- Brief and dispatch the onsite/offsite radiation monitoring teams.
- Monitor in-plant radiological conditions.
- Ensure habitability is established and maintained for occupied onsite areas.
- Participate with OSC team dispatch and control.
- Coordinate RP support for OSC teams.
- Track OSC Team emergency exposure.

APPENDIX 4**Emergency Response Organization Responsibilities**

- Implement appropriate protective measures for OSC personnel.
 - Establish OSC and plant access radiological controls.
 - Provide input for facility briefs and updates.
- 3.6 OSC Radiation Protection Technicians(s)
- Perform habitability monitoring in occupied areas.
 - Perform job duties as an OSC team member.
- 3.7 OSC Team Tracker
- Maintain Team Tracking Status display.
 - Participate with OSC team dispatch, control and tracking.
 - Track and maintain communications with OSC teams.
- 3.8 OSC Operations Communicator
- Communicate key information between the facilities over the Technical Information Line.
 - Monitor the Technical Information Line and announce key information to facility staff.
 - Display, monitor and trend plant data and event information on the facility display systems.
- 3.9 OSC Administrative Staff
- Perform administrative and logistic support functions for facility personnel.

4.0 Emergency Operations Facility - Offsite ERO**4.1 Emergency Director**

NOTE: * Indicates Non-Delegable responsibilities when performing Emergency Director duties.

- Assume overall command and control of emergency response.
- Ensure all EXELON emergency response facilities are properly staffed and activated.
- Classify emergencies.*
- Direct and approve offsite emergency notifications to state and local authorities.*
- Make Protective Action Recommendations to offsite authorities.*
- Direct ENS communications with the NRC.
- Ensure appropriate evacuation actions for plant personnel.*
- Approve the issuance of KI.

APPENDIX 4**Emergency Response Organization Responsibilities**

- Approve emergency exposures.*
- Integrate ERO activities with the Incident Command Post (ICP) response activities.
- Authorize and prioritize requests for external assistance (governmental) as necessary.
- Authorize and prioritize requests for external assistance (offsite technical support, manpower) as necessary.
- Ensure other organization's management/decision makers (NRC, State, EXELON, etc.) are kept informed of the emergency situation.
- Ensure flow of information within and between the emergency response facilities.
- Approve technical content of media statements.
- Coordinate integration of the NRC site team.
- Authorize and direct extreme measures (SAMGs, EDMGs, §50.54(x) or suspend security controls).
- Terminate the emergency event.
- Establish a recovery plan and organization.
- Conduct facility briefs and updates.
- Conduct an Inter-Facility briefings to communicate and obtain event and response information.

4.2 EOF Director

- Activate the Facility.
- Manage the operation of the facility.
- Assist offsite agency personnel responding to the facility.
- Coordinate integration of the NRC site team.
- Assist with emergency classification.
- Support the completion of timely offsite event notifications to State and local authorities.
- Evaluate conditions and determine recommendations for PARs.
- Assist in the development of recovery plans.
- Participate in the Inter-Facility briefing to communicate and obtain event and response information.
- Provide input for facility briefs and updates.

APPENDIX 4**Emergency Response Organization Responsibilities**

- 4.3 EOF Technical Advisor
- Assist with emergency classification.
 - Monitor plant status and Control Room activities.
 - Provide input for facility briefs and updates.
- 4.4 EOF Operations Communicator
- Communicate key information between the facilities over the Technical Information Line.
 - Monitor assigned communication line and provide key information to facility staff.
 - Display, monitor and trend plant data and event information on the facility display systems.
- 4.5 EOF Logistics Manager
- Ensure ERO personnel have been properly notified and are responding to the facilities.
 - Oversee staffing of EOF and assist with staffing for other facilities.
 - Develop ERO shift relief rosters for the facility.
 - Coordinate ERO shift relief rosters for all facilities and the notification of personnel.
 - Manage the administrative support staff.
 - Review and ensure facility displays are maintained current.
 - Manage the procurement and logistical support activities for the onsite and offsite emergency response personnel and facilities.
 - Monitor and maintain access controls for the facility.
 - Communicate with and coordinate support for ERO responders or plant personnel sent offsite to relocation areas.
 - Provide input for facility briefs and updates
- 4.6 EOF/JIC Computer Specialist
- Support the setup of systems and equipment within the facility.
 - Monitor facility equipment (computer related and communications) to ensure adequate operation.
 - Resolve any IT related malfunctions.
 - Assist in operation of JIC audio visual equipment.
- 4.7 EOF Administrative Staff
- Callout ERO relief shift.
 - Set up EOF equipment in preparation for facility activation.
 - Perform administrative and logistic support functions for facility personnel.

APPENDIX 4**Emergency Response Organization Responsibilities****4.8 EOC Communicator**

- Monitor plant conditions and event response activities.
- Provide information updates to and address questions and support requests from the offsite liaisons.
- Notify and brief external agencies and groups (INPO, ANI) of the emergency event.
- Provide input for facility briefs and updates.

4.9 State Liaison

- Communicate EOC / ICP actions and decisions to the EOF.
- Provide technical support and information to the EOC / ICP.

4.10 County Liaison(s)

- Communicate EOC / ICP actions and decisions to the EOF.
- Provide technical support and information to the EOC / ICP.

4.11 EOF Radiation Protection Manager

- Manage and direct the radiological activities of the Offsite RP personnel.
- Coordinate activities with the external agency field monitoring teams.
- Coordinate the comparison and exchange of dose assessment results with offsite agency personnel.
- Assist with emergency classification.
- Monitor, evaluate and communicate conditions involving any release of radioactivity.
- Oversee the performance and evaluate the results of dose projection activities.
- Perform dose assessment.
- Oversee the performance and evaluate the results of Offsite Monitoring Team (OMT) activities.
- Provide support and logistics for site evacuation activities.
- Evaluate the need for and ensure proper use of KI.
- Evaluate conditions and determine recommendations for PARs.
- Ensure proper emergency exposure controls are taken for personnel.
- Provide assistance to state and federal agencies for ingestion pathway radiological activities.
- Provide input for facility briefs and updates.

4.12 HPN Communicator

- Provide event data and plant information to the NRC via the HPN.
- Monitor assigned communication line and provide key information to facility staff.

APPENDIX 4**Emergency Response Organization Responsibilities****4.13 Dose Assessor**

- Monitor, evaluate and communicate conditions involving any release of radioactivity.
- Perform dose assessment.
- Evaluate conditions and determine recommendations for PARs.

4.14 Environmental Coordinator

- Direct and track Offsite Monitoring Team activities.
- Coordinate activities with the external agency field monitoring teams.
- Establish and maintain OMT communications.
- Maintain and update the radiological status displays.
- Coordinate the receipt, analysis, storage and transfer of field monitoring samples.
- Record and report field monitoring survey, sample and exposure information.

4.15 Offsite Monitoring Teams

- Establish and maintain OMT communications.
- Perform equipment checks and inventories in preparation of deployment.
- Track radiological plumes.
- Perform and report results of radiation surveys and environmental sampling.
- Coordinate the receipt, analysis, storage and transfer of field monitoring samples.
- Communicate exposure status to the Environmental Coordinator.

1) State/Local Communicator

- Perform offsite emergency notifications to state and local authorities.

5.0 Public Information ERO (JIC Staff)**5.1 JIC Manager**

- Activate the Facility.
- Manage the operation of the facility.
- Assist offsite agency personnel responding to the facility.
- Coordinate integration of the NRC Site Team.
- Provide liaison to the NRC Site Team.
- Arrange for support for Emergency Alert System (EAS) information.
- Ensure flow of information within and between the emergency response facilities.
- Interface with offsite agency Public Information Officers (PIOs) to coordinate overall information flow to the media and public.

APPENDIX 4**Emergency Response Organization Responsibilities**

- Coordinate facilitation of the media briefing schedule.
- Ensure news media briefings are held regularly during the course of the emergency.
- Oversee conduct of media briefings.
- Integrate ERO activities with the Incident Command Post (ICP) response activities
- Assist in the development of recovery plans.
- Conduct facility briefs and updates.
- Participate in the Inter-Facility Briefing to communicate and obtain event and response information.

5.2 Company Spokesperson

- Establish periodic contact with the communications personnel in the corporate office.
- Interface with offsite agency PIOs to coordinate overall information flow to the media and public.
- Provide interviews to the media.
- Serve as Company Spokesperson during press conferences at the JIC.
- Participate in the Inter-Facility Briefing to communicate and obtain event and response information.
- Provide input for facility briefs and updates.

5.3 EOF Logistics Manager

- Manage the administrative support staff.
- Develop ERO shift relief rosters for the facility.
- Arrange for logistics support.
- Oversee set-up and testing of JIC equipment.
- Maintain access control to the JIC.
- Provide input for facility briefs and updates.
- Oversee collection of technical data and station activities for drafting Media Statements and answering JIC questions.
- Coordinate preparation, review and distribution of Media Statements.
- Obtain ED approval for the technical content of Media Statements.
- Keep JIC staff informed of plant status and EXELON emergency response activities.

5.4 News Writer

- Prepare draft Media Statements.
- Develop public information materials (bulletins, backgrounders and chronologies).

APPENDIX 4**Emergency Response Organization Responsibilities**

- 5.5 JIC Technical Advisor
- Provide technical expertise to the JIC staff.
 - Assist the News Writer with development of technically accurate media statements.
 - Provide answers to technical questions from the news media regarding the emergency situation.
 - Periodically monitor EOF/TSC briefings and Technical Information Line to obtain information.
 - Provide technical information support to the Company Spokesperson.
 - Monitor event information on the facility display systems.
 - Provide input for facility briefs and updates.
- 5.6 Media Liaison
- Ensures media is informed of protocol and schedules established for media briefings.
 - Coordinate preparations for media briefings.
 - Distribute media statements to the media in the media briefing area.
 - Coordinate media relations in JIC and update media between press conferences.
 - Coordinate special interviews and facility tours for the media.
 - Coordinate JIC briefing area preparation and establish briefing protocol.
- 5.7 JIC Administrative Staff
- Assist in badging and direction of members of the media to proper work locations.
 - Perform administrative and logistic support functions for facility personnel.
 - Distribute media materials to the press.
- 5.8 Media Monitoring / Rumor Control Coordinator
- Supervise media monitoring and Inquiry Phone Team personnel.
 - Review Media Monitoring team information for trends, misinformation and rumors.
 - Review Phone Team information for trends, misinformation and rumors.
 - Ensure adequate staff is available to perform media monitoring and phone team functions.
 - Provide input for facility briefs and updates.
- 5.9 Inquiry Phone Team
- Respond to and log phone inquiries from the media and the public.
 - Monitor telephone lines for trends, misinformation and rumors.

APPENDIX 4

Emergency Response Organization Responsibilities

5.10 Media Monitoring Team

- Monitor media coverage of the event for trends

5.11 JIC Security

- Provide badging and access controls for the facility.

6.0 In addition to the position specific responsibilities listed above all ERO members have the following general responsibilities:

- Perform position turnover for protracted events
- Respond as directed when notified of a declared event
- Maintain personal event logs and records in support of the after action report
- Restore area and materials upon event termination
- Apply fundamental ERO knowledge in the performance of your ERO duties
- Properly use ERO procedures and checklists in the performance of your ERO duties
- Acquire & maintain qualification in your assigned ERO position
- Apply human performance error reduction techniques in the performance of you ERO duties

APPENDIX 5

**OSWEGO COUNTY RADIOLOGICAL EMERGENCY PREPAREDNESS PLAN
NEW YORK STATE RADIOLOGICAL EMERGENCY PREPAREDNESS PLAN**

The Oswego County Radiological Emergency Preparedness Plan and the New York State Radiological Emergency Preparedness Plan are submitted under separate cover but are considered to be incorporated as part of this document by reference. Locations of maps to relocation centers in host areas as required by NUREG 0654 II.J.10a are contained within the Host County Plan and is included by reference to the Oswego County Radiological Emergency Preparedness Plan.

APPENDIX 6
TYPICAL ADDITIONAL SUPPORT RESOURCES

1. AIRFIELDS

- a. Greater Rochester International
1200 Brooks Avenue
Rochester, NY 14624
Tel. (585) 753-7020
- b. Oswego County Airport
40 Airport Dr.
Fulton, NY 13069
Tel. (315) 591-9130, (315) 591-9132
- c. Griffiss International Airport
592 Hangar Rd
Rome, NY 13342
Tel. (315) 736-4171 - Airport Manager
- d. Syracuse Hancock International Airport
Hancock Field
Syracuse, NY 13212
Tel. (315) 374-4629 Director of Operations,
Operations Department (315) 374-4403, 4405
(315) 455-6218 (Air Traffic Control)
- e. Watertown International Airport
22529 Airport Dr.
Dexter, NY 13634
Tel. (315) 639-3809

2. COMMAND POSTS

- a. NMPNS Emergency Operations Facility
County Route 176 & Airport Rd.
R.D.#2 Box 656
Fulton, NY 13069

APPENDIX 6
TYPICAL ADDITIONAL SUPPORT RESOURCES

2. COMMAND POSTS (Cont.).

- b. NMPNS Technical Support Center
NMPNS
Lake Road P.O. Box 63
Lycoming, NY 13093
Tel. (315) 349-2487
- c. Joint Information Center
Oswego County Airport
County Route 176
Volney, NY 13069
Tel. (315) 592-3700
- d. New York State Emergency Operations Center
Emergency Management Office
Public Security Building, State Campus
Albany, NY 12232
Tel. (518) 457-9997
- e. Oswego County Emergency Operations Center
200 North Second Street
Fulton, NY 13069
Tel. (315) 591-9150

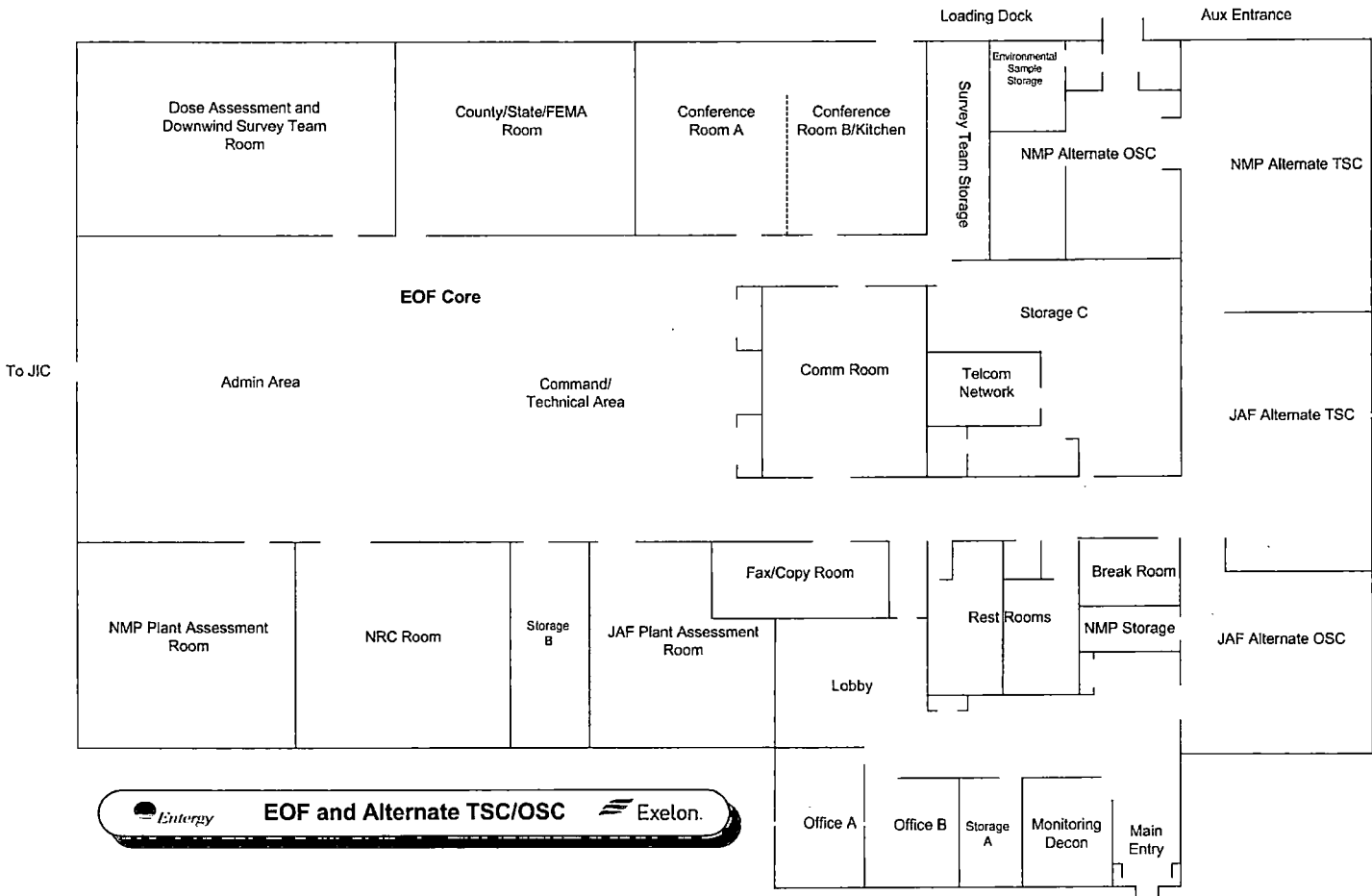
3. TELEPHONE SYSTEMS IN 10-MILE EPZ

- a. Windstream
108 S. 2nd St.
Fulton, NY 13069
(800) 800-6609, (315) 592-8246
- b. Verizon
1095 Avenue of the Americas
New York, NY 10036
(800) 579-8702, (800) 890-6611 (Repair No.)

APPENDIX 6
TYPICAL ADDITIONAL SUPPORT RESOURCES

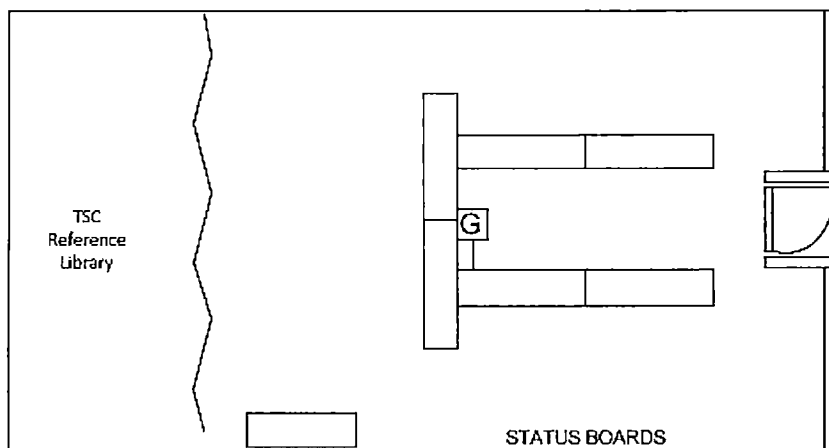
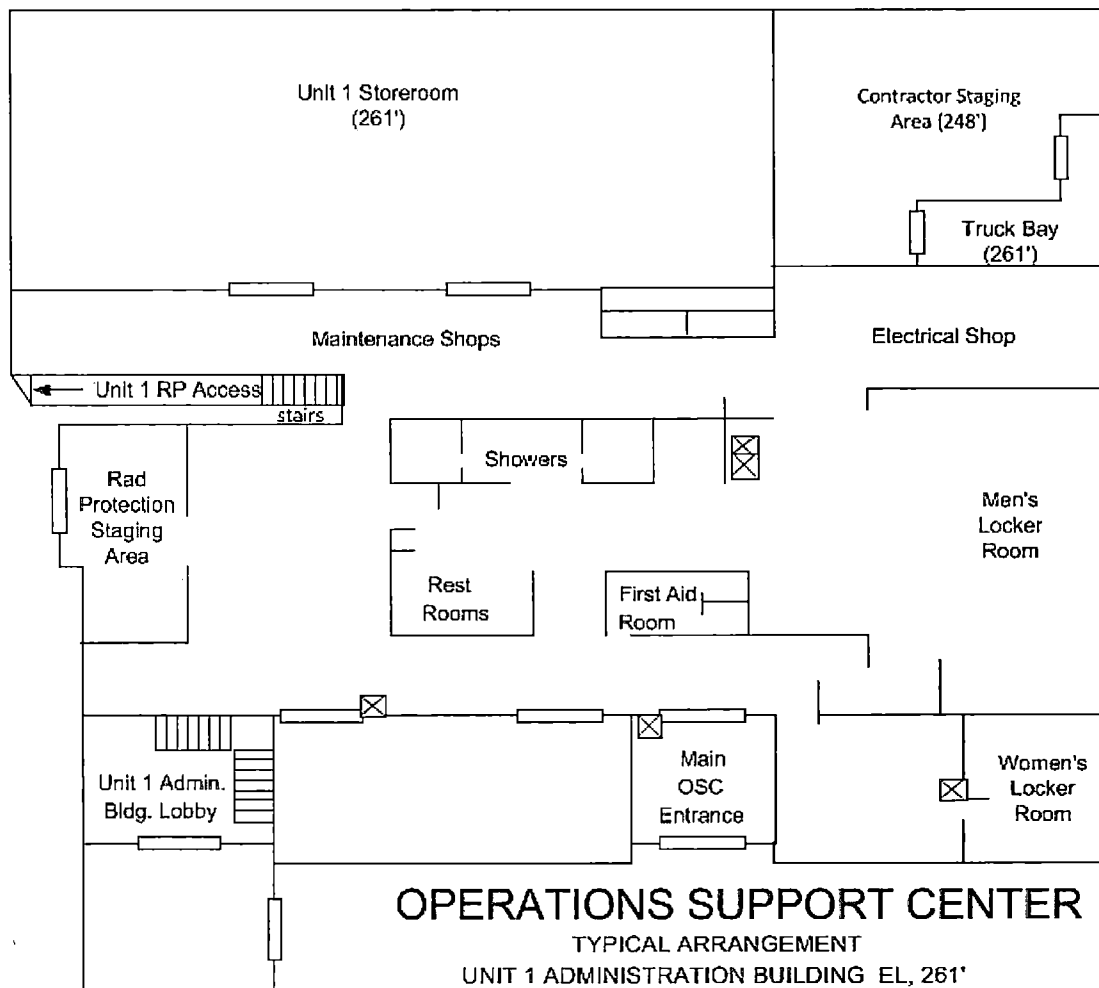
4. **NINE MILE POINT UHF RADIO SYSTEM**
 - a. Base, mobile, and portable transceivers
 - b. In plant and off-site repeaters

APPENDIX 7 - RESOURCE MATERIAL
EMERGENCY OPERATIONS FACILITY
 (Typical Arrangement)

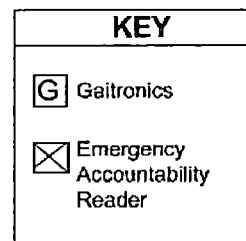


APPENDIX 7 - RESOURCE MATERIAL

OPERATIONS SUPPORT CENTER (Typical Arrangement)

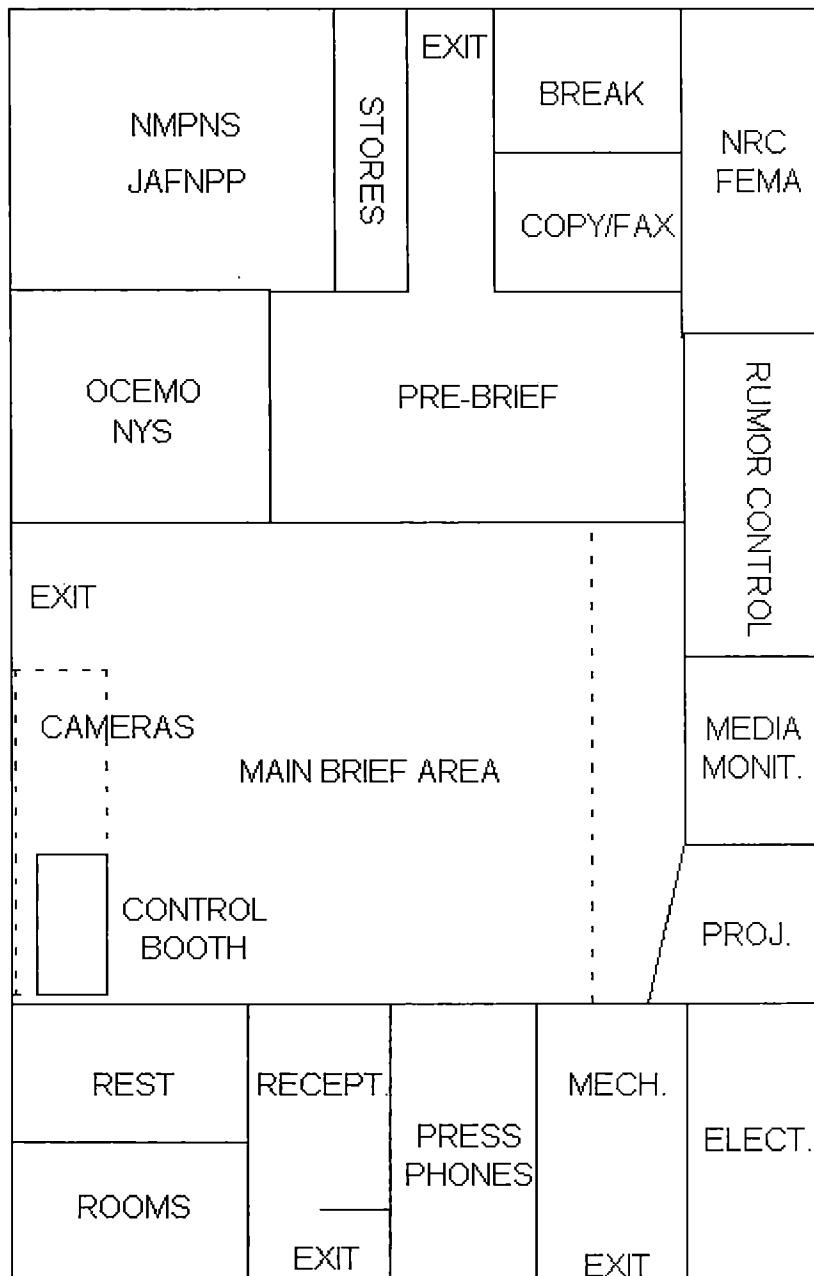


**JOINT INFORMATION CENTER
(Typical Arrangement)**



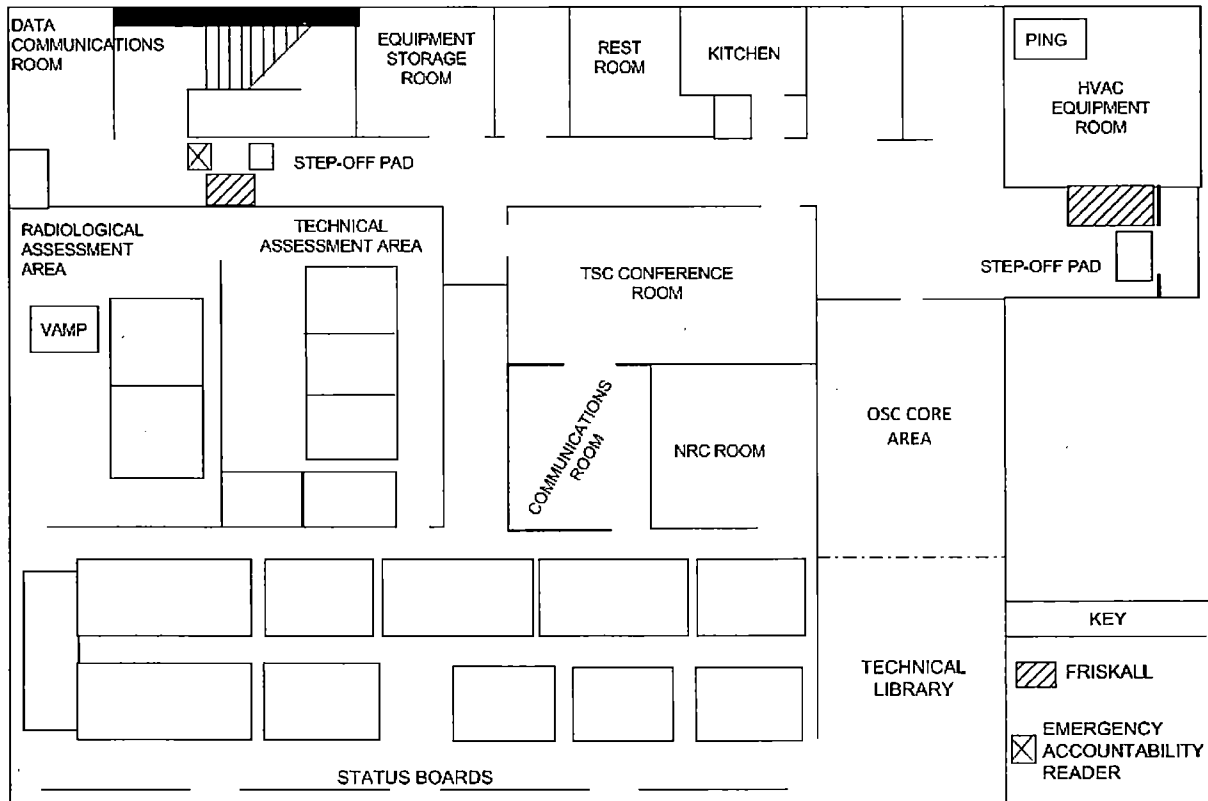
DETAIL OF THE
OPERATIONS SUPPORT
CENTER
CORE AREA EL. 248'
TYPICAL
ARRANGEMENT

APPENDIX 7 - RESOURCE MATERIAL



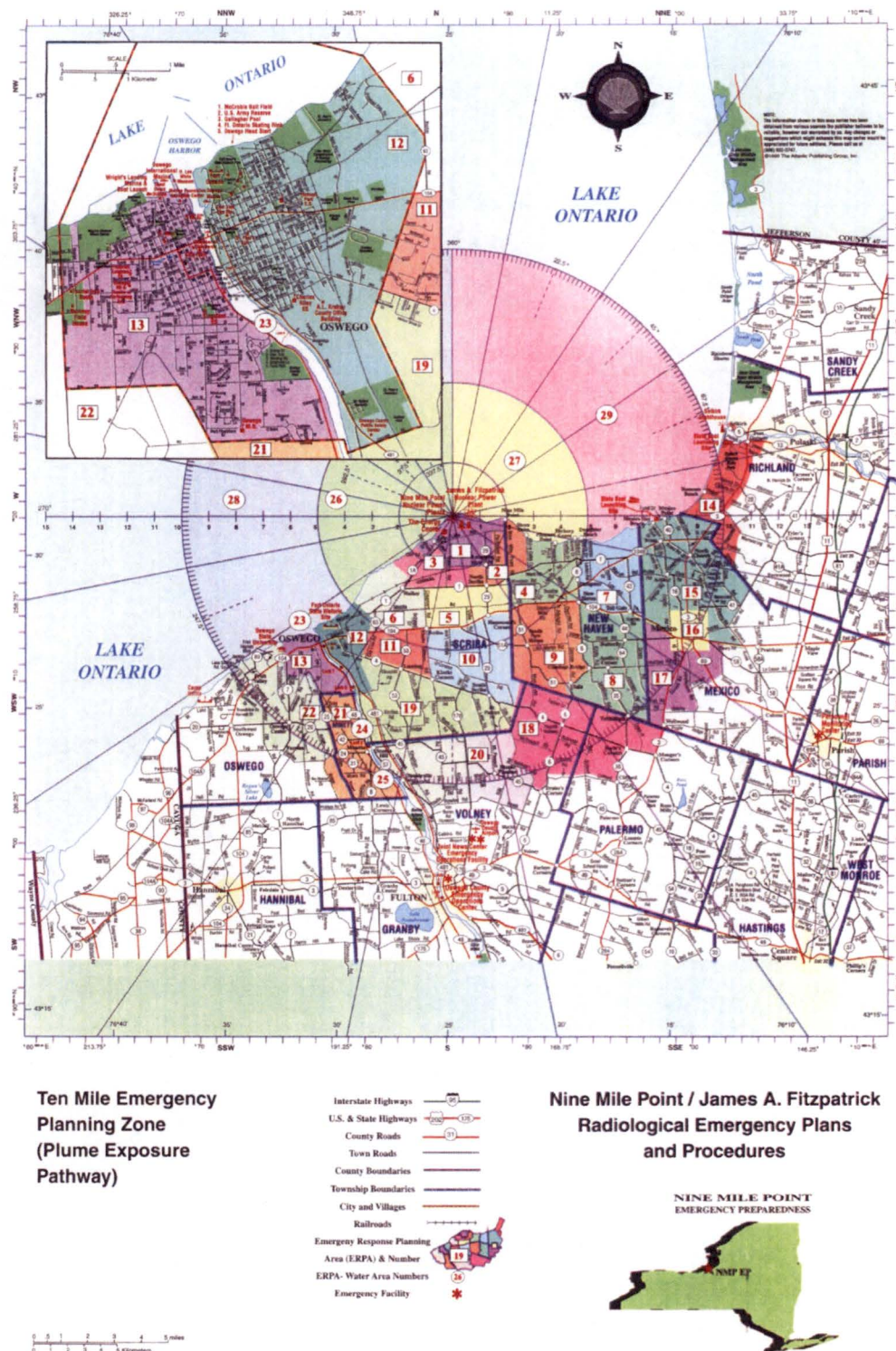
APPENDIX 7 - RESOURCE MATERIAL

**TECHNICAL SUPPORT CENTER
(Typical Arrangement)**



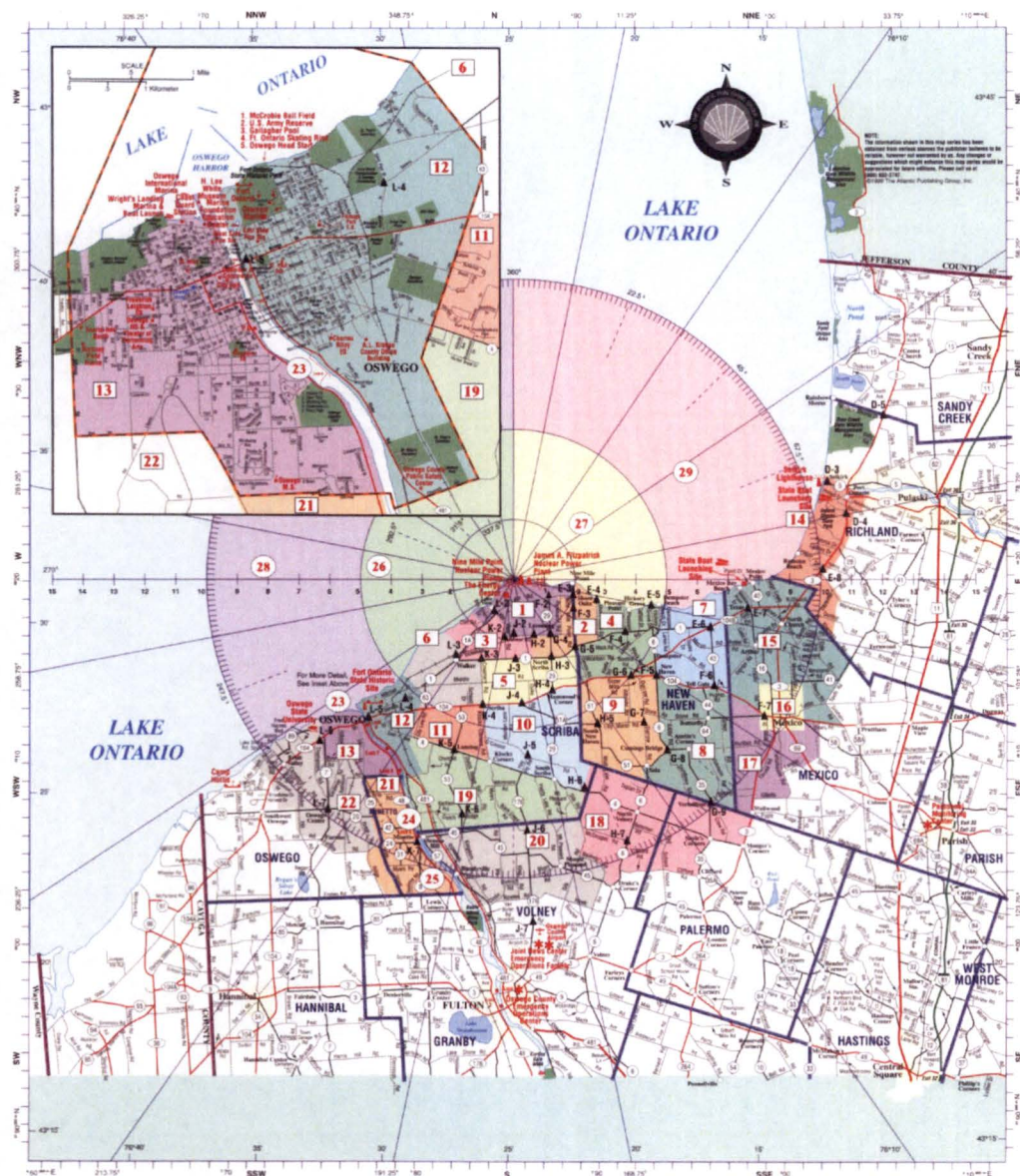
TECHNICAL SUPPORT CENTER
TYPICAL ARRANGEMENT
UNIT 1 ADMINISTRATION BUILDING EL.248'

APPENDIX 7 - RESOURCE MATERIAL **TEN MILE EMERGENCY PLANNING ZONE**



APPENDIX 7 - RESOURCE MATERIAL

OFFSITE SURVEY LOCATIONS



Offsite Survey Locations

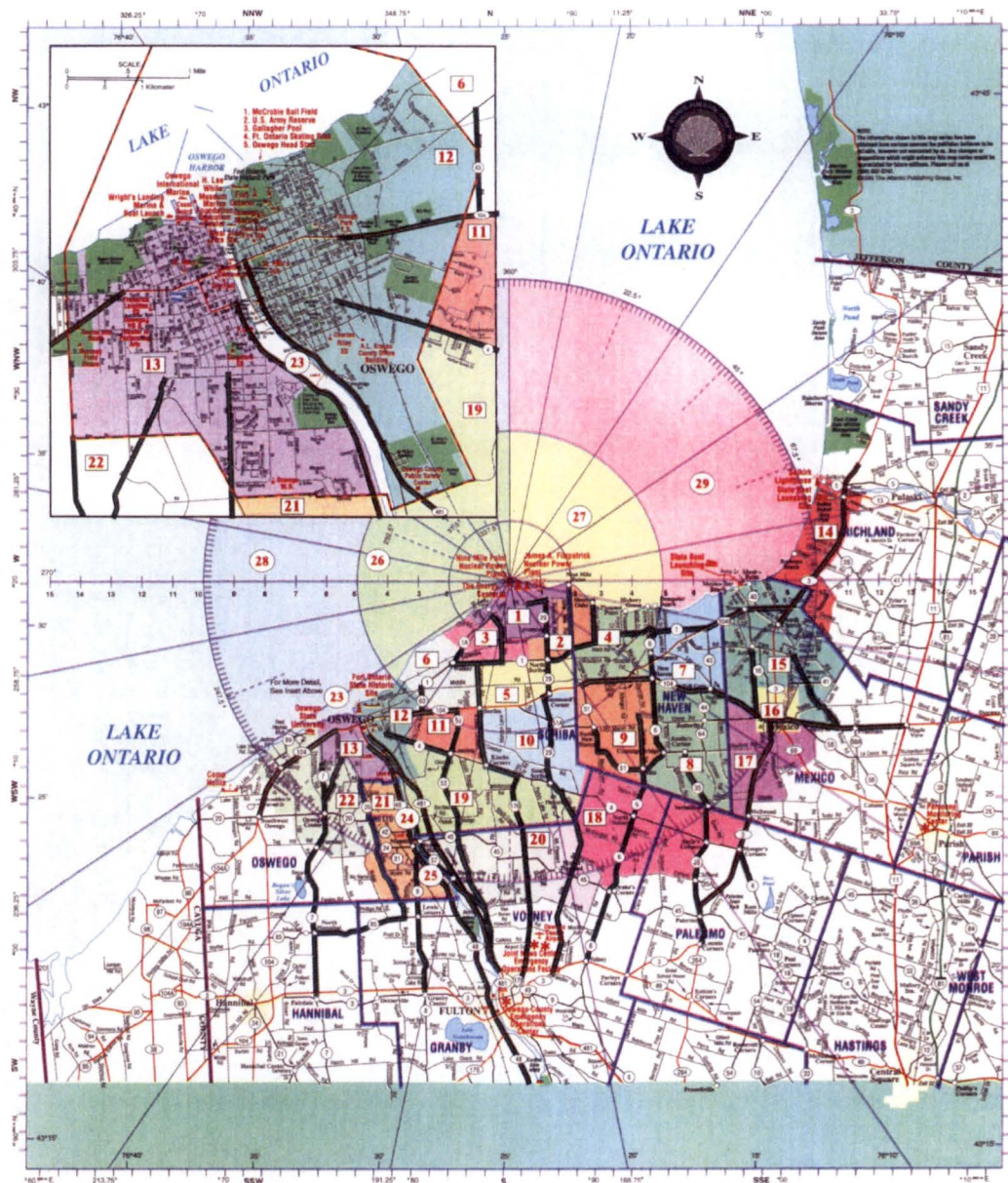
- Interstate Highways
- U.S. & State Highways
- County Roads
- Town Roads
- County Boundaries
- Township Boundaries
- City and Villages
- Railroads
- Emergency Response Planning Area (ERPA) & Number
- ERPA - Water Area Numbers
- Offsite Survey Locations
- Emergency Facility

Nine Mile Point / James A. Fitzpatrick
Radiological Emergency Plans
and Procedures

NINE MILE POINT
EMERGENCY PREPAREDNESS



APPENDIX 7 - RESOURCE MATERIAL **PRIMARY EVACUATION ROUTES**



Primary Evacuation Routes

- Interstate Highways
- U.S. & State Highways
- County Roads
- Town Roads
- County Boundaries
- Township Boundaries
- City and Villages
- Railroads
- Emergency Response Planning Area (ERPA) & Number
- ERPA Water Area Numbers
- Primary Evacuation Routes
- Emergency Facility

Nine Mile Point / James A. Fitzpatrick Radiological Emergency Plans and Procedures

NINE MILE POINT EMERGENCY PREPAREDNESS



Appendix 8Emergency Plan Commitments

| <u>Section(s)/Step Number</u> | <u>NCTS Number</u> | <u>Description</u> |
|-----------------------------------|--------------------|--|
| 3.2.1, 4.1.3 5.2, 5.4, 7.1.4 | NCTS #503441-02 | Revise SEP and procedures to more clearly follow the intent of the NRC rule. Delete Sympathetic Alert. |
| 5.2.2 | NCTS #504223-26 | Identify the control room staffing requirements during Modes 1, 2, 3 and when the emergency plan is activated |

Attachment 3

**EP-AA-1010, Addendum 3, Revision 3, "*Emergency Action Levels
for Oyster Creek Station*"**

Emergency Plan Addendum Revision

EXELON NUCLEAR

EMERGENCY ACTION LEVELS FOR OYSTER CREEK STATION

[illegible]

Section 1: Classification of Emergencies

1.1 General

Section D of the Exelon Nuclear Standardized Emergency Plan divides the types of emergencies into four EMERGENCY CLASSIFICATION LEVELS (ECLs). The first four are the UNUSUAL EVENT (UE), ALERT, SITE AREA EMERGENCY (SAE), and GENERAL EMERGENCY (GE). These ECLs are entered by satisfying the Initiating Condition (IC) through meeting an Emergency Action Level (EAL) of the IC provided in this section of the Annex. The ECLs are escalated from least severe to most severe according to relative threat to the health and safety of the public and emergency workers. Depending on the severity of an event, prior to returning to a standard day-to-day organization, a state or phase called RECOVERY may be entered to provide dedicated resources and organization in support of restoration and communication activities following the termination of the emergency.

UNUSUAL EVENT (UE): Events are in progress 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.

ALERT: Events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

SITE AREA EMERGENCY (SAE): Events are in progress or have occurred which involve an 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.

GENERAL EMERGENCY (GE): Events are in progress 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.

RECOVERY: Recovery can be considered as a phase of the emergency and is entered by meeting emergency termination criteria provided in EP-AA-111 Emergency Classification and Protective Action Recommendations.

EMERGENCY CLASSIFICATION LEVEL (ECL): One of a set of names or titles established by the US Nuclear Regulatory Commission (NRC) for grouping off-normal events or conditions according to (1) potential or actual effects or consequences, and (2) resulting onsite and offsite response actions. The emergency classification levels, in ascending order of severity, are:

- UNUSUAL EVENT (UE)
- ALERT
- SITE AREA EMERGENCY (SAE)
- GENERAL EMERGENCY (GE)

INITIATING CONDITION (IC): An event or condition that aligns with the definition of one of the four EMERGENCY CLASSIFICATION LEVELS by virtue of the potential or actual effects or consequences.

EMERGENCY ACTION LEVEL (EAL): A pre-determined, site-specific, observable threshold for an INITIATING CONDITION that, when met or exceeded, places the plant in a given EMERGENCY CLASSIFICATION LEVEL.

An emergency is classified by assessing plant conditions and comparing abnormal conditions to ICs and EALs, based on the designated Operational Condition (MODE). Modes 1 through 4 are based on Reactor Mode Switch Position and average reactor coolant temperature. "Defueled" Mode was established for classification purposes under NEI 99-01 to reflect conditions where all fuel has been removed from the Reactor Pressure Vessel.

| MODE | TITLE | CONDITION |
|------|-----------------|--|
| 1 | Power Operation | Technical Specification definition |
| 2 | Hot Shutdown | Shutdown condition or Refuel Mode as defined by Technical Specifications and Reactor Coolant Temperature not below 212 degrees F or not vented. |
| 3 | Cold Shutdown | Technical Specification Definition |
| 4 | Refueling | Technical Specification definition of Refuel Mode and Reactor coolant temperature below 212 degrees F and vented. |
| D | Defueled | No fuel in the Reactor Vessel |

Hot Matrix - applies in modes (1) and (2)

Cold Matrix - applies in modes (3), (4), and (D)

Individuals responsible for the classification of events will refer to the Initiating Condition and EALs on the matrix of the appropriate station Standardized Emergency Plan Annex (this document). This matrix will contain ICs, EALs, Mode Applicability Designators, appropriate EAL numbering system, and additional guidance necessary to classify events. It may be provided as a user aid.

The matrix is set up in six Recognition Categories. The first is designated as "R" and relates to Abnormal Radiological Conditions / Abnormal Radiological Effluent Releases. The second is designated as "F" and relates to Fission Product Barrier Degradation. The third is designated as "M" and relates to hot condition System Malfunctions. The fourth is designated as "C" and relates to Cold Shutdown / Refueling System Malfunctions. The fifth is designated as "H" and relates to Hazards and Other Conditions Affecting Plant Safety. The sixth is designated "E-H" and relates to ISFSI Malfunctions.

The matrix is designed to provide an evaluation of the Initiating Conditions from the worst conditions (General Emergencies) on the left to the relatively less severe conditions on the right (Unusual Events). Evaluating conditions from left to right will reduce the possibility that an event will be under classified. All Recognition Categories should be reviewed for applicability prior to classification.

The Initiating Conditions are coded with a two letter and one number code. The first letter is the Recognition Category designator, the second letter is the Classification Level, "U" for (NOTIFICATION OF) UNUSUAL EVENT, "A" for ALERT, "S" for SITE AREA EMERGENCY and "G" for GENERAL EMERGENCY. The EAL number is a sequential number for that Recognition Category series. All ICs that are describing the severity of a common condition (series) will have the same number.

The EAL number may then be used to reference a corresponding page(s), which provides the basis information pertaining to the IC:

- EAL
- Mode Applicability
- Basis

Classification is not to be made without referencing, comparing and satisfying the specified Emergency Action Levels.

A list of definitions is provided as part of this document for terms having specific meaning to the EALs. Site specific definitions are provided for terms with the intent to be used for a particular IC/EAL and may not be applicable to other uses of that term at other sites, the Emergency Plan or procedures.

References are also included to documents that were used to develop the EALs.

References to the Emergency Director means the person in Command and Control as defined in the Emergency Plan. Classification of emergencies is a non-delegable responsibility of Command and Control for the onsite facilities with responsibility assigned to the Shift Emergency Director (Control Room Shift Manager) or the Station Emergency Director (Technical Support Center). Classification of emergencies remains the responsibility of the applicable onsite facility even after Command and Control is transferred to the Corporate Emergency Director (Emergency Operations Facility).

Although the majority of the EALs provide very specific thresholds, the Emergency Director must remain alert to events or conditions that lead to the conclusion that exceeding the EAL is IMMINENT. If, in the judgment of the Emergency Director, an IMMINENT situation is at hand, the classification should be made as if the EAL has been exceeded. While this is particularly prudent at the higher ECL (as the early classification may provide for more effective implementation of protective measures), it is nonetheless applicable to all ECLs.

1.2 Classification, Instrumentation and Transient Events

Classifications are based on evaluation of each Unit. All classifications are to be based upon valid indications, reports or conditions. Indications, reports or conditions are considered valid when they are verified by (1) an instrument channel check, or (2) indications on related or redundant indications, or (3) by direct observation by plant personnel, such that doubt related to the indication's operability, the condition's existence, or the report's accuracy is removed. Implicit in this is the need for timely assessment.

Indications used for monitoring and evaluation of plant conditions include the normally used instrumentation, backup or redundant instrumentation, and the use of other parameters that provide information that supports determination if an EAL has been reached. When an EAL refers to a specific instrument or indication that is determined to be inaccurate or unavailable, then alternate indications shall be used to monitor the specified condition.

During an event that results in changing parameters trending towards an EAL classification, and instrumentation that was available to monitor this parameter becomes unavailable or the parameter goes off scale, the parameter should be assumed to have been exceeded consistent with the trend and the classification made if there are no other direct or indirect means available to determine if the EAL has not been exceeded.

The assessment of some EALs is based on the results of analyses that are necessary to ascertain whether a specific EAL has been exceeded (e.g., dose assessments, chemistry sampling, RCS leak rate calculation, etc.); the EAL and/or the associated basis discussion will identify the necessary analysis. In these cases, the 15-minute declaration period starts with the availability of the analysis results that show the EAL to be exceeded (i.e., this is the time that the EAL information is first available).

Planned evolutions involve 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 in accordance with the specific requirements of the site's Technical Specifications. Activities which cause the site to operate beyond that allowed by the site's Technical Specifications, planned or unplanned, may result in an EAL being met or exceeded. Planned evolutions to test, manipulate, repair, perform maintenance or modifications to systems and equipment that result in an EAL being met or exceeded are not subject to classification and activation requirements as long as the evolution proceeds as planned and is within the operational limitations imposed by the specific operating license. However, these conditions may be subject to the reporting requirements of 10 CFR 50.72.

When two or more EALs are determined, declaration will be made on the highest classification level for the Unit.

Concerning ECL Downgrading, Exelon Nuclear policy is that ECLs 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.

There may be cases in which a plant condition that exceeded an EAL was not recognized at the time of occurrence but is identified well after the condition has occurred (e.g., as a result of routine log or record review), and the condition no longer exists. In these cases, an emergency should not be declared. Reporting requirements of 10 CFR 50.72 are applicable, the guidance of NUREG-1022, Event Reporting Guidelines 10 CFR 50.72 and 50.73 and the Reportability Reference Manual, should be applied.

1.3 Mode Applicability

The plant-operating mode that existed at the time that the event occurred, prior to any protective system or operator action initiated in response to the condition, is compared to the mode applicability of the EALs. If an event occurs, and a lower or higher plant-operating mode is reached before the emergency classification can be made, the declaration shall be based on the mode that existed at the time the event occurred.

For events that occur in Cold Shutdown or Refueling, escalation is via EALs that have Cold Shutdown or Refueling for mode applicability, even if Hot Shutdown (or a higher mode) is entered during any subsequent heat-up. In particular, the Fission Product Barrier Matrix EALs are applicable only to events that initiate in Hot Shutdown or higher.

If there is a change in Mode following an event declaration, any subsequent events involving EALs outside of the current declaration escalation path will be evaluated on the Mode of the plant at the time the subsequent events occur.

1.4 Emergency Director Judgment

Emergency Director (ED) Judgment EALs are provided in the Hazards and Other Condition Affecting Plant Safety section and on the Fission Product Barrier (FPB) Matrix. Both of the ED Judgment EALs have specific criteria for when they should be applied.

The Hazards Section ED Judgment EALs are intended to address unanticipated conditions which are not addressed explicitly by other EALs but warrant declaration of an emergency because conditions exist which are believed by the ED to fall under specific emergency classifications (UE, Alert, SAE or GE).

The FPB Matrix ED Judgment EALs are intended to include unanticipated conditions, which are not addressed explicitly by any of the other FPB threshold values, but warrant determination because conditions exist that fall under the broader definition for a significant Loss or Potential Loss of the barrier (equal to or greater than the defined FPB threshold values).

1.5 Fission Product Barrier (FPB) Threshold

A fission product barrier threshold is a pre-determined, site-specific, observable threshold indicating the loss or potential loss of a fission product barrier.

FPB thresholds represent threats to the defense in depth design concept that precludes the release of radioactive fission products to the environment. This concept relies on multiple physical barriers, any one of which, if maintained intact, precludes the release of significant amounts of radioactive fission products to the environment. The primary FPBs are:

- Fuel Clad (FC)
- Reactor Coolant System (RCS)
- Containment (CT)

Upon determination that one or more FPB thresholds have been exceeded, the combination of barrier loss and/or potential loss thresholds is compared to the FPB IC/EAL criteria to determine the appropriate ECL.

In some accident sequences, the ICs and EALs presented in the Abnormal Radiation Levels/ Radiological Effluent (R) Recognition Category will be exceeded at the same time, or shortly after, the loss of one or more fission product barriers. This redundancy is intentional as the former ICs address radioactivity releases that result in certain offsite doses from whatever cause, including events that might not be fully encompassed by fission product barriers (e.g., spent fuel pool accidents, design containment leakage following a LOCA, etc.).

1.6 Fission Product Barrier Restoration

Fission Product Barriers are not treated the same as EAL threshold values. Conditions warranting declaration of the loss or potential loss of a FPB may occur resulting in a specific classification. The condition that caused the loss or potential loss declaration could be rectified as the result of Operator action, automatic actions, or designed plant response. Barriers will be considered re-established when there are direct verifiable indications (containment penetration or open valve has been isolated, coolant sample results, etc) that the barrier has been restored and is capable of mitigating future events.

The reestablishment of a FPB does not alter or lower the existing classification. Termination and entry into RECOVERY phase is still required for exiting the present classification. However the reestablishment of the barrier should be considered in determining future classifications should plant conditions or events change.

1.7 Definitions

CONFINEMENT BOUNDARY: The irradiated fuel dry storage cask barrier(s) between areas containing radioactive substances and the environment.

CONTAINMENT CLOSURE: The procedurally defined actions taken to secure containment (primary or secondary) and its associated structures, systems, and components as a functional barrier to fission product release under existing plant conditions.

EXPLOSION: A rapid, violent and catastrophic failure of a piece of equipment due to combustion, chemical reaction or overpressurization. A release of steam (from high energy lines or components) or an electrical component failure (caused by short circuits, grounding, arcing, etc.) should not automatically be considered an explosion. Such events may require a post-event inspection to determine if the attributes of an explosion are present.

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute fire. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

FISSION PRODUCT BARRIER (FPB) THRESHOLD: A pre-determined, site-specific, observable threshold indicating the loss or potential loss of a fission product barrier.

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.

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

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

IMMINENT: The trajectory of events or conditions is such that an EAL will be met within a relatively short period of time regardless of mitigation or corrective actions.

INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI): A complex that is designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel storage.

NORMAL LEVELS: As applied to radiological IC/EALs, the highest reading in the past twenty-four hours excluding the current peak value.

OWNER CONTROLLED AREA (OCA): The property associated with the station and owned by the company. Access is normally limited to persons entering for official business.

PROJECTILE: An object directed toward a Nuclear Power Plant (NPP) that could cause concern for its continued operability, reliability, or personnel safety.

PROTECTED AREA: An area that normally encompasses all controlled areas within the security protected area fence.

REFUELING PATHWAY: All the cavities, tubes, canals and pools through which irradiated fuel may be moved or stored, but not including the reactor vessel below the flange.

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

SECURITY CONDITION: Any Security Event as listed in the approved security contingency plan that constitutes a threat/compromise to site security, threat/risk to site personnel, or a potential degradation to the level of safety of the plant. A SECURITY CONDITION does not involve a HOSTILE ACTION.

UNISOLABLE: An open or breached system line that cannot be isolated, remotely or locally.

UNPLANNED: A parameter change or an event that is not 1) the result of an intended evolution or 2) an expected plant response to a transient. The cause of the parameter change or event may be known or unknown.

VISIBLE DAMAGE: Damage to a component or structure that is readily observable without measurements, testing, or analysis. The visual impact of the damage is sufficient to cause concern regarding the operability or reliability of the affected component or structure.

| General | | Site Area | | Alert | | Unusual Event | |
|-----------|-------|-----------|-------|-------------|-------|---------------|-------|
| EAL | Pg. | EAL | Pg. | EAL | Pg. | EAL | Pg. |
| RG1 | 2-25 | RS1 | 2-27 | RA1 | 2-29 | RU1 | 2-32 |
| RG2 | 2-35 | RS2 | 2-36 | RA2 | 2-37 | RU2 | 2-40 |
| | | | | RA3 | 2-42 | RU3 | 2-45 |
| FG1 | 2-46 | FS1 | 2-47 | FA1 | 2-48 | | |
| Fuel Clad | | RCS | | Containment | | | |
| FC1 | 2-49 | | | | | | |
| FC2 | 2-50 | RC2 | 2-54 | CT2 | 2-62 | | |
| | | RC3 | 2-56 | CT3 | 2-63 | | |
| | | RC4 | 2-57 | | | | |
| FC5 | 2-52 | RC5 | 2-60 | CT5 | 2-65 | | |
| | | | | CT6 | 2-66 | | |
| FC7 | 2-53 | RC7 | 2-61 | CT7 | 2-69 | | |
| MG1 | 2-70 | MS1 | 2-72 | MA1 | 2-74 | MU1 | 2-76 |
| MG2 | 2-77 | MS2 | 2-79 | | | | |
| | | MS3 | 2-80 | MA3 | 2-82 | MU3 | 2-84 |
| | | | | MA4 | 2-87 | MU4 | 2-89 |
| | | | | MA5 | 2-91 | | |
| | | | | | | MU6 | 2-93 |
| | | | | | | MU7 | 2-95 |
| | | | | CA1 | 2-97 | CU1 | 2-99 |
| | | | | CA2 | 2-101 | | |
| | | | | | | CU3 | 2-103 |
| | | | | | | CU4 | 2-104 |
| | | | | CA5 | 2-106 | CU5 | 2-108 |
| CG6 | 2-110 | CS6 | 2-114 | CA6 | 2-117 | CU6 | 2-119 |
| HG1 | 2-121 | HS1 | 2-123 | HA1 | 2-125 | HU1 | 2-128 |
| | | HS2 | 2-130 | HA2 | 2-132 | | |
| | | | | | | HU3 | 2-133 |
| | | | | | | HU4 | 2-137 |
| | | | | HA5 | 2-139 | | |
| | | | | | | HU6 | 2-142 |
| HG7 | 2-145 | HS7 | 2-146 | HA7 | 2-147 | HU7 | 2-148 |
| | | | | | | E-HU1 | 2-149 |

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | | ALERT | | UNUSUAL EVENT | |
|--|---|---|---|--|--|---------------|--|
| Abnormal Rad Levels / Radiological Effluents | | | | | | | |
| Radiological Effluents | <div>RG1</div> <div>Release of gaseous radioactivity resulting in offsite dose greater than 1,000 mRem TEDE or 5,000 mRem thyroid CDE.</div> <div>12345</div> <div>Emergency Action Level (EAL):</div> <div>Notes:</div> <div><ul style="list-style-type: none">The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded the applicable time.Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.The pre-calculated effluent monitor values presented in EAL #1 should be used for emergency classification assessments until the results from a dose assessment using actual meteorology are available.</div> <div><div>1. Readings on ANY Table R1 Effluent Monitor > Table R1 value for ≥ 15 minutes.</div><div>OR</div><div>2. Dose assessment Using actual meteorology indicates doses at or beyond the site boundary of EITHER:<div><div>a. > 1000 mRem TEDE</div><div>OR</div><div>b. > 5000 mRem CDE Thyroid</div></div></div><div>OR</div><div>3. Field survey results at or beyond the site boundary indicate EITHER:<div><div>a. Gamma (closed window) dose rates >1000 mRem/hr are expected to continue for ≥ 60 minutes.</div><div>OR</div><div>b. Analyses of field survey samples indicate > 5000 mRem CDE Thyroid for 60 minutes of inhalation.</div></div></div></div> | <div>RS1</div> <div>Release of gaseous radioactivity resulting in offsite dose greater than 100 mRem TEDE or 500 mRem thyroid CDE.</div> <div>12345</div> <div>Emergency Action Level (EAL):</div> <div>Notes:</div> <div><ul style="list-style-type: none">The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded the applicable time.Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.The pre-calculated effluent monitor values presented in EAL #1 should be used for emergency classification assessments until the results from a dose assessment using actual meteorology are available.</div> <div><div>1. Readings on ANY Table R1 Effluent Monitor > Table R1 value for ≥ 15 minutes.</div><div>OR</div><div>2. Dose assessment using actual meteorology indicates doses at or beyond the site boundary of EITHER:<div><div>a. > 100 mRem TEDE</div><div>OR</div><div>b. > 500 mRem CDE Thyroid</div></div></div><div>OR</div><div>3. Field survey results at or beyond the site boundary indicate EITHER:<div><div>a. Gamma (closed window) dose rates >100 mRem/hr are expected to continue for ≥ 60 minutes.</div><div>OR</div><div>b. Analyses of field survey samples indicate > 500 mRem CDE Thyroid for 60 minutes of inhalation.</div></div></div></div> | <div>RA1</div> <div>Release of gaseous or liquid radioactivity resulting in offsite dose greater than 10 mrem TEDE or 50 mrem thyroid CDE.</div> <div>12345</div> <div>Emergency Action Level (EAL):</div> <div>Notes:</div> <div><ul style="list-style-type: none">The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded the applicable time.Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.The pre-calculated effluent monitor values presented in EAL #1 should be used for emergency classification assessments until the results from a dose assessment using actual meteorology are available.</div> <div><div>1. Readings on ANY Table R1 Effluent Monitor > Table R1 value for ≥ 15 minutes.</div><div>OR</div><div>2. Dose assessment using actual meteorology indicates doses at or beyond the site boundary of EITHER:<div><div>a. > 10 mRem TEDE</div><div>OR</div><div>b. > 50 mRem CDE Thyroid</div></div></div><div>OR</div><div>3. Analysis of a liquid effluent sample indicates a concentration or release rate that would result in doses greater than EITHER of the following at or beyond the site boundary<div><div>a. 10 mRem TEDE for 60 minutes of exposure</div><div>OR</div><div>b. 50 mRem CDE Thyroid for 60 minutes of exposure</div></div></div><div>OR</div><div>4. Field survey results at or beyond the site boundary indicate EITHER:<div><div>a. Gamma (closed window) dose rates > 10 mR/hr are expected to continue for ≥ 60 minutes.</div><div>OR</div><div>b. Analyses of field survey samples indicate > 50 mRem CDE Thyroid for 60 minutes of inhalation.</div></div></div></div> | <div>RU1</div> <div>Release of gaseous or liquid radioactivity to the environment greater than 2 times the ODCM for 60 minutes or longer.</div> <div>12345</div> <div>Emergency Action Level (EAL):</div> <div>Notes:</div> <div><ul style="list-style-type: none">The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded the applicable time.Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.</div> <div><div>1. Readings on ANY Table R1 Effluent Monitor > Table R1 value for ≥ 60 minutes.</div><div>OR</div><div>2. Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 2 times ODCM Limit with a release duration of ≥ 60 minutes.</div></div> | | | |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4– Refueling D – Defueled

| Table R1 Effluent Monitor Thresholds | | | | | |
|--------------------------------------|--|--|--|--|-------------------|
| Release Path | | General Emergency | Site Area Emergency | Alert | Unusual Event |
| Main Stack RAGEMS | HRM = High Range Monitor LRM = Low Range Monitor | 8.69 E+01 uCi/cc HRM OR 3.53 E-08 amps HRM | 8.69 E+00 uCi/cc HRM OR 3.53 E-09 amps HRM | 8.69 E-01 uCi/cc HRM OR 3.53 E-10 amps HRM | 4.07 E+03 cps LRM |
| Turbine Building RAGEMS | HRM = High Range Monitor LRM = Low Range Monitor | 7.17 E-01 uCi/cc HRM | 3.65 E+05 cpm LRM | 3.65 E+04 cpm LRM | 4.16 E+02 cpm LRM |

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | | ALERT | | UNUSUAL EVENT | | | | | | | | |
|---|--|---|--|--|--|--|---|--|------|----------------------------------|--------------------------------|---------------|--|---|
| Abnormal Rad Levels / Radiological Effluents | | | | | | | | | | | | | | |
| Radiological Effluents | <p>RG2 Spent fuel pool level cannot be restored to at least 96.75 ft. for 60 minutes or longer. 1234D</p> <p><u>Emergency Action Levels (EAL):</u></p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>Spent fuel pool level cannot be restored to at least 96.75 ft. as indicated on LI-18-1A or LI-18-1B for 60 minutes or longer.</p> | <p>RS2 Spent fuel pool level at 96.75 ft. 1234D</p> <p><u>Emergency Action Level (EAL):</u></p> <p>Lowering of spent fuel pool level to 96.75 ft. as indicated on LI-18-1A or LI-18-1B.</p> | <p>RA2 Significant lowering of water level above, or damage to, irradiated fuel. 1234D</p> <p><u>Emergency Action Level (EAL):</u></p> <p>1. Uncovery of irradiated fuel in the REFUELING PATHWAY. OR</p> <p>2. Damage to irradiated fuel resulting in a release of radioactivity from the fuel as indicated by ANY Table R2 Radiation Monitor reading ≥1000 mRem/hr. OR</p> <p>3. Lowering of spent fuel pool level to 106.09 ft. as indicated on LI-18-1A or LI-18-1B.</p> | <p>RU2 Unplanned loss of water level above irradiated fuel. 1234D</p> <p><u>Emergency Action Level (EAL):</u></p> <p>1. UNPLANNED water level drop in the REFUELING PATHWAY as indicated by ANY of the following:</p> <ul style="list-style-type: none">Refueling Cavity water level < 583 inches (GEMAC Wide Range, floodup calibration). ORIndication or report of a drop in water level in the REFUELING PATHWAY. <p>AND</p> <p>2. UNPLANNED Area Radiation Monitor reading rise on ANY radiation monitor in Table R2.</p> | | | | | | | | | | |
| | <table><tr><th colspan="2">Table R2 Refuel Floor ARM's</th></tr><tr><td colspan="2"><ul style="list-style-type: none">C-5, Crit MonC-10, North WallC-9, North WallB-9, Open Floor</td></tr></table> | Table R2 Refuel Floor ARM's | | <ul style="list-style-type: none">C-5, Crit MonC-10, North WallC-9, North WallB-9, Open Floor | | <table><tr><th colspan="2">Table R4 Areas with Entry Related Mode Applicability</th></tr><tr><th>Area</th><th>Entry Related Mode Applicability</th></tr><tr><td>Reactor Building 51' elevation</td><td>Modes 3 and 4</td></tr></table> | Table R4 Areas with Entry Related Mode Applicability | | Area | Entry Related Mode Applicability | Reactor Building 51' elevation | Modes 3 and 4 | <p>RA3 Radiation levels that impede access to equipment necessary for normal plant operations, cooldown or shutdown. 1234D</p> <p><u>Emergency Action Level (EAL):</u></p> <p>Note: If the equipment in the listed room or area was already inoperable, or out of service, before the event occurred, then no emergency classification is warranted</p> <p>1. Dose rate > 15 mR/hr in ANY of the areas contained in Table R3. OR</p> <p>2. UNPLANNED event results in radiation levels that prohibit or significantly impede access to ANY of the areas contained in Table R4.</p> | <p>RU3 Reactor coolant activity greater than Technical Specification allowable limits. 12</p> <p><u>Emergency Action Level (EAL):</u></p> <p>1. Offgas system radiation monitor Hi-Hi alarm. OR</p> <p>2. Specific coolant activity > 4.0 uCi/gm Dose equivalent I-131.</p> |
| | Table R2 Refuel Floor ARM's | | | | | | | | | | | | | |
| <ul style="list-style-type: none">C-5, Crit MonC-10, North WallC-9, North WallB-9, Open Floor | | | | | | | | | | | | | | |
| Table R4 Areas with Entry Related Mode Applicability | | | | | | | | | | | | | | |
| Area | Entry Related Mode Applicability | | | | | | | | | | | | | |
| Reactor Building 51' elevation | Modes 3 and 4 | | | | | | | | | | | | | |
| <table><tr><th colspan="2">Table R3 Areas Requiring Continuous Occupancy</th></tr><tr><td colspan="2"><ul style="list-style-type: none">Main Control RoomCentral Alarm Station – (by survey)</td></tr></table> | | | | Table R3 Areas Requiring Continuous Occupancy | | <ul style="list-style-type: none">Main Control RoomCentral Alarm Station – (by survey) | | | | | | | | |
| Table R3 Areas Requiring Continuous Occupancy | | | | | | | | | | | | | | |
| <ul style="list-style-type: none">Main Control RoomCentral Alarm Station – (by survey) | | | | | | | | | | | | | | |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D – Defueled

TABLE OCGS 2-1 Emergency Action Level (EAL) Matrix

| GENERAL EMERGENCY | | | SITE AREA EMERGENCY | | ALERT | |
|--|---|---|--|---|--|--|
| FG1 Loss of any two barriers AND Loss or Potential Loss of third barrier. 12 | | | FS1 Loss or Potential Loss of ANY two barriers. 12 | | FA1 ANY Loss or ANY Potential Loss of either Fuel Clad or RCS 12 | |
| Sub-Category | FC – Fuel Clad | | RC – Reactor Coolant System | | CT – Containment | |
| | Loss | Potential Loss | Loss | Potential Loss | Loss | Potential Loss |
| 1. RCS Activity | Coolant activity > 300 uCi/gm Dose Equivalent I-131. | None | None | None | None | None |
| 2. RPV Water Level | 1. Plant conditions indicate primary containment flooding is required. | 2. RPV water level <u>cannot</u> be restored and maintained > 0 inches TAF OR 3. RPV water level <u>cannot</u> be determined. | 1. RPV water level <u>cannot</u> be restored and maintained > 0 inches TAF OR 2. RPV water level <u>cannot</u> be determined. | None | None | Plant conditions indicate primary containment flooding is required. |
| 3. Primary Containment Pressure/Conditions | None | None | 1. Drywell pressure > 3.0 psig. AND 2. Drywell pressure rise is due to RCS leakage | None | 1. UNPLANNED rapid drop in Drywell pressure following Drywell pressure rise. OR 2. Drywell pressure response <u>not</u> consistent with LOCA conditions. | 3. Drywell pressure > 44 psig and rising. OR 4. a. Drywell or torus hydrogen concentration ≥ 6%. AND b. Drywell or torus oxygen concentration ≥ 5%. OR 5. Heat Capacity Temperature Limit (EMG-3200.02 Fig. F) exceeded. |
| 4. RCS Leak Rate | None | None | 1. UNISOLABLE Main Steam Line (MSL), Isolation Condenser, Feedwater, or RWCU line break. OR 2. Emergency RPV Depressurization is required. | 3. UNISOLABLE primary system leakage that results in EITHER of the following: a. Secondary Containment area temperature > EMG-3200.11 Max Normal (Table 11) operating level. OR b. Secondary Containment area radiation level > EMG-3200.11 Max Normal (Table 12) operating level. | None | None |
| 5. Primary Containment Radiation | Containment Hi Range Radiation Monitoring System (CHRRMS) reading > 530 R/hr. | None | Containment Hi Range Radiation Monitoring System (CHRRMS) reading > 100 R/hr. | None | None | Containment Hi Range Radiation Monitoring System (CHRRMS) reading > 1210 R/hr. |
| 6. Primary Containment Isolation Failure | None | None | None | None | 1. UNISOLABLE direct downstream pathway to the environment exists after primary containment isolation signal. OR 2. Intentional Primary Containment venting/purging per EOPs or SAMGs due to accident conditions. OR 3. UNISOLABLE primary system leakage that results in EITHER of the following: a. Secondary Containment area temperature > EMG-3200.11 Max Safe (Table 11) operating level. OR b. Secondary Containment area radiation level > EMG-3200.11 Max Safe (Table 12) operating level. | None |
| 7. Emergency Director Judgment | 1. Any Condition in the opinion of the Emergency Director that indicates Loss of the Fuel Clad Barrier. | 2. Any Condition in the opinion of the Emergency Director that indicates Potential Loss of the Fuel Clad Barrier. | 1. ANY Condition in the opinion of the Emergency Director that indicates Loss of the RCS Barrier. | 2. Any Condition in the opinion of the Emergency Director that indicates Potential Loss of the RCS Barrier. | 1. Any Condition in the opinion of the Emergency Director that indicates Loss of the Containment Barrier. | 2. Any Condition in the opinion of the Emergency Director that indicates Potential Loss of the Containment Barrier. |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D – Defueled

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | | ALERT | | UNUSUAL EVENT | |
|--------------------|--|--|---|---|--|---------------|--|
| System Malfunction | | | | | | | |
| Loss of AC Power | <p>MG1 Prolonged loss of all offsite and all onsite AC power to emergency buses. 1 2</p> <p><u>Emergency Action Level (EAL):</u></p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>1. Loss of ALL offsite AC power to 4160V Buses 1C and 1D. AND</p> <p>2. Failure of EDG-1 and EDG-2 Emergency Diesel Generators to supply power to 4160V Buses 1C and 1D. AND</p> <p>3. EITHER of the following:</p> <p style="padding-left: 20px;">a. Restoration of at least one 4160V Bus (1C or 1D) in < 1 hour is <u>not</u> likely.</p> <p style="padding-left: 20px;">OR</p> <p style="padding-left: 20px;">b. RPV water level <u>cannot</u> be restored and maintained > -20 inches TAF.</p> | <p>MS1 Loss of all Off-site and On-Site AC power to emergency busses for 15 minutes or longer. 1 2</p> <p><u>Emergency Action Level (EAL):</u></p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>1. Loss of ALL offsite AC Power to 4160V Buses 1C and 1D. AND</p> <p>2. Failure of EDG-1 and EDG-2 Emergency Diesel Generators to supply power to 4160V Buses 1C and 1D. AND</p> <p>3. Failure to restore power to at least one 4160V Bus (1C or 1D) in < 15 minutes from the time of loss of both offsite and onsite AC power.</p> | <p>MA1 Loss of all but one AC power source to emergency buses for 15 minutes or longer. 1 2</p> <p><u>Emergency Action Level (EAL):</u></p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>1. AC power capability to 4160V Buses 1C and 1D reduced to only one of the following power sources for ≥ 15 minutes.</p> <ul style="list-style-type: none">• Startup Transformer SA• Startup Transformer SB• EDG-1 Emergency Diesel Generator• EDG-2 Emergency Diesel Generator <p>AND</p> <p>2. ANY additional single power source failure will result in a loss of all AC power to SAFETY SYSTEMS.</p> | <p>MU1 Loss of all offsite AC power capability to emergency buses for 15 minutes or longer. 1 2</p> <p><u>Emergency Action Level (EAL):</u></p> <p>Note: The Emergency Director should, declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>Loss of ALL offsite AC power capability to 4160V Buses 1C and 1D for ≥15 minutes.</p> | | | |
| | <p>MG2 Loss of all AC and Vital DC power sources for 15 minutes or longer. 1 2</p> <p><u>Emergency Action Level (EAL):</u></p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>1. Loss of ALL offsite AC power to 4160V Buses 1C and 1D. AND</p> <p>2. Failure of EDG-1 and EDG-2 Emergency Diesel Generators to supply power to 4160V Buses 1C and 1D. AND</p> <p>3. Voltage is < 115 VDC on 125 VDC battery busses B and C. AND</p> <p>4. ALL AC and Vital DC power sources have been lost for ≥ 15 minutes.</p> | <p>MS2 Loss of all Vital DC power for 15 minutes or longer. 1 2</p> <p><u>Emergency Action Level (EAL):</u></p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>Voltage is < 115 VDC on 125 VDC battery busses B and C for ≥ 15 minutes.</p> | | | | | |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D – Defueled

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | ALERT | UNUSUAL EVENT | | | |
|---|--|--|---|--|---------------------------------|---|--|
| System Malfunction | | | | | | | |
| RPS Failure | | <p>MS3 Inability to shutdown the reactor causing a challenge to core cooling or RCS heat removal.</p> <p><u>Emergency Action Level (EAL):</u></p> <p>1. Automatic scram did <u>not</u> shutdown the reactor as indicated by Reactor Power > 2%.</p> <p>AND</p> <p>2. ALL manual / ARI actions to shutdown the reactor have been unsuccessful as indicated by Reactor Power > 2%.</p> <p>AND</p> <p>3. EITHER of the following conditions exist:</p> <ul style="list-style-type: none">RPV water level <u>cannot</u> be restored and maintained > -20 inches TAF. <p>OR</p> <ul style="list-style-type: none">Heat Capacity Temperature Limit (EMG-3200.02 Fig. F) exceeded. | <p>MA3 Automatic or manual trip fails to shutdown the reactor, and subsequent manual actions taken at the reactor control consoles are not successful in shutting down the reactor.</p> <p><u>Emergency Action Level (EAL):</u></p> <p>Note: A manual action is any operator action, or set of actions, which causes the control rods to be rapidly inserted into the core, and does not include manually driving in control rods or implementation of boron injection strategies.</p> <p>1. Automatic or manual scram did <u>not</u> shutdown the reactor as indicated by Reactor Power > 2%.</p> <p>AND</p> <p>2. Manual / ARI actions taken at the Reactor Console are <u>not</u> successful in shutting down the reactor as indicated by Reactor Power > 2%.</p> | <p>MU3 Automatic or manual trip fails to shutdown the reactor.</p> <p><u>Emergency Action Level (EAL):</u></p> <p>Note: A manual action is any operator action, or set of actions, which causes the control rods to be rapidly inserted into the core, and does not include manually driving in control rods or implementation of boron injection strategies.</p> <p>1. a. Automatic scram did <u>not</u> shutdown the reactor as indicated by Reactor Power > 2%.</p> <p>AND</p> <p>b. Subsequent manual / ARI action taken at the Reactor Console is successful in shutting down the reactor as indicated by Reactor Power ≤ 2%.</p> <p>OR</p> <p>2. a. Manual scram did <u>not</u> shutdown the reactor as indicated by Reactor Power > 2%.</p> <p>AND</p> <p>b. EITHER of the following:</p> <p>1. Subsequent manual / ARI action taken at the Reactor Console is successful in shutting down the reactor as indicated by Reactor Power ≤ 2%.</p> <p>OR</p> <p>2. Subsequent automatic scram / ARI is successful in shutting down the reactor as indicated by Reactor Power ≤ 2%.</p> | | | |
| | <table><tr><td>Table M1 Control Room Parameters</td></tr><tr><td><ul style="list-style-type: none">Reactor PowerRPV Water LevelRPV PressureDrywell PressureTorus Water LevelTorus Water Temperature</td></tr></table> | Table M1 Control Room Parameters | <ul style="list-style-type: none">Reactor PowerRPV Water LevelRPV PressureDrywell PressureTorus Water LevelTorus Water Temperature | <table><tr><td>Table M2 Significant Transients</td></tr><tr><td><ul style="list-style-type: none">Turbine TripReactor ScramECCS ActuationThermal power change > 25%Thermal Power oscillations > 10%</td></tr></table> | Table M2 Significant Transients | <ul style="list-style-type: none">Turbine TripReactor ScramECCS ActuationThermal power change > 25%Thermal Power oscillations > 10% | <p>MA4 UNPLANNED loss of Control Room indications for 15 minutes or longer with a significant transient in progress.</p> <p><u>Emergency Action Level (EAL):</u></p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>1. An UNPLANNED event results in the inability to monitor ANY Table M1 parameter from within the Control Room for ≥ 15 minutes.</p> <p>AND</p> <p>2. ANY Table M2 transient in progress.</p> |
| Table M1 Control Room Parameters | | | | | | | |
| <ul style="list-style-type: none">Reactor PowerRPV Water LevelRPV PressureDrywell PressureTorus Water LevelTorus Water Temperature | | | | | | | |
| Table M2 Significant Transients | | | | | | | |
| <ul style="list-style-type: none">Turbine TripReactor ScramECCS ActuationThermal power change > 25%Thermal Power oscillations > 10% | | | | | | | |
| Control Room Indications | | | | | | | |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D – Defueled

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | ALERT | UNUSUAL EVENT |
|--------------------------------|----------|---------------------|--|--|
| System Malfunction | | | | |
| Hazard Affecting Safety System | | | <p>MA5 Hazardous event affecting a SAFETY SYSTEM required for the current operating mode. 12</p> <p><u>Emergency Action Level (EAL):</u></p> <p>Note: If it is determined that the conditions of MA5 are not met then assess the event via HU3, HU4, or HU6.</p> <p>1. The occurrence of ANY of the following hazardous events:</p> <ul style="list-style-type: none"> Seismic event (earthquake) Internal or external flooding event High winds or tornado strike FIRE EXPLOSION Other events with similar hazard characteristics as determined by the Shift Manager <p>AND</p> <p>2. EITHER of the following:</p> <ol style="list-style-type: none"> Event damage has caused indications of degraded performance in at least one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode. <p>OR</p> <ol style="list-style-type: none"> The event has caused VISIBLE DAMAGE to a SAFETY SYSTEM component or structure required by Technical Specifications for the current operating mode. | |
| | RCS Leak | | | <p>MU6 RCS leakage for 15 minutes or longer. 12</p> <p><u>Emergency Action Level (EAL):</u></p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <ol style="list-style-type: none"> RCS unidentified or pressure boundary leakage in the Drywell > 10 gpm for ≥ 15 minutes <p>OR</p> <ol style="list-style-type: none"> RCS identified leakage in the Drywell >25 gpm for ≥ 15 minutes <p>OR</p> <ol style="list-style-type: none"> Leakage from the RCS to a location outside the Drywell >25 gpm for ≥ 15 minutes |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D – Defueled

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | | ALERT | | UNUSUAL EVENT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|---------------------|--|-------|---|---------------|---------|------------------------------------|--|--|--|--------|--------|---------|-----|---------------------|---|--|--|---------------|---|--|--|------------------------------|---|---|---|------------------------|--|---|---|------|--|---|--|-----|--|---|---|-----|--|---|---|---|--|
| System Malfunction | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Communications | | | | | <table><tr><th colspan="4">Table M3 Communications Capability</th></tr><tr><th>System</th><th>Onsite</th><th>Offsite</th><th>NRC</th></tr><tr><td>Plant Paging System</td><td>X</td><td></td><td></td></tr><tr><td>Station Radio</td><td>X</td><td></td><td></td></tr><tr><td>Conventional Telephone lines</td><td>X</td><td>X</td><td>X</td></tr><tr><td>Satellite Phone System</td><td></td><td>X</td><td>X</td></tr><tr><td>NARS</td><td></td><td>X</td><td></td></tr><tr><td>HPN</td><td></td><td>X</td><td>X</td></tr><tr><td>ENS</td><td></td><td>X</td><td>X</td></tr></table> | | | Table M3 Communications Capability | | | | System | Onsite | Offsite | NRC | Plant Paging System | X | | | Station Radio | X | | | Conventional Telephone lines | X | X | X | Satellite Phone System | | X | X | NARS | | X | | HPN | | X | X | ENS | | X | X | <div>MU7 Loss of all On-site or Off-site communication capabilities. 12</div> <div>Emergency Action Level (EAL):</div> <div>1. Loss of all Table M3 Onsite communications capability affecting the ability to perform routine operations. OR</div> <div>2. Loss of all Table M3 Offsite communication capability affecting the ability to perform offsite notifications. OR</div> <div>3. Loss of all Table M3 NRC communication capability affecting the ability to perform NRC notifications.</div> | |
| | | | | | Table M3 Communications Capability | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | System | Onsite | Offsite | NRC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | Plant Paging System | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | Station Radio | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | Conventional Telephone lines | X | X | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | Satellite Phone System | | X | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | NARS | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | HPN | | X | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | ENS | | X | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D - Defueled | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D - Defueled

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | | ALERT | | UNUSUAL EVENT | |
|---|---|--|--|--|--|---------------|--|
| Hazards and Other conditions Affecting Plant Safety | | | | | | | |
| Hostile Action | <div>HG1 HOSTILE ACTION resulting in loss of physical control of the facility 1234D</div> <div>Emergency Action Level (EAL):</div> <div>1. A notification from the Security Force that a HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA.</div> <div>AND</div> <div>2. a. ANY Table H1 safety function cannot be controlled or maintained.</div> <div>OR</div> <div>b. Damage to spent fuel has occurred or is IMMINENT</div> | <div>HS1 HOSTILE ACTION within the PROTECTED AREA 1234D</div> <div>Emergency Action Level (EAL):</div> <div>A notification from the Security Force that a HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA.</div> | <div>HA1 HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes. 1234D</div> <div>Emergency Action Level (EAL):</div> <div>1. A validated notification from NRC of an aircraft attack threat < 30 minutes from the site.</div> <div>OR</div> <div>2. Notification by the Security Force that a HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA.</div> | <div>HU1 Confirmed SECURITY CONDITION or threat. 1234D</div> <div>Emergency Action Level (EAL):</div> <div>1. Notification of a credible security threat directed at the site as determined per SY-AA-101-132, Security Assessment and Response to Unusual Activities.</div> <div>OR</div> <div>2. A validated notification from the NRC providing information of an aircraft threat.</div> <div>OR</div> <div>3. Notification by the Security Force of a SECURITY CONDITION that does not involve a HOSTILE ACTION.</div> | | | |
| | <div>Table H1 Safety Functions</div> <div><div>• Reactivity Control (ability to shutdown the reactor and keep it shutdown)</div><div>• RPV Water Level (ability to cool the core)</div><div>• RCS Heat Removal (ability to maintain a heat sink)</div></div> | <div>HS2 Inability to control a key safety function from outside the Control Room 1234D</div> <div>Emergency Action Level (EAL):</div> <div>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</div> <div>1. A Control Room evacuation has resulted in plant control being transferred from the Control Room to alternate locations per ABN-30 Control Room Evacuation.</div> <div>AND</div> <div>2. Control of ANY Table H1 key safety function is not reestablished in < 15 minutes.</div> | <div>HA2 Control Room evacuation resulting in transfer of plant control to alternate locations 1234D</div> <div>Emergency Action Level (EAL):</div> <div>A Control Room evacuation has resulted in plant control being transferred from the Control Room to alternate locations per ABN-30 Control Room Evacuation.</div> | | | | |
| Transfer of Plant Control | | | | | | | |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D – Defueled

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | ALERT | UNUSUAL EVENT |
|---|--|---------------------|---|--|
| Hazards and Other conditions Affecting Plant Safety | | | | |
| Fire | | | <div>Table H2 Vital Areas</div> <ul style="list-style-type: none"> Reactor Building (when inerted the Drywell is exempt) 4160V Switchgear Rooms (1C and 1D) Control Room Complex (MOB, Upper and Lower Cable Spreading Rooms) Main Transformer/Condensate Transfer Pad Intake Structure #1 EDG Vault #2 EDG Vault EDG Fuel Oil Storage Tank | <p>HU3 FIRE potentially degrading the level of safety of the plant. 12340</p> <p>Emergency Action Level (EAL):</p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>Escalation of the emergency classification level would be via IC CA2 or MA5</p> <ol style="list-style-type: none"> A FIRE in ANY Table H2 area is not extinguished in < 15-minutes of ANY of the following FIRE detection indications: <ul style="list-style-type: none"> Report from the field (i.e., visual observation) Receipt of multiple (more than 1) fire alarms or indications Field verification of a single fire alarm <p>OR</p> <p>a. Receipt of a single fire alarm in ANY Table H2 area (i.e., no other indications of a FIRE).</p> <p>AND</p> <p>b. The existence of a FIRE is not verified in < 30 minutes of alarm receipt.</p> <p>OR</p> <p>A FIRE within the plant PROTECTED AREA not extinguished in < 60-minutes of the initial report, alarm or indication.</p> <p>OR</p> <p>A FIRE within the plant PROTECTED AREA that requires firefighting support by an offsite fire response agency to extinguish.</p> |
| | | | | |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D – Defueled

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | ALERT | UNUSUAL EVENT |
|---|--|---------------------|-------|---|
| Hazards and Other conditions Affecting Plant Safety | | | | |
| Earthquake | | | | <p>HU4 Seismic event greater than OBE levels 12345</p> <p>Emergency Action Level (EAL):</p> <p>Note: Escalation of the emergency classification level would be via IC CA2 or MA5</p> <p>For emergency classification if EAL 2 is not able to be confirmed, then the occurrence of a seismic event is confirmed in manner deemed appropriate by the Shift Manager or Emergency Director in ≤ 15 mins of the event.</p> <p>Seismic event as indicated by:</p> <ol style="list-style-type: none"> Control Room personnel feel an actual or potential seismic event. <p>AND</p> <ol style="list-style-type: none"> ANY one of the following confirmed in ≤ 15 mins of the event: <ul style="list-style-type: none"> The earthquake resulted in Modified Mercalli Intensity (MMI) ≥ VI and occurred ≤ 3.5 miles of the plant. The earthquake was magnitude ≥ 6.0 The earthquake was magnitude ≥ 5.0 and occurred ≤ 125 miles of the plant. |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D - Defueled

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | ALERT | UNUSUAL EVENT |
|---|--|---------------------|-------|--|
| Hazards and Other conditions Affecting Plant Safety | | | | |
| Toxic Gas | | | | |
| Hazardous Event | | | | <p>HU6 Hazardous Event 12345</p> <p><u>Emergency Action Level (EAL):</u></p> <p>Note: EAL #4 does not apply to routine traffic impediments such as fog, snow, ice, or vehicle breakdowns or accidents.</p> <p>Escalation of the emergency classification level would be via IC CA2 or MA5</p> <ol style="list-style-type: none"> 1. Tornado strike within the PROTECTED AREA. OR 2. Internal room or area flooding of a magnitude sufficient to require manual or automatic electrical isolation of a SAFETY SYSTEM component required by Technical Specifications for the current operating mode. OR 3. Movement of personnel within the PROTECTED AREA is impeded due to an offsite event involving hazardous materials (e.g., an offsite chemical spill or toxic gas release). OR 4. A hazardous event that results in on-site conditions sufficient to prohibit the plant staff from accessing the site via personal vehicles. OR 5. Abnormal Intake Structure level, as indicated by EITHER: <ul style="list-style-type: none"> • > 4.5 ft. MSL (> 4.25 psig on PI-533-1172 and PI-533-1173 or > 4.5 ft MSL on CR-423-11 pt 24 and pt 23). OR • b. ≤ -3.0 ft. MSL (≤ 0.95 psig on PI-533-1172 and PI-533-1173 or ≤ -3.0 ft MSL on CR-423-11 pt 24 and pt 23). <p style="text-align: right;">MSL = Mean Sea Level</p> |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D - Defueled

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | | ALERT | | UNUSUAL EVENT | |
|---|--|--|--|---|--|---------------|--|
| Hazards and Other conditions Affecting Plant Safety | | | | | | | |
| Emergency Director Judgment | <p>HG7 Other conditions exist which in the <input type="checkbox"/>1<input type="checkbox"/>2<input type="checkbox"/>3<input type="checkbox"/>4<input type="checkbox"/>D judgment of the Emergency Director warrant declaration of a GENERAL EMERGENCY.</p> <p>Emergency Action Level (EAL): Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress 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.</p> | <p>HS7 Other conditions exist which in the <input type="checkbox"/>1<input type="checkbox"/>2<input type="checkbox"/>3<input type="checkbox"/>4<input type="checkbox"/>D judgment of the Emergency Director warrant declaration of a SITE AREA EMERGENCY.</p> <p>Emergency Action Level (EAL): Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress 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.</p> | <p>HA7 Other conditions exist which in the <input type="checkbox"/>1<input type="checkbox"/>2<input type="checkbox"/>3<input type="checkbox"/>4<input type="checkbox"/>D judgment of the Emergency Director warrant declaration of an ALERT.</p> <p>Emergency Action Level (EAL): Other conditions exist which, in the judgment of the Emergency Director, indicate that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.</p> | <p>HU7 Other conditions exist which in the <input type="checkbox"/>1<input type="checkbox"/>2<input type="checkbox"/>3<input type="checkbox"/>4<input type="checkbox"/>D judgment of the Emergency Director warrant declaration of an UNUSUAL EVENT.</p> <p>Emergency Action Level (EAL): Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress 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.</p> | | | |
| | | | | | | | |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D – Defueled

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | ALERT | UNUSUAL EVENT |
|-------------------|--|---------------------|-------|---|
| ISFSI Malfunction | | | | |
| ISFSI | | | | <p>E-HU1 Damage to a loaded cask CONFINEMENT BOUNDARY. 12345</p> <p>Emergency Action Level (EAL):</p> <p>Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by a radiation reading:</p> <ul style="list-style-type: none"> > 1400 mrem/hr (gamma + neutron) on the HSM front surface (applicable to type 1 61BTH DSC only) <p>OR</p> <ul style="list-style-type: none"> > 800 mrem/hr (gamma + neutron) 3 feet from the HSM surface (applicable to 61BT DSC only) <p>OR</p> <ul style="list-style-type: none"> > 200 mrem/hr (gamma + neutron) outside the HSM door on centerline of DSC <p>OR</p> <ul style="list-style-type: none"> > 40 mrem/hr (gamma + neutron) end of shield wall exterior |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D - Defueled

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | | ALERT | | UNUSUAL EVENT | |
|--|---|--|---|--|--|---------------|--|
| Abnormal Rad Levels / Radiological Effluents | | | | | | | |
| Radiological Effluents | <div>RG1</div> <div>Release of gaseous radioactivity resulting in offsite dose greater than 1,000 mRem TEDE or 5,000 mRem thyroid CDE.</div> <div>12345</div> <div>Emergency Action Level (EAL):</div> <div>Notes:</div> <div><ul style="list-style-type: none">The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded the applicable time.Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.The pre-calculated effluent monitor values presented in EAL #1 should be used for emergency classification assessments until the results from a dose assessment using actual meteorology are available.</div> <div><div>1. Readings on ANY Table R1 Effluent Monitor > Table R1 value for ≥ 15 minutes.</div><div>OR</div><div>2. Dose assessment Using actual meteorology indicates doses at or beyond the site boundary of EITHER:<div><div>a. > 1000 mRem TEDE</div><div>OR</div><div>b. > 5000 mRem CDE Thyroid</div></div></div><div>OR</div><div>3. Field survey results at or beyond the site boundary indicate EITHER:<div><div>a. Gamma (closed window) dose rates >1000 mRem/hr are expected to continue for ≥ 60 minutes.</div><div>OR</div><div>b. Analyses of field survey samples indicate > 5000 mRem CDE Thyroid for 60 minutes of inhalation.</div></div></div></div> | <div>RS1</div> <div>Release of gaseous radioactivity resulting in offsite dose greater than 100 mRem TEDE or 500 mRem thyroid CDE.</div> <div>12345</div> <div>Emergency Action Level (EAL):</div> <div>Notes:</div> <div><ul style="list-style-type: none">The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded the applicable time.Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.The pre-calculated effluent monitor values presented in EAL #1 should be used for emergency classification assessments until the results from a dose assessment using actual meteorology are available.</div> <div><div>1. Readings on ANY Table R1 Effluent Monitor > Table R1value for ≥ 15 minutes.</div><div>OR</div><div>2. Dose assessment using actual meteorology indicates doses at or beyond the site boundary of EITHER:<div><div>a. > 100 mRem TEDE</div><div>OR</div><div>b. > 500 mRem CDE Thyroid</div></div></div><div>OR</div><div>3. Field survey results at or beyond the site boundary indicate EITHER:<div><div>a. Gamma (closed window) dose rates >100 mRem/hr are expected to continue for ≥ 60 minutes.</div><div>OR</div><div>b. Analyses of field survey samples indicate > 500 mRem CDE Thyroid for 60 minutes of inhalation.</div></div></div></div> | <div>RA1</div> <div>Release of gaseous or liquid radioactivity resulting in offsite dose greater than 10 mrem TEDE or 50 mrem thyroid CDE.</div> <div>12345</div> <div>Emergency Action Level (EAL):</div> <div>Notes:</div> <div><ul style="list-style-type: none">The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded the applicable time.Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.The pre-calculated effluent monitor values presented in EAL #1 should be used for emergency classification assessments until the results from a dose assessment using actual meteorology are available.</div> <div><div>1. Readings on ANY Table R1 Effluent Monitor > Table R1 value for ≥ 15 minutes.</div><div>OR</div><div>2. Dose assessment using actual meteorology indicates doses at or beyond the site boundary of EITHER:<div><div>a. > 10 mRem TEDE</div><div>OR</div><div>b. > 50 mRem CDE Thyroid</div></div></div><div>OR</div><div>3. Analysis of a liquid effluent sample indicates a concentration or release rate that would result in doses greater than EITHER of the following at or beyond the site boundary<div><div>a. 10 mRem TEDE for 60 minutes of exposure</div><div>OR</div><div>b. 50 mRem CDE Thyroid for 60 minutes of exposure</div></div></div><div>OR</div><div>4. Field survey results at or beyond the site boundary indicate EITHER:<div><div>a. Gamma (closed window) dose rates > 10 mR/hr are expected to continue for ≥ 60 minutes.</div><div>OR</div><div>b. Analyses of field survey samples indicate > 50 mRem CDE Thyroid for 60 minutes of inhalation.</div></div></div></div> | <div>RU1</div> <div>Release of gaseous or liquid radioactivity to the environment greater than 2 times the ODCM for 60 minutes or longer.</div> <div>12345</div> <div>Emergency Action Level (EAL):</div> <div>Notes:</div> <div><ul style="list-style-type: none">The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded the applicable time.Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.</div> <div><div>1. Readings on ANY Table R1 Effluent Monitor > Table R1 value for ≥ 60 minutes:</div><div>OR</div><div>2. Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 2 times ODCM Limit with a release duration of ≥ 60 minutes.</div></div> | | | |

Table R1 Effluent Monitor Thresholds

| Release Path | | | General Emergency | Site Area Emergency | Alert | Unusual Event |
|-------------------------|--------------------------|-------------------------|--------------------------|--------------------------|--------------------------|-------------------|
| Main Stack RAGEMS | HRM = High Range Monitor | LRM = Low Range Monitor | 8.89 E+01 uCi/cc HRM | 8.89 E+00 uCi/cc HRM | 8.69 E-01 uCi/cc HRM | 4.07 E+03 cps LRM |
| | | | OR 3.53 E-08 amps HRM | OR 3.53 E-09 amps HRM | OR 3.53 E-10 amps HRM | |
| Turbine Building RAGEMS | HRM = High Range Monitor | LRM = Low Range Monitor | 7.17 E-01 uCi/cc HRM | 3.65 E+05 cpm LRM | 3.65 E+04 cpm LRM | 4.16 E+02 cpm LRM |

TABLE OCGS 2-1 Emergency action Level (EAL) Matrix

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | | ALERT | | UNUSUAL EVENT | | | | | | | | | | | | |
|--|--|---|---|--|--|---|--|--|---|--|------|----------------------------------|-----------------------------------|---------------|---|--|--|--|
| Abnormal Rad Levels / Radiological Effluents | | | | | | | | | | | | | | | | | | |
| Radiological Effluents | <p>RG2 Spent fuel pool level cannot be restored to at least 96.75 ft. for 60 minutes or longer.</p> <p>Emergency Action Levels (EAL):</p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>Spent fuel pool level cannot be restored to at least 96.75 ft. as indicated on LI-18-1A or LI-18-1B for 60 minutes or longer.</p> | | <p>RS2 Spent fuel pool level at 96.75 ft.</p> <p>Emergency Action Level (EAL):</p> <p>Lowering of spent fuel pool level to 96.75 ft. as indicated on LI-18-1A or LI-18-1B.</p> | | <p>RA2 Significant lowering of water level above, or damage to, irradiated fuel.</p> <p>Emergency Action Level (EAL):</p> <p>1. Uncovery of irradiated fuel in the REFUELING PATHWAY. OR</p> <p>2. Damage to irradiated fuel resulting in a release of radioactivity from the fuel as indicated by ANY Table R2 Radiation Monitor reading ≥1000 mRem/hr. OR</p> <p>3. Lowering of spent fuel pool level to 106.09 ft. as indicated on LI-18-1A or LI-18-1B.</p> | | <p>RU2 Unplanned loss of water level above irradiated fuel.</p> <p>Emergency Action Level (EAL):</p> <p>1. a. UNPLANNED water level drop in the REFUELING PATHWAY as indicated by ANY of the following:</p> <ul style="list-style-type: none">Refueling Cavity water level < 583 inches (GEMAC Wide Range, floodup calibration). ORIndication or report of a drop in water level in the REFUELING PATHWAY. <p>AND</p> <p>b. UNPLANNED Area Radiation Monitor reading rise on ANY radiation monitor in Table R2.</p> | | | | | | | | | | | |
| | <table><tr><th colspan="2">Table R2 Refuel Floor ARM's</th></tr><tr><td colspan="2"><ul style="list-style-type: none">C-5, Crit MonC-10, North WallC-9, North WallB-9, Open Floor</td></tr></table> | | Table R2 Refuel Floor ARM's | | <ul style="list-style-type: none">C-5, Crit MonC-10, North WallC-9, North WallB-9, Open Floor | | <table><tr><th colspan="2">Table R4 Areas with Entry Related Mode Applicability</th></tr><tr><th>Area</th><th>Entry Related Mode Applicability</th></tr><tr><td>Reactor Building 51' elevation</td><td>Modes 3 and 4</td></tr></table> | | Table R4 Areas with Entry Related Mode Applicability | | Area | Entry Related Mode Applicability | Reactor Building 51' elevation | Modes 3 and 4 | <p>RA3 Radiation levels that impede access to equipment necessary for normal plant operations, cooldown or shutdown.</p> <p>Emergency Action Level (EAL):</p> <p>Note: If the equipment in the listed room or area was already inoperable, or out of service, before the event occurred, then no emergency classification is warranted</p> <p>1. Dose rate > 15 mR/hr in ANY of the areas contained in Table R3. OR</p> <p>2. UNPLANNED event results in radiation levels that prohibit or significantly impede access to ANY of the areas contained in Table R4.</p> | | | |
| | Table R2 Refuel Floor ARM's | | | | | | | | | | | | | | | | | |
| <ul style="list-style-type: none">C-5, Crit MonC-10, North WallC-9, North WallB-9, Open Floor | | | | | | | | | | | | | | | | | | |
| Table R4 Areas with Entry Related Mode Applicability | | | | | | | | | | | | | | | | | | |
| Area | Entry Related Mode Applicability | | | | | | | | | | | | | | | | | |
| Reactor Building 51' elevation | Modes 3 and 4 | | | | | | | | | | | | | | | | | |
| | | <table><tr><th colspan="2">Table R3 Areas Requiring Continuous Occupancy</th></tr><tr><td colspan="2"><ul style="list-style-type: none">Main Control RoomCentral Alarm Station – (by survey)</td></tr></table> | | Table R3 Areas Requiring Continuous Occupancy | | <ul style="list-style-type: none">Main Control RoomCentral Alarm Station – (by survey) | | | | | | | | | | | | |
| Table R3 Areas Requiring Continuous Occupancy | | | | | | | | | | | | | | | | | | |
| <ul style="list-style-type: none">Main Control RoomCentral Alarm Station – (by survey) | | | | | | | | | | | | | | | | | | |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D – Defueled

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | ALERT | UNUSUAL EVENT |
|---|--------------------------------|---------------------|---|---|
| Cold Shutdown / Refueling System Malfunctions | | | | |
| Loss of AC Power | | | <p>CA1 Loss of all offsite and onsite AC power 345 to emergency busses for 15 minutes or longer.</p> <p>Emergency Action Level (EAL):</p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <ol style="list-style-type: none"> 1. Loss of all offsite AC power to 4160V Buses 1C and 1D. <p>AND</p> <ol style="list-style-type: none"> 2. Failure of EDG-1 and EDG-2 Emergency Diesel Generators to supply power to 4160V Buses 1C and 1D. <p>AND</p> <ol style="list-style-type: none"> 3. Failure to restore power to at least one 4160V bus (1C or 1D) in < 15 minutes from the time of loss of both offsite and onsite AC power. | <p>CU1 Loss of all but one AC power source 345 to emergency busses for 15 minutes or longer.</p> <p>Emergency Action Level (EAL):</p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <ol style="list-style-type: none"> 1. AC power capability to 4160V Buses 1C and 1D reduced to only one of the following power sources for ≥ 15 minutes. <ul style="list-style-type: none"> • Startup Transformer SA • Startup Transformer SB • EDG-1 Emergency Diesel Generator • EDG-2 Emergency Diesel Generator <p>AND</p> <ol style="list-style-type: none"> 2. ANY additional single power source failure will result in a loss of all AC power to SAFETY SYSTEMS. |
| | Hazard Affecting Safety System | | <p>CA2 Hazardous event affecting SAFETY SYSTEM required for the current operating mode. 34</p> <p>Emergency Action Level (EAL):</p> <p>Note: If it is determined that the conditions of CA2 are not met then assess the event via HU3, HU4, or HU6.</p> <ol style="list-style-type: none"> 1. The occurrence of ANY of the following hazardous events: <ul style="list-style-type: none"> • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • Other events with similar hazard characteristics as determined by the Shift Manager <p>AND</p> <ol style="list-style-type: none"> 2. EITHER of the following: <ol style="list-style-type: none"> a. Event damage has caused indications of degraded performance in at least one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode. <p>OR</p> <ol style="list-style-type: none"> b. The event has caused VISIBLE DAMAGE to a SAFETY SYSTEM component or structure required by Technical Specifications for the current operating mode. | |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D – Defueled

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | | ALERT | | UNUSUAL EVENT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------------------|--|--|---|------------------------------------|--|----------------------------|------------------|--------|----------------|-------------|------------|---------------------|-------------|-----------------|-----------|---------------|---|--|--|------------------------------|---|---|---|------------------------|--|---|---|------|--|---|--|-----|--|---|---|-----|--|---|---|--|--|--|
| Cold Shutdown / Refueling System Malfunctions | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DC Power | | | | | | <div>CU3</div> <div>Loss of Vital DC power for 15 minutes or longer.</div> <div>34</div> <div>Emergency Action Level (EAL):</div> <div>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</div> <div>Voltage is < 115 VDC on required 125 VDC battery busses B and C for ≥ 15 minutes.</div> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Communications | | | | <table><tr><th colspan="4">Table C1 Communications Capability</th></tr><tr><th>System</th><th>Onsite</th><th>Offsite</th><th>NRC</th></tr><tr><td>Plant Paging System</td><td>X</td><td></td><td></td></tr><tr><td>Station Radio</td><td>X</td><td></td><td></td></tr><tr><td>Conventional Telephone lines</td><td>X</td><td>X</td><td>X</td></tr><tr><td>Satellite Phone System</td><td></td><td>X</td><td>X</td></tr><tr><td>NARS</td><td></td><td>X</td><td></td></tr><tr><td>HPN</td><td></td><td>X</td><td>X</td></tr><tr><td>ENS</td><td></td><td>X</td><td>X</td></tr></table> | Table C1 Communications Capability | | | | System | Onsite | Offsite | NRC | Plant Paging System | X | | | Station Radio | X | | | Conventional Telephone lines | X | X | X | Satellite Phone System | | X | X | NARS | | X | | HPN | | X | X | ENS | | X | X | | <div>CU4</div> <div>Loss of all onsite or offsite communication capabilities.</div> <div>345</div> <div>Emergency Action Level (EAL):</div> <div>1. Loss of all Table C1 Onsite communications capability affecting the ability to perform routine operations.</div> <div>OR</div> <div>2. Loss of all Table C1 Offsite communication capability affecting the ability to perform offsite notifications.</div> <div>OR</div> <div>3. Loss of all Table C1 NRC communication capability affecting the ability to perform NRC notifications.</div> | |
| Table C1 Communications Capability | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| System | Onsite | Offsite | NRC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Plant Paging System | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Station Radio | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Conventional Telephone lines | X | X | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Satellite Phone System | | X | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NARS | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HPN | | X | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ENS | | X | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Heat Sink | | <table><tr><th colspan="3">Table C2 RCS Heat-up Duration Thresholds</th></tr><tr><th>RCS Status</th><th>Containment Closure Status</th><th>Heat-up Duration</th></tr><tr><td>Intact</td><td>Not Applicable</td><td>60 minutes*</td></tr><tr><td rowspan="2">Not Intact</td><td>Established</td><td>20 minutes*</td></tr><tr><td>Not Established</td><td>0 minutes</td></tr></table> <div>* If an RCS heat removal system is in operation within this time frame and RCS temperature is being reduced, then EAL Threshold #1 is not applicable.</div> | Table C2 RCS Heat-up Duration Thresholds | | | RCS Status | Containment Closure Status | Heat-up Duration | Intact | Not Applicable | 60 minutes* | Not Intact | Established | 20 minutes* | Not Established | 0 minutes | | <div>CA5</div> <div>Inability to maintain plant in cold shutdown</div> <div>34</div> <div>Emergency Action Levels (EAL):</div> <div>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</div> <div>A momentary UNPLANNED excursion above the Technical Specification cold shutdown temperature limit when heat removal function is available does not warrant classification.</div> <div>1. UNPLANNED rise in RCS temperature > 212°F for > Table C2 duration.</div> <div>OR</div> <div>2. UNPLANNED RCS pressure rise > 10 psig as a result of temperature rise</div> | <div>CU5</div> <div>UNPLANNED rise in RCS temperature.</div> <div>34</div> <div>Emergency Action Levels (EAL):</div> <div>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</div> <div>A momentary UNPLANNED excursion above the Technical Specification cold shutdown temperature limit when heat removal function is available does not warrant classification.</div> <div>1. UNPLANNED rise in RCS temperature > 212°F.</div> <div>OR</div> <div>2. Loss of the following for ≥ 15 minutes.</div> <div>• ALL RCS temperature indications</div> <div>AND</div> <div>• ALL RPV level indications</div> | | | | | | | | | | | | | | | | | | | | | | | | |
| Table C2 RCS Heat-up Duration Thresholds | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RCS Status | Containment Closure Status | Heat-up Duration | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Intact | Not Applicable | 60 minutes* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Not Intact | Established | 20 minutes* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Not Established | 0 minutes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D – Defueled

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | ALERT | UNUSUAL EVENT |
|---|---|--|--|---|
| Cold Shutdown / Refueling System Malfunctions | | | | |
| RCS Leakage / Inventory | <p>CG6 Loss of reactor vessel / RCS inventory affecting fuel clad integrity with containment challenged. 34</p> <p>Emergency Action Level (EAL):</p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <ol style="list-style-type: none"> a. RPV Level < 0 inches TAF for ≥ 30 minutes. AND b. Any Containment Challenge Indication (Table C4) OR a. RPV level <u>cannot</u> be monitored for ≥ 30 minutes. AND b. Core uncover is indicated by ANY of the following: <ul style="list-style-type: none"> Table C3 indications of a sufficient magnitude to indicate core uncover. OR Refuel Floor Area Radiation Monitor C-10, North Wall, reading >3 R/hr. AND ANY Containment Challenge Indication (Table C4) | <p>CS6 Loss of reactor vessel / RCS inventory affecting core decay heat removal capabilities. 34</p> <p>Emergency Action Level (EAL):</p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <ol style="list-style-type: none"> With CONTAINMENT CLOSURE <u>not</u> established, RPV level < 56 inches TAF OR With CONTAINMENT CLOSURE established, RPV level < 0 inches TAF. OR a. RPV level <u>cannot</u> be monitored for ≥ 30 minutes AND b. Core uncover is indicated by ANY of the following: <ul style="list-style-type: none"> Table C3 indications of a sufficient magnitude to indicate core uncover. OR Refuel Floor Area Radiation Monitor C-10, North Wall, reading >3 R/hr. | <p>CA6 Loss of reactor vessel / RCS inventory 34</p> <p>Emergency Action Level (EAL):</p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <ol style="list-style-type: none"> Loss of RPV inventory as indicated by level < 86 inches TAF. OR a. RPV level <u>cannot</u> be monitored for ≥ 15 minutes. AND b. Loss of RPV inventory per Table C3 indications | <p>CU6 UNPLANNED loss of reactor vessel / RCS inventory for 15 minutes or longer. 34</p> <p>Emergency Action Level (EAL):</p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <ol style="list-style-type: none"> UNPLANNED loss of reactor coolant results in the inability to restore and maintain RPV level to above the procedurally established lower limit for ≥ 15 minutes. OR a. RPV level <u>cannot</u> be monitored AND b. Loss of RPV inventory per Table C3 indications. |
| | <p>Table C3 Indications of RCS Leakage</p> <ul style="list-style-type: none"> UNPLANNED floor or equipment sump level rise* UNPLANNED Torus level rise* UNPLANNED vessel make up rate rise* Observation of leakage or inventory loss <p>*Rise in level is attributed to a loss of RPV inventory</p> | | | |
| | <p>Table C4 Containment Challenge Indications</p> <ul style="list-style-type: none"> Primary Containment Hydrogen Concentration ≥ 6% and Oxygen Concentration ≥ 5% UNPLANNED rise in containment pressure CONTAINMENT CLOSURE <u>not</u> established* ANY Secondary Containment radiation monitor > EMG-3200.11 Maximum Safe (Table 12). <p>* if CONTAINMENT CLOSURE is re-established prior to exceeding the 30-minute core uncover time limit, then escalation to a General Emergency is <u>not</u> required.</p> | | | |
| | | | | |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D – Defueled

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | ALERT | UNUSUAL EVENT |
|---|---|--|---|---|
| Hazards and Other conditions Affecting Plant Safety | | | | |
| Hostile Action | <p>HG1 HOSTILE ACTION resulting in loss of physical control of the facility 1234D</p> <p><u>Emergency Action Level (EAL):</u></p> <p>1. A notification from the Security Force that a HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA.</p> <p>AND</p> <p>2. a. ANY Table H1 safety function cannot be controlled or maintained.</p> <p>OR</p> <p>b. Damage to spent fuel has occurred or is IMMINENT</p> | <p>HS1 HOSTILE ACTION within the PROTECTED AREA 1234D</p> <p><u>Emergency Action Level (EAL):</u></p> <p>A notification from the Security Force that a HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA.</p> | <p>HA1 HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes. 1234D</p> <p><u>Emergency Action Level (EAL):</u></p> <p>1. A validated notification from NRC of an aircraft attack threat < 30 minutes from the site.</p> <p>OR</p> <p>2. Notification by the Security Force that a HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA.</p> | <p>HU1 Confirmed SECURITY CONDITION or threat. 1234D</p> <p><u>Emergency Action Level (EAL):</u></p> <p>1. Notification of a credible security threat directed at the site as determined per SY-AA-101-132, Security Assessment and Response to Unusual Activities.</p> <p>OR</p> <p>2. A validated notification from the NRC providing information of an aircraft threat.</p> <p>OR</p> <p>3. Notification by the Security Force of a SECURITY CONDITION that does not involve a HOSTILE ACTION.</p> |
| | <p>Table H1 Safety Functions</p> <ul style="list-style-type: none"> Reactivity Control (ability to shutdown the reactor and keep it shutdown) RPV Water Level (ability to cool the core) RCS Heat Removal (ability to maintain a heat sink) | <p>HS2 Inability to control a key safety function from outside the Control Room 1234D</p> <p><u>Emergency Action Level (EAL):</u></p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>1. A Control Room evacuation has resulted in plant control being transferred from the Control Room to alternate locations per ABN-30 Control Room Evacuation.</p> <p>AND</p> <p>2. Control of ANY Table H1 key safety function is not reestablished in < 15 minutes.</p> | <p>HA2 Control Room evacuation resulting in transfer of plant control to alternate locations 1234D</p> <p><u>Emergency Action Level (EAL):</u></p> <p>A Control Room evacuation has resulted in plant control being transferred from the Control Room to alternate locations per ABN-30 Control Room Evacuation.</p> | |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D – Defueled

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | | ALERT | UNUSUAL EVENT |
|---|--------|---------------------|------------------|---|---|
| Hazards and Other conditions Affecting Plant Safety | | | | | |
| Fire | | | | <div>Table H2 Vital Areas<ul style="list-style-type: none">Reactor Building (when inerted the Drywell is exempt)4160V Switchgear Rooms (1C and 1D)Control Room Complex (MOB, Upper and Lower Cable Spreading Rooms)Main Transformer/Condensate Transfer PadIntake Structure#1 EDG Vault#2 EDG VaultEDG Fuel Oil Storage Tank</div> | <p>HU3 FIRE potentially degrading the level 12345 of safety of the plant.</p> <p>Emergency Action Level (EAL):</p> <p>Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.</p> <p>Escalation of the emergency classification level would be via IC CA2 or MA5</p> <p>1. A FIRE in ANY Table H2 area is not extinguished in < 15-minutes of ANY of the following FIRE detection indications:</p> <ul style="list-style-type: none">Report from the field (i.e., visual observation)Receipt of multiple (more than 1) fire alarms or indicationsField verification of a single fire alarm <p>OR</p> <p>2. a. Receipt of a single fire alarm in ANY Table H2 area (i.e., no other indications of a FIRE). AND b. The existence of a FIRE is not verified in < 30 minutes of alarm receipt.</p> <p>OR</p> <p>3. A FIRE within the plant PROTECTED AREA not extinguished in < 60-minutes of the initial report, alarm or indication.</p> <p>OR</p> <p>4. A FIRE within the plant PROTECTED AREA that requires firefighting support by an offsite fire response agency to extinguish.</p> |
| | Modes: | 1 – Power Operation | 2 – Hot Shutdown | 3 – Cold Shutdown | 4 – Refueling |

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | | ALERT | | UNUSUAL EVENT | |
|---|--|---------------------|--|-------|--|--|--|
| Hazards and Other conditions Affecting Plant Safety | | | | | | | |
| Earthquake | | | | | | HU4 Seismic event greater than OBE levels 12345 | |
| | | | | | | <p>Emergency Action Level (EAL):</p> <p>Note: Escalation of the emergency classification level would be via IC CA2 or MA5</p> <p>For emergency classification if EAL 2 is not able to be confirmed, then the occurrence of a seismic event is confirmed in manner deemed appropriate by the Shift Manager or Emergency Director in ≤ 15 mins of the event.</p> <p>Seismic event as indicated by:</p> <p>1. Control Room personnel feel an actual or potential seismic event.</p> <p>AND</p> <p>2. ANY one of the following confirmed in ≤ 15 mins of the event:</p> <ul style="list-style-type: none">• The earthquake resulted in Modified Mercalli Intensity (MMI) ≥ VI and occurred ≤ 3.5 miles of the plant.• The earthquake was magnitude ≥ 6.0• The earthquake was magnitude ≥ 5.0 and occurred ≤ 125 miles of the plant. | |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D – Defueled

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | | ALERT | UNUSUAL EVENT | | | | | |
|---|--|--|---|---|---------------|----------------------------------|-----------------------------------|---------------|--|--|
| Hazards and Other conditions Affecting Plant Safety | | | | | | | | | | |
| Toxic Gas | | <table><tr><th colspan="2">Table H3 Areas with Entry Related Mode Applicability</th></tr><tr><th>Area</th><th>Entry Related Mode Applicability</th></tr><tr><td>Reactor Building 51' elevation</td><td>Modes 3 and 4</td></tr></table> | Table H3 Areas with Entry Related Mode Applicability | | Area | Entry Related Mode Applicability | Reactor Building 51' elevation | Modes 3 and 4 | <p>HA5 Gaseous release impeding access to equipment necessary for normal plant operations, cooldown or shutdown. 34</p> <p><u>Emergency Action Level (EAL):</u></p> <p>Note: If the equipment in the listed room or area was already inoperable, or out of service, before the event occurred, then no emergency classification is warranted.</p> <p>1. Release of a toxic, corrosive, asphyxiant or flammable gas in ANY Table H3 area.</p> <p>AND</p> <p>2. Entry into the room or area is prohibited or impeded</p> | |
| | Table H3 Areas with Entry Related Mode Applicability | | | | | | | | | |
| Area | Entry Related Mode Applicability | | | | | | | | | |
| Reactor Building 51' elevation | Modes 3 and 4 | | | | | | | | | |
| Hazardous Event | | | | <p>HU6 Hazardous Event 12345</p> <p><u>Emergency Action Level (EAL):</u></p> <p>Note: EAL #4 does not apply to routine traffic impediments such as fog, snow, ice, or vehicle breakdowns or accidents.</p> <p>Escalation of the emergency classification level would be via IC CA2 or MA5</p> <p>1. Tornado strike within the PROTECTED AREA. OR</p> <p>2. Internal room or area flooding of a magnitude sufficient to require manual or automatic electrical isolation of a SAFETY SYSTEM component required by Technical Specifications for the current operating mode. OR</p> <p>3. Movement of personnel within the PROTECTED AREA is impeded due to an offsite event involving hazardous materials (e.g., an offsite chemical spill or toxic gas release). OR</p> <p>4. A hazardous event that results in on-site conditions sufficient to prohibit the plant staff from accessing the site via personal vehicles. OR</p> <p>5. Abnormal Intake Structure level, as indicated by EITHER:</p> <ul style="list-style-type: none">> 4.5 ft. MSL (> 4.25 psig on PI-533-1172 and PI-533-1173 or > 4.5 ft MSL on CR-423-11 pt 24 and pt 23). ORb. ≤ -3.0 ft. MSL (≤ 0.95 psig on PI-533-1172 and PI-533-1173 or ≤ -3.0 ft MSL on CR-423-11 pt 24 and pt 23). <p>MSL = Mean Sea Level</p> | | | | | | |
| | Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D – Defueled | | | | | | | | | |

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | | ALERT | | UNUSUAL EVENT | |
|---|---|---------------------|---|-------|---|---------------|--|
| Hazards and Other conditions Affecting Plant Safety | | | | | | | |
| Emergency Director Judgment | <p>HG7 Other conditions exist which in the <input type="checkbox"/>1<input type="checkbox"/>2<input type="checkbox"/>3<input type="checkbox"/>4<input type="checkbox"/>D judgment of the Emergency Director warrant declaration of a GENERAL EMERGENCY.</p> <p><u>Emergency Action Level (EAL):</u> Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress 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.</p> | | <p>HS7 Other conditions exist which in the <input type="checkbox"/>1<input type="checkbox"/>2<input type="checkbox"/>3<input type="checkbox"/>4<input type="checkbox"/>D judgment of the Emergency Director warrant declaration of a SITE AREA EMERGENCY.</p> <p><u>Emergency Action Level (EAL):</u> Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress 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.</p> | | <p>HA7 Other conditions exist which in the <input type="checkbox"/>1<input type="checkbox"/>2<input type="checkbox"/>3<input type="checkbox"/>4<input type="checkbox"/>D judgment of the Emergency Director warrant declaration of an ALERT.</p> <p><u>Emergency Action Level (EAL):</u> Other conditions exist which, in the judgment of the Emergency Director, indicate that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.</p> | | <p>HU7 Other conditions exist which in the <input type="checkbox"/>1<input type="checkbox"/>2<input type="checkbox"/>3<input type="checkbox"/>4<input type="checkbox"/>D judgment of the Emergency Director warrant declaration of an UNUSUAL EVENT.</p> <p><u>Emergency Action Level (EAL):</u> Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress 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.</p> |
| | | | | | | | |

Modes: 1 – Power Operation 2 – Hot Shutdown 3 – Cold Shutdown 4 – Refueling D – Defueled

TABLE OCGS 2-1 Emergency action Level (EAL) Matrix

| GENERAL EMERGENCY | | SITE AREA EMERGENCY | | ALERT | | UNUSUAL EVENT | |
|-------------------|--|---------------------|------------------|-------------------|---------------|---|--|
| ISFSI Malfunction | | | | | | | |
| ISFSI | | | | | | E-HU1 Damage to a loaded cask CONFINEMENT BOUNDARY. 12345 | |
| | | | | | | Emergency Action Level (EAL): Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by a radiation reading: <ul style="list-style-type: none">> 1400 mrem/hr (gamma + neutron) on the HSM front surface (applicable to type 1 61BTH DSC only) OR> 800 mrem/hr (gamma + neutron) 3 feet from the HSM surface (applicable to 61BT DSC only) OR> 200 mrem/hr (gamma + neutron) outside the HSM door on centerline of DSC OR> 40 mrem/hr (gamma + neutron) end of shield wall exterior | |
| Modes: | | 1 – Power Operation | 2 – Hot Shutdown | 3 – Cold Shutdown | 4 – Refueling | D - Defueled | |

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT****RG1****Initiating Condition:**

Release of gaseous radioactivity resulting in offsite dose greater than 1000 mRem TEDE or 5000 mRem thyroid CDE.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):**Notes:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
- If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded the applicable time.
- Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.
- The pre-calculated effluent monitor values presented in EAL #1 should be used for emergency classification assessments until the results from a dose assessment using actual meteorology are available.

1. Readings on **ANY** Table R1 Effluent Monitor > **Table R1 value** for **≥ 15 minutes**.

OR

2. Dose assessment using actual meteorology indicates doses at or beyond the site boundary of **EITHER**:

- a. > 1000 mRem TEDE

OR

- b. > 5000 mRem CDE Thyroid

OR

3. Field survey results at or beyond the site boundary indicate **EITHER**:

- a. Gamma (closed window) dose rates >1000 mR/hr are expected to continue for **≥ 60 minutes**.

OR

- b. Analyses of field survey samples indicate > 5000 mRem CDE Thyroid for **60 minutes** of inhalation.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT****RG1 (cont)****Emergency Action Level (EAL) (cont):**

| Table R1 Effluent Monitor Thresholds | |
|---|---|
| Effluent Monitor | General Emergency |
| Main Stack RAGEMS | 8.69 E+01 uCi/cc HRM OR 3.53 E-08 amps HRM |
| Turbine Building RAGEMS | 7.17 E-01 uCi/cc HRM |
| HRM = High Range Monitor | |

Basis:

This IC addresses a release of gaseous radioactivity that results in projected or actual offsite doses greater than or equal to the EPA Protective Action Guides (PAGs). It includes both monitored and un-monitored releases. Releases of this magnitude will require implementation of protective actions for the public.

Radiological effluent EALs are also included to provide a basis for classifying events and conditions that cannot be readily or appropriately classified on the basis of plant conditions alone. The inclusion of both plant condition and radiological effluent EALs more fully addresses the spectrum of possible accident events and conditions.

The TEDE dose is set at the EPA PAG of 1000 mRem while the 5000 mRem thyroid CDE was established in consideration of the 1:5 ratio of the EPA PAG for TEDE and thyroid CDE.

Basis Reference(s):

1. NEI 99-01 Rev 6, AG1
2. EP-EAL-0610, Criteria for Choosing Radiological Gaseous Effluent EAL Threshold Oyster Creek Generating Station
3. BNE Correspondence dated February 1, 2007
4. CY-OC-170-301, Offsite Dose Calculation Manual for Oyster Creek
5. EP-AA-110-200, Dose Assessment
6. EP-AA-110-201, On Shift Dose Assessment

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT****RS1****Initiating Condition:**

Release of gaseous radioactivity resulting in offsite dose greater than 100 mRem TEDE or 500 mRem thyroid CDE.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):**Notes:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
- If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded the applicable time.
- Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.
- The pre-calculated effluent monitor values presented in EAL #1 should be used for emergency classification assessments until the results from a dose assessment using actual meteorology are available.

1. Readings on **ANY** Table R1 Effluent Monitor > **Table R1 value** for **≥ 15 minutes**.

OR

2. Dose assessment using actual meteorology indicates doses at or beyond the site boundary of **EITHER**:

- a. > **100 mRem TEDE**

OR

- b. > **500 mRem CDE Thyroid**

OR

3. Field survey results at or beyond the site boundary indicate **EITHER**:

- a. Gamma (closed window) dose rates >**100 mR/hr** are expected to continue for **≥ 60 minutes**.

OR

- b. Analyses of field survey samples indicate > **500 mRem CDE Thyroid** for **60 minutes** of inhalation.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT****RS1 (cont)****Emergency Action Level (EAL) (cont):**

| Table R1 Effluent Monitor Thresholds | |
|---|---|
| Effluent Monitor | Site Area Emergency |
| Main Stack RAGEMS | 8.69 E+00 uCi/cc HRM OR 3.53 E-09 amps HRM |
| Turbine Building RAGEMS | 3.65 E+05 cpm LRM |
| HRM = High Range Monitor LRM = Low Range Monitor | |

Basis:

This IC addresses a release of gaseous radioactivity that results in projected or actual offsite doses greater than or equal to 10% of the EPA Protective Action Guides (PAGs). It includes both monitored and un-monitored releases. Releases of this magnitude are associated with the failure of plant systems needed for the protection of the public.

Radiological effluent EALs are also included to provide a basis for classifying events and conditions that cannot be readily or appropriately classified on the basis of plant conditions alone. The inclusion of both plant condition and radiological effluent EALs more fully addresses the spectrum of possible accident events and conditions.

The TEDE dose is set at 10% of the EPA PAG of 1000 mRem while the 500 mRem thyroid CDE was established in consideration of the 1:5 ratio of the EPA PAG for TEDE and thyroid CDE.

Escalation of the emergency classification level would be via IC RG1.

Basis Reference(s):

1. NEI 99-01 Rev 6, AS1
2. EP-EAL-0610, Criteria for Choosing Radiological Gaseous Effluent EAL Threshold Oyster Creek Generating Station
3. BNE Correspondence dated February 1, 2007
4. CY-OC-170-301, Offsite Dose Calculation Manual for Oyster Creek
5. EP-AA-110-200, Dose Assessment
6. EP-AA-110-201, On Shift Dose Assessment

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT****RA1****Initiating Condition:**

Release of gaseous or liquid radioactivity resulting in offsite dose greater than 10 mRem TEDE or 50 mRem thyroid CDE.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):**Notes:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
- If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded the applicable time.
- Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.
- The pre-calculated effluent monitor values presented in EAL #1 should be used for emergency classification assessments until the results from a dose assessment using actual meteorology are available.

1. Readings on **ANY** Table R1 Effluent Monitor > **Table R1 value** for **≥ 15 minutes**.

OR

2. Dose assessment using actual meteorology indicates doses at or beyond the site boundary of **EITHER**:

a. > 10 mRem TEDE

OR

b. > 50 mRem CDE Thyroid

OR

3. Analysis of a liquid effluent sample indicates a concentration or release rate that would result in doses greater than **EITHER** of the following at or beyond the site boundary

a. 10 mRem TEDE for 60 minutes of exposure

OR

b. 50 mRem CDE Thyroid for 60 minutes of exposure

OR

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT****RA1 (cont)****Emergency Action Level (EAL) (cont):**4. Field survey results at or beyond the site boundary indicate **EITHER**:

- a. Gamma (closed window) dose rates **> 10 mR/hr** are expected to continue for **≥ 60 minutes**.

OR

- b. Analyses of field survey samples indicate **> 50 mRem CDE Thyroid** for **60 minutes** of inhalation.

| Table R1 Effluent Monitor Thresholds | |
|---|---|
| Effluent Monitor | Alert |
| Main Stack RAGEMS | 8.69 E-01 uCi/cc HRM OR 3.53 E-10 amps HRM |
| Turbine Building RAGEMS | 3.65 E+04 cpm LRM |
| HRM = High Range Monitor LRM = Low Range Monitor | |

Basis:

This IC addresses a release of gaseous or liquid radioactivity that results in projected or actual offsite doses greater than or equal to 1% of the EPA Protective Action Guides (PAGs). It includes both monitored and un-monitored releases. Releases of this magnitude represent an actual or potential substantial degradation of the level of safety of the plant as indicated by a radiological release that significantly exceeds regulatory limits (e.g., a significant uncontrolled release).

Radiological effluent EALs are also included to provide a basis for classifying events and conditions that cannot be readily or appropriately classified on the basis of plant conditions alone. The inclusion of both plant condition and radiological effluent EALs more fully addresses the spectrum of possible accident events and conditions.

The TEDE dose is set at 1% of the EPA PAG of 1000 mRem while the 50 mRem thyroid CDE was established in consideration of the 1:5 ratio of the EPA PAG for TEDE and thyroid CDE.

The radwaste liquid discharge system is currently closed off with a plant modification installed blank flange. To perform a discharge would require a plant modification to remove the flange. Since the liquid radwaste system is not operable, no EAL threshold has been developed for this release point.

Escalation of the emergency classification level would be via IC RS1.

Table OCGS 2-2 OCGS EAL Technical Basis

**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT**

RA1 (cont)

Basis Reference(s):

1. NEI 99-01 Rev 6, AA1
2. EP-EAL-0610, Criteria for Choosing Radiological Gaseous Effluent EAL Threshold Oyster Creek Generating Station
3. BNE Correspondence dated February 1, 2007
4. CY-OC-170-301, Offsite Dose Calculation Manual for Oyster Creek
5. ABN-27, Inadvertent Overboard Radioactive Release or Cross Contamination
6. EP-EAL-0617, Oyster Creek Criteria for Choosing Liquid Effluent EAL Threshold Values

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT****RU1****Initiating Condition:**

Release of gaseous or liquid radioactivity greater than 2 times the ODCM limits for 60 minutes or longer.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):**Notes:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
- If an ongoing release is detected and the release start time is unknown, assume that the release duration has exceeded the applicable time.
- Classification based on effluent monitor readings assumes that a release path to the environment is established. If the effluent flow past an effluent monitor is known to have stopped due to actions to isolate the release path, then the effluent monitor reading is no longer valid for classification purposes.

1. Readings on **ANY** Table R1 Effluent Monitor > **Table R1 value** for **≥ 60 minutes**:

| Table R1 Effluent Monitor Thresholds | |
|--------------------------------------|-------------------|
| Effluent Monitor | Unusual Event |
| Main Stack RAGEMS | 4.07 E+03 cps LRM |
| Turbine Building RAGEMS | 4.16 E+02 cpm LRM |
| LRM = Low Range Monitor | |

OR

2. Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > **2 times ODCM Limit** with a release duration of **≥ 60 minutes**.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT****RU1 (cont)****Basis:**

This IC addresses a potential decrease in the level of safety of the plant as indicated by a low-level radiological release that exceeds regulatory commitments for an extended period of time (e.g., an uncontrolled release). It includes any gaseous or liquid radiological release, monitored or un-monitored, including those for which a radioactivity discharge permit is normally prepared.

Nuclear power plants incorporate design features intended to control the release of radioactive effluents to the environment. Further, there are administrative controls established to prevent unintentional releases, and to control and monitor intentional releases. The occurrence of an extended, uncontrolled radioactive release to the environment is indicative of degradation in these features and/or controls.

Radiological effluent EALs are also included to provide a basis for classifying events and conditions that cannot be readily or appropriately classified on the basis of plant conditions alone. The inclusion of both plant condition and radiological effluent EALs more fully addresses the spectrum of possible accident events and conditions.

Releases should not be prorated or averaged. For example, a release exceeding 4 times release limits for 30 minutes does not meet the EAL.

The radwaste liquid discharge system is currently closed off with a plant modification installed blank flange. To perform a discharge would require a plant modification to remove the flange. Since the liquid radwaste system is not operable, no EAL threshold has been developed for this release point.

EAL #1 Basis

This EAL addresses normally occurring continuous radioactivity releases from monitored gaseous effluent pathways.

EAL #2 Basis

This EAL addresses uncontrolled gaseous or liquid releases that are detected by sample analyses or environmental surveys, particularly on unmonitored pathways (e.g., spills of radioactive liquids into storm drains, heat exchanger leakage in river water systems, etc.).

Escalation of the emergency classification level would be via IC RA1.

Table OCGS 2-2 OCGS EAL Technical Basis

**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT**

RU1 (cont)

Basis Reference(s):

1. NEI 99-01 Rev 6, AU1
2. EP-EAL-0610, Criteria for Choosing Radiological Gaseous Effluent EAL Threshold Oyster Creek Generating Station
3. BNE Correspondence dated February 1, 2007
4. CY-OC-170-301, Offsite Dose Calculation Manual for Oyster Creek
5. ABN-27, Inadvertent Overboard Radioactive Release or Cross Contamination

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT****RG2****Initiating Condition:**

Spent fuel pool level cannot be restored to at least 96.75 ft. for 60 minutes or longer.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):

Note: The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

Spent fuel pool level cannot be restored to at least **96.75 ft.** as indicated on LI-18-1A or LI-18-1B for **60 minutes** or longer.

Basis:

This IC addresses a significant loss of spent fuel pool inventory control and makeup capability leading to a prolonged uncover of spent fuel. This condition will lead to fuel damage and a radiological release to the environment.

It is recognized that this IC would likely not be met until well after another General Emergency IC was met; however, it is included to provide classification diversity.

Basis Reference(s):

1. NEI 99-01 Rev 6, AG2
2. Oyster Creek ECR 14-00389, Reliable Spent Fuel Pool Level Instrumentation (Fukushima) Revision 3 Attachment 1

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT****RS2****Initiating Condition:**

Spent fuel pool level at 96.75 ft.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):

Lowering of spent fuel pool level to **96.75 ft.** as indicated on LI-18-1A or LI-18-1B.

Basis:

IMMINENT: The trajectory of events or conditions is such that an EAL will be met within a relatively short period of time regardless of mitigation or corrective actions.

This IC addresses a significant loss of spent fuel pool inventory control and makeup capability leading to IMMINENT fuel damage. This condition entails major failures of plant functions needed for protection of the public and thus warrants a Site Area Emergency declaration.

It is recognized that this IC would likely not be met until well after another Site Area Emergency IC was met; however, it is included to provide classification diversity.

Escalation of the emergency classification level would be via IC RG1 or RG2.

Basis Reference(s):

1. NEI 99-01 Rev 6, AS2
2. Oyster Creek ECR 14-00389, Reliable Spent Fuel Pool Level Instrumentation (Fukushima) Revision 3 Attachment 1

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT****RA2****Initiating Condition:**

Significant lowering of water level above, or damage to, irradiated fuel.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):

1. Uncovery of irradiated fuel in the REFUELING PATHWAY.

OR

2. Damage to irradiated fuel resulting in a release of radioactivity from the fuel as indicated by **ANY** Table R2 Radiation Monitor reading ≥ 1000 mRem/hr.

| Table R2 Refuel Floor ARM's |
|--|
| <ul style="list-style-type: none">• C-5, Crit Mon• C-10, North Wall• C-9, North Wall• B-9, Open Floor |

OR

3. Lowering of spent fuel pool level to **106.09 ft.** as indicated on LI-18-1A or LI-18-1B.

Basis:

REFUELING PATHWAY: all the cavities, tubes, canals and pools through which irradiated fuel may be moved or stored, but not including the reactor vessel below the flange.

IMMINENT: The trajectory of events or conditions is such that an EAL will be met within a relatively short period of time regardless of mitigation or corrective actions.

CONFINEMENT BOUNDARY: The irradiated fuel dry storage cask barrier(s) between areas containing radioactive substances and the environment.

This IC addresses events that have caused IMMINENT or actual damage to an irradiated fuel assembly. These events present radiological safety challenges to plant personnel and are precursors to a release of radioactivity to the environment. As such, they represent an actual or potential substantial degradation of the level of safety of the plant.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT****RA2 (cont)****Basis (cont):**

This IC applies to irradiated fuel that is licensed for dry storage up to the point that the loaded storage cask is sealed. Once sealed, damage to a loaded cask causing loss of the CONFINEMENT BOUNDARY is classified in accordance with IC E-HU1.

EAL #1 Basis

This EAL escalates from RU2 in that the loss of level, in the affected portion of the REFUELING PATHWAY, is of sufficient magnitude to have resulted in uncover of irradiated fuel. Indications of irradiated fuel uncover may include direct or indirect visual observation (e.g., reports from personnel or camera images), as well as significant changes in water and radiation levels, or other plant parameters. Computational aids may also be used (e.g., a boil-off curve). Classification of an event using this EAL should be based on the totality of available indications, reports and observations.

While an area radiation monitor could detect a rise in a dose rate due to a lowering of water level in some portion of the REFUELING PATHWAY, the reading may not be a reliable indication of whether or not the fuel is actually uncovered. To the degree possible, readings should be considered in combination with other available indications of inventory loss.

A drop in water level above irradiated fuel within the reactor vessel may be classified in accordance Recognition Category C during the Cold Shutdown and Refueling modes.

EAL #2 Basis

This EAL addresses a release of radioactive material caused by mechanical damage to irradiated fuel. Damaging events may include the dropping, bumping or binding of an assembly, or dropping a heavy load onto an assembly. A rise in readings on radiation monitors should be considered in conjunction with in-plant reports or observations of a potential fuel damaging event (e.g., a fuel handling accident).

EAL #3 Basis:

Spent fuel pool water level at this value is within the lower end of the level range necessary to prevent significant dose consequences from direct gamma radiation to personnel performing operations in the vicinity of the spent fuel pool. This condition reflects a significant loss of spent fuel pool water inventory and thus it is also a precursor to a loss of the ability to adequately cool the irradiated fuel assemblies stored in the pool.

Escalation of the emergency would be based on either Recognition Category R or C ICs.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT****RA2 (cont)****Basis Reference(s):**

1. NEI 99-01 Rev 6, AA2
2. RAP G-7-a, SKM SRG TNK LVL LO-LO
3. RAP-10F-1-m, Crit Mon C5 Hi
4. RAP-10F-3-m, North Wall C9 Hi Vent Trip
5. RAP-10F-2-m, North Wall C10 Hi
6. RAP-10F-4-m, North Wall B9 Hi Vent Trip
7. Oyster Creek ECR 14-00389, Reliable Spent Fuel Pool Level Instrumentation (Fukushima) Revision 3 Attachment 1

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT****RU2****Initiating Condition:**

UNPLANNED loss of water level above irradiated fuel.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):

1. a. UNPLANNED water level drop in the REFUELING PATHWAY as indicated by **ANY** of the following:

- Refueling Cavity water level < **583 inches** (GEMAC Wide Range, floodup calibration).

OR

- Indication or report of a drop in water level in the REFUELING PATHWAY.

AND

- b. UNPLANNED Area Radiation Monitor reading rise on **ANY** radiation monitors in Table R2.

Table R2 Refuel Floor ARM's

- C-5, Crit Mon
- C-10, North Wall
- C-9, North Wall
- B-9, Open Floor

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT****RU2 (cont)****Basis:**

UNPLANNED: A parameter change or an event that is not 1) the result of an intended evolution or 2) an expected plant response to a transient. The cause of the parameter change or event may be known or unknown.

REFUELING PATHWAY: all the cavities, tubes, canals and pools through which irradiated fuel may be moved or stored, but not including the reactor vessel below the flange.

This IC addresses a loss in water level above irradiated fuel sufficient to cause elevated radiation levels. This condition could be a precursor to a more serious event and is also indicative of a minor loss in the ability to control radiation levels within the plant. It is therefore a potential degradation in the level of safety of the plant.

A water level loss will be primarily determined by indications from available level instrumentation. Other sources of level indications may include reports from plant personnel (e.g., from a refueling crew) or video camera observations (if available) or from any other temporarily installed monitoring instrumentation. A significant drop in the water level may also cause a rise in the radiation levels of adjacent areas that can be detected by monitors in those locations.

The effects of planned evolutions should be considered. For example, a refueling bridge area radiation monitor reading may rise due to planned evolutions such as lifting of the reactor vessel head or movement of a fuel assembly. Note that this EAL is applicable only in cases where the elevated reading is due to an UNPLANNED loss of water level.

A drop in water level above irradiated fuel within the reactor vessel may be classified in accordance Recognition Category C during the Cold Shutdown and Refueling modes.

Escalation of the emergency classification level would be via IC RA2.

Basis Reference(s):

1. NEI 99-01 Rev 6, AU2
2. RP-AA-203 Exposure Control and Authorization
3. RAP-G-7-a, SKM SRG TNK LVL LO-LO
4. 205.94.0 RPV Floodup Using Core Spray
5. 205.95.0 Reactor Flood-up / Drain-down
6. FSAR Figure 7.6-3

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT****RA3****Initiating Condition:**

Radiation levels that impede access to equipment necessary for normal plant operations, cooldown or shutdown.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):**Note:**

- If the equipment in the room or area listed in Table R4 was already inoperable, or out of service, before the event occurred, then no emergency classification is warranted.

1. Dose rate > **15 mR/hr** in **ANY** of the following Table R3 areas:

| Table R3 Areas Requiring Continuous Occupancy | |
|---|--|
| <ul style="list-style-type: none">• Main Control Room• Central Alarm Station – (by survey) | |

OR

2. UNPLANNED event results in radiation levels that prohibit or significantly impede access to **ANY** of the following Table R4 plant rooms or areas:

| Table R4 Areas with Entry Related Mode Applicability | |
|---|---|
| Area | Entry Related Mode Applicability |
| Reactor Building 51' elevation | Modes 3 and 4 |

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT****RA3 (cont)****Basis:**

UNPLANNED: A parameter change or an event that is not 1) the result of an intended evolution or 2) an expected plant response to a transient. The cause of the parameter change or event may be known or unknown.

This IC addresses elevated radiation levels in certain plant rooms/areas sufficient to preclude or impede personnel from performing actions necessary to transition the plant from normal plant operation to cooldown and shutdown as specified in normal plant procedures. As such, it represents an actual or potential substantial degradation of the level of safety of the plant. The Emergency Director should consider the cause of the increased radiation levels and determine if another IC may be applicable.

Assuming all plant equipment is operating as designed, normal operation is capable from the Main Control Room (MCR). The plant is also able to transition into a hot shutdown condition from the MCR, therefore Table R4 is a list of plant rooms or areas with entry-related mode applicability that contain equipment which require a manual/local action necessary to transition the plant from normal plant operation to cooldown and shutdown as specified in normal operating procedures (establish shutdown cooling), where if this action is not completed the plant would not be able to attain and maintain cold shutdown.

This Table does not include rooms or areas for which entry is required solely to perform actions of an administrative or record keeping nature (e.g., normal rounds or routine inspections).

Rooms and areas listed in EAL #1 do not need to be included in EAL #2, including the Control Room.

For EAL #2, an Alert declaration is warranted if entry into the affected room/area is, or may be, procedurally required during the plant operating mode in effect and the elevated radiation levels preclude the ability to place shutdown cooling in service. The emergency classification is not contingent upon whether entry is actually necessary at the time of the increased radiation levels. Access should be considered as impeded if extraordinary measures are necessary to facilitate entry of personnel into the affected room/area (e.g., installing temporary shielding beyond that required by procedures, requiring use of non-routine protective equipment, requesting an extension in dose limits beyond normal administrative limits).

An emergency declaration is not warranted if any of the following conditions apply.

- The plant is in an operating mode different than the mode specified for the affected room/area (i.e., entry is not required during the operating mode in effect at the time of the elevated radiation levels). For example, the plant is in Mode 1 when the radiation rise occurs, and the procedures used for normal operation, cooldown and shutdown do not require entry into the affected room until Mode 4.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT****RA3 (cont)****Basis (cont):**

- The increased radiation levels are a result of a planned activity that includes compensatory measures which address the temporary inaccessibility of a room or area (e.g., radiography, spent filter or resin transfer, etc.).
- The action for which room/area entry is required is of an administrative or record keeping nature (e.g., normal rounds or routine inspections).
- The access control measures are of a conservative or precautionary nature, and would not actually prevent or impede a required action.

Escalation of the emergency classification level would be via Recognition Category R, C or F ICs.

Basis Reference(s):

1. NEI 99-01 Rev 6, AA3
2. ABN-29, Plant Fires
3. EMG-3200.11, Secondary Containment Control Safe Shutdown Area

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT****RU3****Initiating Condition:**

Reactor coolant activity greater than Technical Specification allowable limits.

Operating Mode Applicability:

1, 2

Emergency Action Level (EAL):

1. Offgas system radiation monitor **Hi-Hi** alarm.

OR

2. Specific coolant activity > **4.0 $\mu\text{Ci/gm}$** Dose equivalent I-131.

Basis:

This IC addresses a reactor coolant activity value that exceeds an allowable limit specified in Technical Specifications. This condition is a precursor to a more significant event and represents a potential degradation of the level of safety of the plant.

Conditions that cause the specified monitor to alarm that are not related to fuel clad degradation should not result in the declaration of an Unusual Event.

This EAL addresses site-specific radiation monitor readings that provide indication of a degradation of fuel clad integrity.

Escalation of the emergency classification level would be via ICs FA1 or the Recognition Category R ICs.

Basis Reference(s):

1. NEI 99-01 Rev 6, SU3
2. Technical Specifications 3.6.A
3. ABN-26, High Main Steam Line or Off Gas Activity
4. RAP10F-1-c, Offgas HI-HI

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****FG1****Initiating Condition:**

Loss of ANY Two Barriers AND Loss or Potential Loss of the third barrier.

Operating Mode Applicability:

1, 2

Emergency Action Level (EAL):

Refer to Fission Product Barrier Loss and Potential Loss threshold values to determine barrier status.

Basis:

Fuel Cladding, RCS and Containment comprise the fission product barriers.

At the General Emergency classification level each barrier is weighted equally.

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-2

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****FS1****Initiating Condition:**

Loss or Potential Loss of ANY two barriers.

Operating Mode Applicability:

1, 2

Emergency Action Level (EAL):

Refer to Fission Product Barrier Loss and Potential Loss threshold values to determine barrier status.

Basis:

Fuel Cladding, RCS and Containment comprise the fission product barriers.

At the Site Area Emergency classification level, each barrier is weighted equally.

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-2

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****FA1****Initiating Condition:**

ANY Loss or ANY Potential Loss of either Fuel Clad or RCS.

Operating Mode Applicability:

1, 2

Emergency Action Level (EAL):

Refer to Fission Product Barrier Loss and Potential Loss threshold values to determine barrier status.

Basis:

Fuel Cladding, RCS and Containment comprise the fission product barriers.

At the Alert classification level, Fuel Cladding and RCS barriers are weighted more heavily than the Containment barrier. Unlike the Containment barrier, loss or potential loss of either the Fuel Cladding or RCS barrier may result in the relocation of radioactive materials or degradation of core cooling capability. Note that the loss or potential loss of Containment barrier in combination with loss or potential loss of either Fuel Cladding or RCS barrier results in declaration of a Site Area Emergency under EAL FS1.

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-2

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****FC1****Initiating Condition:**

RCS Activity

Operating Mode Applicability:

1, 2

Fission Product Barrier (FPB) Threshold:LOSS

Coolant activity > 300 uCi/gm Dose Equivalent I-131.

Basis:

This threshold indicates that RCS radioactivity concentration is greater than 300 $\mu\text{Ci/gm}$ dose equivalent I-131. Reactor coolant activity above this level is greater than that expected for iodine spikes and corresponds to an approximate range of 2% to 5% fuel clad damage. Since this condition indicates that a significant amount of fuel clad damage has occurred, it represents a loss of the Fuel Clad Barrier.

It is recognized that sample collection and analysis of reactor coolant with highly elevated activity levels could require several hours to complete. Nonetheless, a sample-related threshold is included as a backup to other indications.

There is no Potential Loss threshold associated with RCS Activity.

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-2

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****FC2****Initiating Condition:**

RPV Water Level

Operating Mode Applicability:

1, 2

Fission Product Barrier (FPB) Threshold:LOSS

1. Plant conditions indicate primary containment flooding is required.

POTENTIAL LOSS2. RPV water level cannot be restored and maintained > 0 inches TAF.**OR**3. RPV water level cannot be determined.**Basis:****Loss Threshold #1 Basis**

The Loss threshold represents the EOP requirement for primary containment flooding. This is identified in the BWROG EPGs/SAGs when the phrase, "Primary Containment Flooding Is Required," appears. Since a site-specific RPV water level is not specified here, the Loss threshold phrase, "Primary containment flooding required," also accommodates the EOP need to flood the primary containment when RPV water level cannot be determined and core damage due to inadequate core cooling is believed to be occurring.

Potential Loss Threshold #2 and #3 Basis

This water level corresponds to the top of the active fuel and is used in the EOPs to indicate a challenge to core cooling.

The RPV water level threshold is the same as RCS Barrier RC2 Loss threshold. Thus, this threshold indicates a Potential Loss of the Fuel Clad barrier and a Loss of the RCS barrier that appropriately escalates the emergency classification level to a Site Area Emergency.

This threshold is considered to be exceeded when, as specified in the site-specific EOPs, RPV water level cannot be restored and maintained above the specified level following depressurization of the RPV (either manually, automatically or by failure of the RCS barrier) or when procedural guidance or a lack of low pressure RPV injection sources preclude Emergency RPV depressurization. EOPs allow the operator a wide choice of RPV injection sources to consider when restoring RPV water level to within prescribed limits. EOPs also specify depressurization of the RPV in order to facilitate RPV water level control with low-pressure injection sources. In some events, elevated RPV pressure may prevent restoration of RPV water level until pressure drops below the shutoff heads of available injection sources. Therefore, this Fuel Clad barrier Potential Loss is met only after either: 1) the RPV has been depressurized, or required

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****FC2 (cont)****Basis (cont):**

emergency RPV depressurization has been attempted, giving the operator an opportunity to assess the capability of low-pressure injection sources to restore RPV water level or 2) no low pressure RPV injection systems are available, precluding RPV depressurization in an attempt to minimize loss of RPV inventory.

The term "cannot be restored and maintained above" means the value of RPV water level is not able to be brought above the specified limit (top of active fuel). The determination requires an evaluation of system performance and availability in relation to the RPV water level value and trend. A threshold prescribing declaration when a threshold value *cannot* be restored and maintained above a specified limit does not require immediate action simply because the current value is below the top of active fuel, but does not permit extended operation below the limit; the threshold must be considered reached as soon as it is apparent that the top of active fuel cannot be attained.

In high-power ATWS/failure to scram events, EOPs may direct the operator to deliberately lower RPV water level in order to reduce reactor power. Although such action is a challenge to core cooling and the Fuel Clad barrier, the immediate need to reduce reactor power is the higher priority. For such events, ICs MA3 or MS3 will dictate the need for emergency classification.

Since the loss of ability to determine if adequate core cooling is being provided presents a significant challenge to the fuel clad barrier, a potential loss of the fuel clad barrier is specified.

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-2
2. EMG-3200.01A, RPV Control – No ATWS
3. EMG-3200.01B, RPV Control – With ATWS
4. EMG-3200.08A, RPV Flooding – No ATWS
5. EMG-3200.08B, RPV Flooding – With ATWS
6. EMG-3200.02, Primary Containment Control

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****FC5****Initiating Condition:**

Primary Containment Radiation

Operating Mode Applicability:

1, 2

Fission Product Barrier (FPB) Threshold:**LOSS**

Containment Hi Range Radiation Monitoring System (CHRRMS) reading > 530 R/hr.

Basis:

The radiation monitor reading corresponds to an instantaneous release of all reactor coolant mass into the primary containment, assuming that reactor coolant activity equals 300 $\mu\text{Ci/gm}$ dose equivalent I-131. Reactor coolant activity above this level is greater than that expected for iodine spikes and corresponds to an approximate range of 2% to 5% fuel clad damage. Since this condition indicates that a significant amount of fuel clad damage has occurred, it represents a loss of the Fuel Clad Barrier.

The radiation monitor reading in this threshold is higher than that specified for RCS Barrier RC5 Loss Threshold since it indicates a loss of both the Fuel Clad Barrier and the RCS Barrier. Note that a combination of the two monitor readings appropriately escalates the emergency classification level to a Site Area Emergency.

There is no Fuel Clad Barrier Potential Loss threshold associated with Primary Containment Radiation.

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-2
2. Core Damage Assessment Methodology

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****FC7****Initiating Condition:**

Emergency Director Judgment.

Operating Mode Applicability:

1, 2

Fission Product Barrier (FPB) Threshold:**LOSS**

1. Any condition in the opinion of the Emergency Director that indicates Loss of the Fuel Clad Barrier.

POTENTIAL LOSS

2. Any condition in the opinion of the Emergency Director that indicates Potential Loss of the Fuel Clad Barrier.

Basis:**Loss Threshold #1 Basis**

This threshold addresses any other factors that are to be used by the Emergency Director in determining whether the Fuel Clad Barrier is lost.

Potential Loss Threshold #2 Basis

This threshold addresses any other factors that may be used by the Emergency Director in determining whether the Fuel Clad Barrier is potentially lost. The Emergency Director should also consider whether or not to declare the barrier potentially lost in the event that barrier status cannot be monitored.

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-2

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****RC2****Initiating Condition:**

RPV Water Level

Operating Mode Applicability:

1, 2

Fission Product Barrier (FPB) Threshold:LOSS1. RPV water level **cannot** be restored and maintained **> 0 inches TAF.****OR**2. RPV water level **cannot** be determined.**Basis:**

This water level corresponds to the Top of Active Fuel (TAF) and is used in the EOPs to indicate challenge to core cooling.

The RPV water level threshold is the same as Fuel Clad Barrier FC2 Potential Loss threshold. Thus, this threshold indicates a Loss of the RCS barrier and Potential Loss of the Fuel Clad barrier and that appropriately escalates the emergency classification level to a Site Area Emergency.

This threshold is considered to be exceeded when, as specified in the site-specific EOPs, RPV water level cannot be restored and maintained above the specified level following depressurization of the RPV (either manually, automatically or by failure of the RCS barrier) or when procedural guidance or a lack of low pressure RPV injection sources preclude Emergency RPV depressurization. EOPs allow the operator a wide choice of RPV injection sources to consider when restoring RPV water level to within prescribed limits. EOPs also specify depressurization of the RPV in order to facilitate RPV water level control with low-pressure injection sources. In some events, elevated RPV pressure may prevent restoration of RPV water level until pressure drops below the shutoff heads of available injection sources. Therefore, this RCS barrier Loss is met only after either: 1) the RPV has been depressurized, or required emergency RPV depressurization has been attempted, giving the operator an opportunity to assess the capability of low-pressure injection sources to restore RPV water level or 2) no low pressure RPV injection systems are available, precluding RPV depressurization in an attempt to minimize loss of RPV inventory.

The term, "cannot be restored and maintained above," means the value of RPV water level is not able to be brought above the specified limit (top of active fuel). The determination requires an evaluation of system performance and availability in relation to the RPV water level value and trend. A threshold prescribing declaration when a threshold value *cannot* be restored and maintained above a specified limit does not require immediate action simply because the current value is below the top of active fuel, but does not permit extended operation beyond the limit; the threshold must be considered reached as soon as it is apparent that the top of active fuel cannot be attained.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****RC2 (cont)****Basis (cont):**

In high-power ATWS/failure to scram events, EOPs may direct the operator to deliberately lower RPV water level in order to reduce reactor power. Although such action is a challenge to core cooling and the Fuel Clad barrier, the immediate need to reduce reactor power is the higher priority. For such events, ICs MA3 or MS3 will dictate the need for emergency classification.

There is no RCS Potential Loss threshold associated with RPV water level.

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-2
2. 2000-GLN-3200.01, Plant Specific Technical Guideline
3. 2000-BAS-3200.02, EOP Users Guide

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****RC3****Initiating Condition:**

Primary Containment Pressure

Operating Mode Applicability:

1, 2

Fission Product Barrier (FPB) Threshold:LOSS

1. Drywell pressure > 3.0 psig.

AND

2. Drywell pressure rise is due to RCS leakage

Basis:

The > 3.0 psig primary containment pressure is the Drywell high pressure setpoint which indicates a LOCA by automatically initiating ECCS.

The second threshold condition focuses the fission product barrier loss threshold on a failure of the RCS instead of the non-LOCA malfunctions that may adversely affect primary containment pressure. Pressures of this magnitude can be caused by non-LOCA events such as a loss of Drywell cooling or inability to control primary containment vent/purge.

There is no Potential Loss threshold associated with Primary Containment Pressure.

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-2
2. EMG-3200.01A, RPV Control – No ATWS
3. EMG-3200.02, Primary Containment Control
4. 2000-BAS-3200.02, EOP User's Guide

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****RC4****Initiating Condition:**

RCS Leak Rate

Operating Mode Applicability:

1, 2

Fission Product Barrier (FPB) Threshold:LOSS

1. UNISOLABLE Main Steam Line (MSL), Isolation Condenser, Feedwater, or RWCU line break.

OR

2. Emergency RPV Depressurization is required.

POTENTIAL LOSS

3. UNISOLABLE primary system leakage that results in **EITHER** of the following:

- a. Secondary Containment area temperature > **EMG-3200.11 Max Normal** (Table 11) operating level.

OR

- b. Secondary Containment area radiation level > **EMG-3200.11 Max Normal** (Table 12) operating level.

Basis:

UNISOLABLE: An open or breached system line that cannot be isolated, remotely or locally.

Failure to isolate the leak, within 15 minutes or if known that the leak cannot be isolated within 15 minutes, from the start of the leak requires immediate classification.

Classification of a system break over system leakage is based on information available to the Control Room from the event. Indications that should be considered are:

- Reports describing magnitude of steam or water release.
- Use of system high flow alarms / indications, if available,
- Significant changes in makeup requirements,
- Abnormal reactor water level changes in response to the event.

The use of the above indications provides the Control Room the bases to determine that the ongoing event is more significant than the indications that would be expected from system leakage and therefore should be considered a system break.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****RC4 (cont)****Basis (cont):****Loss Threshold #1 Basis**

Large high-energy lines that rupture outside primary containment can discharge significant amounts of inventory and jeopardize the pressure-retaining capability of the RCS until they are isolated. If it is determined that the ruptured line cannot be promptly isolated, the RCS barrier Loss threshold is met.

Loss Threshold #2 Basis

Emergency RPV Depressurization in accordance with the EOPs is indicative of a loss of the RCS barrier. If Emergency RPV Depressurization is performed, the plant operators are directed to open Electromatic relief valves (EMRVs) and keep them open. Even though the RCS is being vented into the torus, a Loss of the RCS barrier exists due to the diminished effectiveness of the RCS to retain fission products within its boundary.

Potential Loss Threshold #3 Basis

Potential loss of RCS based on primary system leakage outside the primary containment is determined from EOP temperature or radiation Max Normal Operating values in areas such as Trunnion room, Isolation Condenser, RWCU etc., which indicate a direct path from the RCS to areas outside primary containment.

A Max Normal Operating value is the highest value of the identified parameter expected to occur during normal plant operating conditions with all directly associated support and control systems functioning properly.

The indicators reaching the threshold barriers and confirmed to be caused by RCS leakage from a primary system warrant an Alert classification. A primary system is defined to be the pipes, valves, and other equipment which connect directly to the RPV such that a reduction in RPV pressure will effect a decrease in the steam or water being discharged through an unisolated break in the system.

In general, multiple indications should be used to determine if a primary system is discharging outside Primary Containment. For example, a high area radiation condition does not necessarily indicate that a primary system is discharging into the Reactor Building since this may be caused by radiation shine from nearby steam lines or the movement of radioactive materials. Conversely, a high area radiation condition in conjunction with other indications (e.g. room flooding, high area temperatures, reports of steam in the Reactor Building, an unexpected rise in Feedwater flowrate, or unexpected Main Turbine Control Valve closure) may indicate that a primary system is discharging into the Reactor Building.

An UNISOLABLE leak which is indicated by Max Normal Operating values escalates to a Site Area Emergency when combined with Containment Barrier CT6 Loss Threshold #1 (after a containment isolation) and a General Emergency when the Fuel Clad Barrier criteria is also exceeded.

Table OCGS 2-2 OCGS EAL Technical Basis

**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION**

RC4 (cont)

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-2
2. EMG-3200.11, Secondary Containment Control
3. 2000-GLN-3200.01, Plant Specific Technical Guideline

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****RC5****Initiating Condition:**

Primary Containment Radiation

Operating Mode Applicability:

1, 2

Fission Product Barrier (FPB) Threshold:LOSS

Containment Hi Range Radiation Monitoring System (CHRRMS) reading > 100 R/hr.

Basis:

The radiation monitor reading corresponds to an instantaneous release of all reactor coolant mass into the primary containment, assuming that reactor coolant activity equals Technical Specification allowable limits. This value is lower than that specified for Fuel Clad Barrier FC5 Loss Threshold since it indicates a loss of the RCS Barrier only.

There is no Reactor Coolant System Potential Loss threshold associated with Primary Containment Radiation.

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-2
2. EP-EAL-0611, Criteria for Choosing Containment Radiation Monitor Reading Indicative of Loss of RCS Barrier

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****RC7****Initiating Condition:**

Emergency Director Judgment.

Operating Mode Applicability:

1, 2

Fission Product Barrier (FPB) Threshold:LOSS

1. Any condition in the opinion of the Emergency Director that indicates Loss of the RCS Barrier.

POTENTIAL LOSS

2. Any condition in the opinion of the Emergency Director that indicates Potential Loss of the RCS Barrier.

Basis:**Loss Threshold #1 Basis**

This threshold addresses any other factors that are to be used by the Emergency Director in determining whether the RCS Barrier is lost.

Potential Loss Threshold #2 Basis

This threshold addresses any other factors that may be used by the Emergency Director in determining whether the RCS Barrier is potentially lost. The Emergency Director should also consider whether or not to declare the barrier potentially lost in the event that barrier status cannot be monitored.

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-2

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****CT2****Initiating Condition:**

RPV Water Level

Operating Mode Applicability:

1, 2

Fission Product Barrier (FPB) Threshold:POTENTIAL LOSS

Plant conditions indicate primary containment flooding is required.

Basis:

The Potential Loss threshold is identical to the Fuel Clad Barrier FC2 Loss threshold RPV water level. The Potential Loss requirement for Primary Containment Flooding indicates adequate core cooling cannot be restored and maintained and that core damage is possible. BWR EOPs/SAMGs specify the conditions that require primary containment flooding. When primary containment flooding is required, the EOPs are exited and SAMGs are entered. Entry into SAMGs is a logical escalation in response to the inability to restore and maintain adequate core cooling.

PRA studies indicate that the condition of this Potential Loss threshold could be a core melt sequence which, if not corrected, could lead to RPV failure and increased potential for primary containment failure. In conjunction with the RPV water level Loss thresholds in the Fuel Clad and RCS barrier columns, this threshold results in the declaration of a General Emergency.

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-2
2. EMG-3200.01B, RPV Control – With ATWS
3. EMG-3200.08A, RPV Flooding – No ATWS
4. EMG-3200.08B, RPV Flooding – With ATWS
5. EMG-3200.02, Primary Containment Control
6. EMG-3200.01A, RPV Control – No ATWS

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****CT3****Initiating Condition:**

Primary Containment Conditions

Operating Mode Applicability:

1, 2

Fission Product Barrier (FPB) Threshold:LOSS

1. UNPLANNED rapid drop in Drywell pressure following Drywell pressure rise.

OR2. Drywell pressure response not consistent with LOCA conditions.POTENTIAL LOSS3. Drywell pressure > **44 psig** and rising.**OR**4. a. Drywell or Torus Hydrogen concentration \geq **6%**.**AND**b. Drywell or Torus Oxygen concentration \geq **5%**.**OR**

5. Heat Capacity Temperature Limit (EMG-3200.02 Fig. F) exceeded.

Basis:

UNPLANNED: A parameter change or an event that is not 1) the result of an intended evolution or 2) an expected plant response to a transient. The cause of the parameter change or event may be known or unknown.

Loss Threshold #1 and #2 Basis

Rapid UNPLANNED loss of Drywell pressure (i.e., not attributable to Drywell spray or condensation effects) following an initial pressure rise indicates a loss of Drywell integrity. Drywell pressure should rise as a result of mass and energy release into the Drywell from a LOCA. Thus, Drywell pressure not increasing under these conditions indicates a loss of primary containment integrity.

These thresholds rely on operator recognition of an unexpected response for the condition and therefore a specific value is not assigned. The unexpected (UNPLANNED) response is important because it is the indicator for a containment bypass condition. A pressure suppression bypass path would not be an indication of a containment breach.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****CT3 (cont)****Basis (cont):****Potential Loss Threshold #3 Basis**

The threshold pressure is the Drywell internal design pressure. Structural acceptance testing demonstrates the capability of the Drywell to resist pressures greater than the internal design pressure. A pressure of this magnitude is greater than those expected to result from any design basis accident and, thus, represent a Potential Loss of the Containment barrier.

Potential Loss Threshold #4 Basis

If hydrogen concentration reaches or exceeds the lower flammability limit, as defined in plant EOPs, in an oxygen rich environment, a potentially explosive mixture exists. If the combustible mixture ignites inside the primary containment, loss of the Containment barrier could occur.

Potential Loss Threshold #5 Basis

The HCTL is a function of RPV pressure, torus temperature and torus water level. It is utilized to preclude failure of the containment and equipment in the containment necessary for the safe shutdown of the plant and therefore, the inability to maintain plant parameters below the limit constitutes a potential loss of containment.

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-2
2. FSAR Update 6.2.1.1.3
3. Technical Specifications 5.2 Basis
4. EMG-3200.02 Primary Containment Control

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****CT5****Initiating Condition:**

Primary Containment Radiation

Operating Mode Applicability:

1, 2

Fission Product Barrier (FPB) Threshold:POTENTIAL LOSS

Containment Hi Range Radiation Monitoring System (CHRRMS) reading > 1210 R/hr.

Basis:

There is no Loss threshold associated with Primary Containment Radiation.

The radiation monitor reading corresponds to an instantaneous release of all reactor coolant mass into the primary containment, assuming that 20% of the fuel cladding has failed. This level of fuel clad failure is well above that used to determine the analogous Fuel Clad Barrier Loss and RCS Barrier Loss thresholds.

NUREG-1228, *Source Estimations During Incident Response to Severe Nuclear Power Plant Accidents*, indicates the fuel clad failure must be greater than approximately 20% in order for there to be a major release of radioactivity requiring offsite protective actions. For this condition to exist there must already have been a loss of the RCS Barrier and the Fuel Clad Barrier. It is therefore prudent to treat this condition as a potential loss of containment which would then escalate the emergency classification level to a General Emergency.

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-2
2. Core Damage Assessment Methodology (CDAM)

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****CT6****Initiating Condition:**

Primary Containment Isolation Failure

Operating Mode Applicability:

1, 2

Fission Product Barrier (FPB) Threshold:LOSS

1. UNISOLABLE direct downstream pathway to the environment exists after primary containment isolation signal.

OR

2. Intentional Primary Containment venting/purging per EOPs or SAMGs due to accident conditions.

OR

3. UNISOLABLE primary system leakage that results in **EITHER** of the following:

a. Secondary Containment area temperature > **EMG-3200.11 Max Safe** (Table 11) operating level.

OR

b. Secondary Containment area radiation level > **EMG-3200.11 Max Safe** (Table 12) operating level.

Basis:

UNISOLABLE: An open or breached system line that cannot be isolated, remotely or locally.

Failure to isolate the leak, within 15 minutes or if known that the leak cannot be isolated within 15 minutes, from the start of the leak requires immediate classification.

These thresholds address incomplete containment isolation that allows an UNISOLABLE direct release to the environment.

Loss Threshold #1 Basis

The use of the modifier "direct" in defining the release path discriminates against release paths through interfacing liquid systems or minor release pathways, such as instrument lines, not protected by the Primary Containment Isolation System (PCIS). Leakage into a closed system is to be considered only if the closed system is breached and thereby creates a significant pathway to the environment. Examples include unisolable Main Steamline, Isolation Condenser line breaks, unisolable RWCU system breaks, and unisolable containment atmosphere vent paths.

Examples of "downstream pathway to the environment" could be through the Turbine/Condenser, or direct release to the Turbine or Reactor Building.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****CT6 (cont)****Basis (cont):**

The existence of a filter is not considered in the threshold assessment. Filters do not remove fission product noble gases. In addition, a filter could become ineffective due to iodine and/or particulate loading beyond design limits (i.e., retention ability has been exceeded) or water saturation from steam/high humidity in the release stream.

Following the leakage of RCS mass into primary containment and a rise in primary containment pressure, there may be minor radiological releases associated with allowable primary containment leakage through various penetrations or system components. Minor releases may also occur if a primary containment isolation valve(s) fails to close but the primary containment atmosphere escapes to an enclosed system. These releases do not constitute a loss or potential loss of primary containment but should be evaluated using the Recognition Category R ICs.

Loss Threshold #2 Basis

EOPs may direct primary containment isolation valve logic(s) to be intentionally bypassed, even if offsite radioactivity release rate limits will be exceeded. Under these conditions with a valid primary containment isolation signal, the containment should also be considered lost if primary containment venting is actually performed.

Intentional venting of primary containment for primary containment pressure or combustible gas control to the secondary containment and/or the environment is a Loss of the Containment. Venting for primary containment pressure control when not in an accident situation (e.g., to control pressure below the Drywell high pressure scram setpoint) does not meet the threshold condition.

Loss Threshold #3 Basis

The Max Safe Operating Temperature and the Max Safe Operating Radiation Level are each the highest value of these parameters at which neither: (1) equipment necessary for the safe shutdown of the plant will fail, nor (2) personnel access necessary for the safe shutdown of the plant will be precluded. EOPs utilize these temperatures and radiation levels to establish conditions under which RPV depressurization is required.

The temperatures and radiation levels should be confirmed to be caused by RCS leakage from a primary system. A primary system is defined to be the pipes, valves, and other equipment which connect directly to the RPV such that a reduction in RPV pressure will effect a decrease in the steam or water being discharged through an unisolated break in the system.

In general, multiple indications should be used to determine if a primary system is discharging outside Primary Containment. For example, a high area radiation condition does not necessarily indicate that a primary system is discharging into the Reactor Building since this may be caused by radiation shine from nearby steam lines or the movement of radioactive materials. Conversely, a high area radiation condition in conjunction with other indications (e.g. room flooding, high area temperatures, reports of steam in the Reactor Building, an unexpected rise in Feedwater flowrate, or unexpected

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****CT6 (cont)****Basis (cont):**

Main Turbine Control Valve closure) may indicate that a primary system is discharging into the Reactor Building.

In combination with RCS Barrier RC4 Potential Loss Threshold #3 this threshold would result in a Site Area Emergency.

There is no Potential Loss threshold associated with Primary Containment Isolation Failure.

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-2
2. 2000-GLN-3200.01, Plant Specific Technical Guideline
3. EMG-3200.02, Primary Containment Control
4. Support Procedures -32, -34, -41, -44
5. 2000-GLN-3200.03, OCGS Plant Specific Technical Guidelines for Severe Accident Guidelines
6. EMG-3200.11, Secondary Containment Control

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
FISSION PRODUCT BARRIER DEGRADATION****CT7****Initiating Condition:**

Emergency Director Judgment.

Operating Mode Applicability:

1, 2

Fission Product Barrier (FPB) Threshold:**LOSS**

1. Any condition in the opinion of the Emergency Director that indicates Loss of the Containment Barrier.

POTENTIAL LOSS

2. Any condition in the opinion of the Emergency Director that indicates Potential Loss of the Containment Barrier.

Basis:**Loss Threshold #1 Basis**

This threshold addresses any other factors that are to be used by the Emergency Director in determining whether the Containment Barrier is lost.

Potential Loss Threshold #2 Basis

This threshold addresses any other factors that may be used by the Emergency Director in determining whether the Containment Barrier is potentially lost. The Emergency Director should also consider whether or not to declare the barrier potentially lost in the event that barrier status cannot be monitored.

Basis Reference(s):

1. NEI 99-01 Rev 6, Table 9-F-2

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MG1****Initiating Condition:**

Prolonged loss of all Off-site and all On-Site AC power to emergency busses.

Operating Mode Applicability:

1, 2

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

- 1 Loss of **ALL** offsite AC power to 4160V Buses 1C and 1D.

AND

2. Failure of EDG-1 and EDG-2 Emergency Diesel Generators to supply power to 4160V Buses 1C and 1D.

AND

3. **EITHER** of the following:

- a. Restoration of at least one 4160V Bus (1C or 1D) in **< 1 hour is not likely.**

OR

- b. RPV water level **cannot** be restored and maintained **> -20 inches TAF.**

Basis:

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

This IC addresses a prolonged loss of all power sources to AC emergency busses. A loss of all AC power compromises the performance of all SAFETY SYSTEMS requiring electric power including those necessary for emergency core cooling, containment heat removal/pressure control, spent fuel heat removal and the ultimate heat sink. A prolonged loss of these buses will lead to a loss of any fission product barriers. In addition, fission product barrier monitoring capabilities may be degraded under these conditions.

The EAL should require declaration of a General Emergency prior to meeting the thresholds for IC FG1. This will allow additional time for implementation of offsite protective actions.

Escalation of the emergency classification from Site Area Emergency will occur if it is projected that power cannot be restored to at least one AC emergency bus by the end of the analyzed station blackout coping period. Beyond this time, plant responses and

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MG1 (cont)****Basis (cont):**

event trajectory are subject to greater uncertainty, and there is an increased likelihood of challenges to multiple fission product barriers.

The estimate for restoring at least one emergency bus should be based on a realistic appraisal of the situation. Mitigation actions with a low probability of success should not be used as a basis for delaying a classification upgrade. The goal is to maximize the time available to prepare for, and implement, protective actions for the public.

The EAL will also require a General Emergency declaration if the loss of AC power results in parameters that indicate an inability to adequately remove decay heat from the core.

Basis Reference(s):

1. NEI 99-01 Rev 6, SG1
2. UFSAR Section 8.2, Offsite Power System
3. ABN-36, Loss of Offsite Power and Station Blackout
4. ABN-60, Grid Emergency
5. Regulatory Guide 1.155, Station Blackout
6. TDR-1099, "Station Blackout Evaluation Report"
7. 2000-BAS-3200.02, EOP User's Guide
8. 2000-GLN-3200.01, Plant Specific Technical Guideline
9. OCGS Drawing BR 3000

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MS1****Initiating Condition:**

Loss of all offsite and all onsite AC power to emergency busses for 15 minutes or longer.

Operating Mode Applicability:

1, 2

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

1. Loss of **ALL** offsite AC Power to 4160V Buses 1C and 1D.

AND

2. Failure of EDG-1 and EDG-2 Emergency Diesel Generators to supply power to 4160V Buses 1C and 1D.

AND

3. Failure to restore power to at least one 4160V Bus (1C or 1D) in **< 15 minutes** from the time of loss of both offsite and onsite AC power.

Basis:

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

This IC addresses a total loss of AC power that compromises the performance of all SAFETY SYSTEMS requiring electric power including those necessary for emergency core cooling, containment heat removal/pressure control, spent fuel heat removal and the ultimate heat sink. In addition, fission product barrier monitoring capabilities may be degraded under these conditions. This IC represents a condition that involves actual or likely major failures of plant functions needed for the protection of the public.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

Escalation of the emergency classification level would be via ICs RG1, FG1, MG1, or MG2.

Table OCGS 2-2 OCGS EAL Technical Basis

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS**

MS1 (cont)

Basis Reference(s):

1. NEI 99-01 Rev 6, SS1
2. UFSAR Section 8.2, Offsite Power System
3. OCNGS Drawing BR 3000
4. ABN-36, Loss of Off-Site Power and Station Blackout
5. ABN-60, Grid Emergency

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MA1****Initiating Condition:**

Loss of all but one AC power source to emergency buses for 15 minutes or longer.

Operating Mode Applicability:

1, 2

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

1. AC power capability to 4160V Buses 1C and 1D reduced to only one of the following power sources for **≥ 15 minutes**.

- Startup Transformer SA
- Startup Transformer SB
- EDG-1 Emergency Diesel Generator
- EDG-2 Emergency Diesel Generator

AND

2. **ANY** additional single power source failure will result in a loss of all AC power to SAFETY SYSTEMS.

Basis:

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

This IC describes a significant degradation of offsite and onsite AC power sources such that any additional single failure would result in a loss of all AC power to SAFETY SYSTEMS. In this condition, the sole AC power source may be powering one, or more than one, train of safety-related equipment. This IC provides an escalation path from IC MU1.

An "AC power source" is a source recognized in ABNs and EOPs, and capable of supplying required power to an emergency bus. Some examples of this condition are presented below.

- A loss of all offsite power with a concurrent failure of all but one emergency power source (e.g., an onsite diesel generator).

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Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MA1 (cont)****Basis (cont):**

- A loss of all offsite power and loss of all emergency power sources (e.g., onsite diesel generators) with a single train of emergency buses being back-fed from the unit main generator.
- A loss of emergency power sources (e.g., onsite diesel generators) with a single train of emergency buses being back-fed from an offsite power source.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of power.

Escalation of the emergency classification level would be via IC MS1.

Basis Reference(s):

1. NEI 99-01 Rev 6, SA1
2. UFSAR Section 8.2, Offsite Power System
2. OCGS Drawing BR 3000
3. ABN-36, Loss of Off-Site Power and Station Blackout
4. ABN-60, Grid Emergency

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MU1****Initiating Condition:**

Loss of all offsite AC power capability to emergency buses for 15 minutes or longer.

Operating Mode Applicability:

1, 2

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

Loss of **ALL** offsite AC power capability to 4160V Buses 1C and 1D for **≥15 minutes**.

Basis:

This IC addresses a prolonged loss of offsite power. The loss of offsite power sources renders the plant more vulnerable to a complete loss of power to AC emergency buses. This condition represents a potential reduction in the level of safety of the plant.

For emergency classification purposes, "capability" means that an offsite AC power source(s) is available to the emergency buses, whether or not the buses are powered from it.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of offsite power.

Escalation of the emergency classification level would be via IC MA1.

Basis Reference(s):

1. NEI 99-01 Rev 6, SU1
2. UFSAR Section 8.2, Offsite Power System
3. OCGS Drawing BR 3000
4. ABN-36, Loss of Off-Site Power
5. ABN-60, Grid Emergency

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MG2****Initiating Condition:**

Loss of all AC and Vital DC power sources for 15 minutes or longer.

Operating Mode Applicability:

1, 2

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
1. Loss of **ALL** offsite AC power to 4160V Buses 1C and 1D.
AND
 2. Failure of EDG-1 and EDG-2 Emergency Diesel Generators to supply power to 4160V Buses 1C and 1D.
AND
 3. Voltage is **< 115 VDC** on 125 VDC battery busses B and C.
AND
 4. **ALL** AC and Vital DC power sources have been lost for **≥ 15 minutes**.

Basis:

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

This IC addresses a concurrent and prolonged loss of both AC and Vital DC power. A loss of all AC power compromises the performance of all SAFETY SYSTEMS requiring electric power including those necessary for emergency core cooling, containment heat removal/pressure control, spent fuel heat removal and the ultimate heat sink. A loss of Vital DC power compromises the ability to monitor and control SAFETY SYSTEMS. A sustained loss of both AC and DC power will lead to multiple challenges to fission product barriers.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses. The 15-minute emergency declaration clock begins at the point when all EAL conditions are met.

Table OCGS 2-2 OCGS EAL Technical Basis

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS**

MG2 (cont)

Basis Reference(s):

1. NEI 99-01 Rev 6, SG8
2. UFSAR Section 8.3.2, DC Power Systems
3. UFSAR Section 8.2, Offsite Power System
4. OCGS Drawing BR 3000
5. ABN-36, Loss of Off-Site Power and Station Blackout
6. ABN-60, Grid Emergency
7. ABN-54, Loss of DC Distribution Center B
8. ABN-55, Loss of DC Distribution Center C

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MS2****Initiating Condition:**

Loss of all vital DC power for 15 minutes or longer.

Operating Mode Applicability:

1, 2

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

Voltage is **< 115 VDC** on 125 VDC battery busses B and C for **≥ 15 minutes**.

Basis:

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

This IC addresses a loss of Vital DC power which compromises the ability to monitor and control SAFETY SYSTEMS. In modes above Cold Shutdown, this condition involves a major failure of plant functions needed for the protection of the public.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

Escalation of the emergency classification level would be via ICs RG1, FG1 or MG2.

Basis Reference(s):

1. NEI 99-01 Rev 6, SS8
2. OCGS Drawing BR 3000
3. ABN-54, Loss of DC Distribution Center B
4. ABN-55, Loss of DC Distribution Center C

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MS3****Initiating Condition:**

Inability to shutdown the reactor causing a challenge to RPV Water Level or RCS heat removal.

Operating Mode Applicability:

1

Emergency Action Level (EAL):

1. Automatic scram did not shutdown the reactor as indicated by Reactor Power > 2%.

AND

2. **ALL** manual / ARI actions to shutdown the reactor have been unsuccessful as indicated by Reactor Power > 2%.

AND

3. **EITHER** of the following conditions exist:

- RPV water level cannot be restored and maintained > -20 inches TAF.

OR

- Heat Capacity Temperature Limit (EMG-3200.02 Fig. F) exceeded.

Basis:

This IC addresses a failure of the RPS to initiate or complete an automatic or manual reactor scram that results in a reactor shutdown, all subsequent operator manual actions, both inside and outside the Control Room including driving in control rods and boron injection, are unsuccessful, and continued power generation is challenging the capability to adequately remove heat from the core and/or the RCS. This condition will lead to fuel damage if additional mitigation actions are unsuccessful and thus warrants the declaration of a Site Area Emergency.

In some instances, the emergency classification resulting from this IC/EAL may be higher than that resulting from an assessment of the plant responses and symptoms against the Recognition Category F ICs/EALs. This is appropriate in that the Recognition Category F ICs/EALs do not address the additional threat posed by a failure to shutdown the reactor. The inclusion of this IC and EAL ensures the timely declaration of a Site Area Emergency in response to prolonged failure to shutdown the reactor.

A reactor shutdown is determined in accordance with applicable Emergency Operating Procedure criteria.

EAL #3 is considered to be exceeded when, as specified in the site-specific EOPs, RPV water level cannot be restored and maintained above the specified level.

Escalation of the emergency classification level would be via IC RG1 or FG1.

Table OCGS 2-2 OCGS EAL Technical Basis

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS**

MS3 (cont)

Basis Reference(s):

1. NEI 99-01 Rev 6, SS5
2. EMG-3200.01B, RPV Control – with ATWS
3. EMG-3200.02, Primary Containment Control
4. 2000-BAS-3200.02, EOP User's Guide
5. 2000-GLN-3200.01, Plant Specific Technical Guideline
6. EMG-3200.01A, RPV Control – no ATWS

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MA3****Initiating Condition:**

Automatic or manual scram fails to shutdown the reactor, and subsequent manual actions taken at the reactor control consoles are not successful in shutting down the reactor.

Operating Mode Applicability:

1

Emergency Action Level (EAL):**Note:**

- A manual action is any operator action, or set of actions, which causes the control rods to be rapidly inserted into the core, and does not include manually driving in control rods or implementation of boron injection strategies.

1. Automatic or manual scram did **not** shutdown the reactor as indicated by Reactor Power > 2%.

AND

2. Manual / ARI actions taken at the Reactor Console are **not** successful in shutting down the reactor as indicated by Reactor Power > 2%.

Basis:

This IC addresses a failure of the RPS to initiate or complete an automatic or manual reactor scram that results in a reactor shutdown, and subsequent operator manual actions taken at the reactor consoles to shutdown the reactor are also unsuccessful. This condition represents an actual or potential substantial degradation of the level of safety of the plant. An emergency declaration is required even if the reactor is subsequently shutdown by an action taken away from the reactor consoles since this event entails a significant failure of the RPS.

A manual action at the reactor consoles is any operator action, or set of actions, which causes the control rods to be rapidly inserted into the core (e.g., initiating a manual reactor scram. This action does not include manually driving in control rods or implementation of boron injection strategies. If this action(s) is unsuccessful, operators would immediately pursue additional manual actions at locations away from the reactor consoles (e.g., locally opening breakers). Actions taken at back-panels or other locations within the Control Room, or any location outside the Control Room, are not considered to be "at the reactor consoles".

Taking the Reactor Mode Switch to Shutdown is considered to be a manual scram action.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MA3 (cont)****Basis (cont):**

The plant response to the failure of an automatic or manual reactor scram will vary based upon several factors including the reactor power level prior to the event, availability of the condenser, performance of mitigation equipment and actions, other concurrent plant conditions, etc. If the failure to shutdown the reactor is prolonged enough to cause a challenge to the RPV water level or RCS heat removal safety functions, the emergency classification level will escalate to a Site Area Emergency via IC MS3. Depending upon plant responses and symptoms, escalation is also possible via IC FS1. Absent the plant conditions needed to meet either IC MS3 or FS1, an Alert declaration is appropriate for this event.

It is recognized that plant responses or symptoms may also require an Alert declaration in accordance with the Recognition Category F ICs; however, this IC and EAL are included to ensure a timely emergency declaration.

A reactor shutdown is determined in accordance with applicable Emergency Operating Procedure criteria.

Basis Reference(s):

1. NEI 99-01 Rev 6, SA5
2. EMG-3200.01A, RPV Control – no ATWS
3. EMG-3200.01B, RPV Control – with ATWS
4. 2000-BAS-3200.02, EOP User's Guide
5. 2000-GLN-3200.01, Plant Specific Technical Guideline

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MU3****Initiating Condition:**

Automatic or manual scram fails to shutdown the reactor.

Operating Mode Applicability:

1

Emergency Action Level (EAL):**Note:**

- A manual action is any operator action, or set of actions, which causes the control rods to be rapidly inserted into the core, and does not include manually driving in control rods or implementation of boron injection strategies.
1. a. Automatic scram did **not** shutdown the reactor as indicated by Reactor Power $> 2\%$.
AND
b. Subsequent manual / ARI action taken at the Reactor Console is successful in shutting down the reactor as indicated by Reactor Power $\leq 2\%$.
OR
 2. a. Manual scram did **not** shutdown the reactor as indicated by Reactor Power $> 2\%$.
AND
b. **EITHER** of the following:
 1. Subsequent manual / ARI action taken at the Reactor Console is successful in shutting down the reactor as indicated by Reactor Power $\leq 2\%$.
OR
 2. Subsequent automatic scram / ARI is successful in shutting down the reactor as indicated by Reactor Power $\leq 2\%$.

Basis:

This IC addresses a failure of the RPS to initiate or complete an automatic or manual reactor scram that results in a reactor shutdown, and either a subsequent operator manual action taken at the reactor consoles or an automatic scram is successful in shutting down the reactor. This event is a precursor to a more significant condition and thus represents a potential degradation of the level of safety of the plant.

EAL #1 Basis

Following the failure on an automatic reactor scram, operators will promptly initiate manual actions at the reactor consoles to shutdown the reactor (e.g., initiate a manual reactor scram). If these manual actions are successful in shutting down the reactor,

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MU3 (cont)****Basis (cont):**

core heat generation will quickly fall to a level within the capabilities of the plant's decay heat removal systems.

EAL #2 Basis

If an initial manual reactor trip is unsuccessful, operators will promptly take manual action at another location(s) on the reactor consoles to shutdown the reactor (e.g., initiate a manual reactor scram / ARI using a different switch). Depending upon several factors, the initial or subsequent effort to manually scram the reactor, or a concurrent plant condition, may lead to the generation of an automatic reactor scram signal. If a subsequent manual or automatic scram / ARI is successful in shutting down the reactor, core heat generation will quickly fall to a level within the capabilities of the plant's decay heat removal systems.

A manual action at the reactor consoles is any operator action, or set of actions, which causes the control rods to be rapidly inserted into the core (e.g., initiating a manual reactor scram). This action does not include manually driving in control rods or implementation of boron injection strategies. Actions taken at back-panels or other locations within the Control Room, or any location outside the Control Room, are not considered to be "at the reactor consoles".

Taking the Reactor Mode Switch to Shutdown is considered to be a manual scram action.

The plant response to the failure of an automatic or manual reactor scram will vary based upon several factors including the reactor power level prior to the event, availability of the condenser, performance of mitigation equipment and actions, other concurrent plant conditions, etc. If subsequent operator manual actions taken at the reactor consoles are also unsuccessful in shutting down the reactor, then the emergency classification level will escalate to an Alert via IC MA3. Depending upon the plant response, escalation is also possible via IC FA1. Absent the plant conditions needed to meet either IC MA3 or FA1, an Unusual Event declaration is appropriate for this event.

A reactor shutdown is determined in accordance with applicable Emergency Operating Procedure criteria.

Should a reactor scram signal be generated as a result of plant work (e.g., RPS setpoint testing), the following classification guidance should be applied.

- If the signal generated as a result of plant work causes a plant transient that creates a real condition that should have included an automatic reactor scram and the RPS fails to automatically shutdown the reactor, then this IC and the EALs are applicable, and should be evaluated.
- If the signal generated as a result of plant work does not cause a plant transient but should have generated an RPS scram signal and the scram failure is determined through other means (e.g., assessment of test results), then this IC and the EALs are not applicable and no classification is warranted.

Table OCGS 2-2 OCGS EAL Technical Basis

**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS**

MU3 (cont)

Basis Reference(s):

1. NEI 99-01 Rev 6, SU5
2. EMG-3200.01A, RPV Control – no ATWS
3. EMG-3200.01B, RPV Control – with ATWS
4. 2000-BAS-3200.02, EOP User's Guide
5. 2000-GLN-3200.01, Plant Specific Technical Guideline

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MA4****Initiating Condition:**

UNPLANNED loss of Control Room indications for 15 minutes or longer with a significant transient in progress.

Operating Mode Applicability:

1, 2

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
1. UNPLANNED event results in the inability to monitor **ANY** Table M1 parameter from within the Control Room for **≥ 15 minutes**.

Table M1 Control Room Parameters

- Reactor Power
- RPV Water Level
- RPV Pressure
- Drywell Pressure
- Torus Water Level
- Torus Water Temperature

AND

2. **ANY** Table M2 transient in progress.

Table M2 Significant Transients

- Turbine Trip
- Reactor Scram
- ECCS Actuation
- Thermal power change **> 25%**
- Thermal Power oscillations **> 10%**

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MA4 (cont)**

Basis: *NEI 99-01 Rev 6, SA2*

UNPLANNED: A parameter change or an event that is not 1) the result of an intended evolution or 2) an expected plant response to a transient. The cause of the parameter change or event may be known or unknown.

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

This IC addresses the difficulty associated with monitoring rapidly changing plant conditions during a transient without the ability to obtain SAFETY SYSTEM parameters from within the Control Room. During this condition, the margin to a potential fission product barrier challenge is reduced. It thus represents a potential substantial degradation in the level of safety of the plant.

As used in this EAL, an "inability to monitor" means that values for any of the listed parameters cannot be determined from within the Control Room. This situation would require a loss of all of the Control Room sources for the given parameter(s). For example, the reactor power level cannot be determined from any analog, computer point, digital and recorder source within the Control Room.

An event involving a loss of plant indications, annunciators and/or display systems is evaluated in accordance with 10 CFR 50.72 (and associated guidance in NUREG-1022) to determine if an NRC event report is required. The event would be reported if it significantly impaired the capability to perform emergency assessments. In particular, emergency assessments necessary to implement abnormal operating procedures, emergency operating procedures, and emergency plan implementing procedures addressing emergency classification, accident assessment, or protective action decision-making.

This EAL is focused on a selected subset of plant parameters associated with the key safety functions of reactivity control, RPV water level and RCS heat removal. The loss of the ability to determine any of these parameters from within the Control Room is considered to be more significant than simply a reportable condition. In addition, if all indication sources for any of the listed parameters are lost, then the ability to determine the values of other SAFETY SYSTEM parameters may be impacted as well. For example, if the value for RPV water level cannot be determined from the indications and recorders on a main control board, the SPDS or the plant computer, the availability of other parameter values may be compromised as well.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of indication.

Escalation of the emergency classification level would be via ICs FS1 or IC RS1.

Basis Reference(s): *NEI 99-01 Rev 6, SA2*

1. NEI 99-01 Rev 6, SA2

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MU4****Initiating Condition:**

UNPLANNED loss of Control Room indications for 15 minutes or longer.

Operating Mode Applicability:

1, 2

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

UNPLANNED event results in the inability to monitor **ANY** Table M1 parameters from within the Control Room for **≥ 15 minutes**.

| Table M1 Control Room Parameters |
|---|
| <ul style="list-style-type: none">• Reactor Power• RPV Water Level• RPV Pressure• Drywell Pressure• Torus Water Level• Torus Water Temperature |

Basis:

UNPLANNED: A parameter change or an event that is not 1) the result of an intended evolution or 2) an expected plant response to a transient. The cause of the parameter change or event may be known or unknown.

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

This IC addresses the difficulty associated with monitoring normal plant conditions without the ability to obtain SAFETY SYSTEM parameters from within the Control Room. This condition is a precursor to a more significant event and represents a potential degradation in the level of safety of the plant.

As used in this EAL, an "inability to monitor" means that values for any of the listed parameters cannot be determined from within the Control Room. This situation would require a loss of all of the Control Room sources for the given parameter(s). For example, the reactor power level cannot be determined from any analog, digital and recorder source within the Control Room.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MU4 (cont)****Basis (cont):**

An event involving a loss of plant indications, annunciators and/or display systems is evaluated in accordance with 10 CFR 50.72 (and associated guidance in NUREG-1022) to determine if an NRC event report is required. The event would be reported if it significantly impaired the capability to perform emergency assessments. In particular, emergency assessments necessary to implement abnormal operating procedures, emergency operating procedures, and emergency plan implementing procedures addressing emergency classification, accident assessment, or protective action decision-making.

This EAL is focused on a selected subset of plant parameters associated with the key safety functions of reactivity control, core cooling and RCS heat removal. The loss of the ability to determine any of these parameters from within the Control Room is considered to be more significant than simply a reportable condition. In addition, if all indication sources for any of the listed parameters are lost, then the ability to determine the values of other SAFETY SYSTEM parameters may be impacted as well. For example, if the value for reactor vessel level cannot be determined from the indications and recorders on a main control board, the SPDS or the plant computer, the availability of other parameter values may be compromised as well.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of indication.

Escalation of the emergency classification level would be via IC MA4.

Basis Reference(s):

1. NEI 99-01 Rev 6, SU2

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MA5****Initiating Condition:**

Hazardous event affecting a SAFETY SYSTEM required for the current operating mode.

Operating Mode Applicability:

1, 2

Emergency Action Level (EAL):**Note:**

- If it is determined that the conditions of MA5 are not met then assess the event via HU3, HU4, or HU6.

1. The occurrence of **ANY** of the following hazardous events:

- Seismic event (earthquake)
- Internal or external flooding event
- High winds or tornado strike
- FIRE
- EXPLOSION
- Other events with similar hazard characteristics as determined by the Shift Manager

AND

2. **EITHER** of the following:

- a. Event damage has caused indications of degraded performance in at least one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode.

OR

- b. The event has caused **VISIBLE DAMAGE** to a SAFETY SYSTEM component or structure required by Technical Specifications for the current operating mode.

Basis:

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute FIRES. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

EXPLOSION: A rapid, violent and catastrophic failure of a piece of equipment due to combustion, chemical reaction or overpressurization. A release of steam (from high energy lines or components) or an electrical component failure (caused by short circuits, grounding, arcing, etc.) should not automatically be considered an explosion. Such events may require a post-event inspection to determine if the attributes of an explosion are present.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MA5 (cont)****Basis (cont):**

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

VISIBLE DAMAGE: Damage to a component or structure that is readily observable without measurements, testing, or analysis. The visual impact of the damage is sufficient to cause concern regarding the operability or reliability of the affected component or structure.

This IC addresses a hazardous event that causes damage to a SAFETY SYSTEM, or a structure containing SAFETY SYSTEM components, required for the current operating mode, "required", i.e. required to be operable by Technical Specifications for the current operating mode. This condition significantly reduces the margin to a loss or potential loss of a fission product barrier, and therefore represents an actual or potential substantial degradation of the level of safety of the plant. Manual or automatic electrical isolation of safety equipment due to flooding, in and of itself, does not constitute degraded performance and is classified under HU6.

EAL #2.a addresses damage to a SAFETY SYSTEM train that is required to be operable by Technical Specifications for the current operating mode, and is in operation since indications for it will be readily available. The indications of degraded performance should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

EAL #2.b addresses damage to a SAFETY SYSTEM component that is required to be operable by Technical Specifications for the current operating mode, and is not in operation or readily apparent through indications alone, as well as damage to a structure containing SAFETY SYSTEM components. Operators will make this determination based on the totality of available event and damage report information. This is intended to be a brief assessment not requiring lengthy analysis or quantification of the damage.

Escalation of the emergency classification level would be via IC FS1 or RS1.

If the EAL conditions of MA5 are not met then assess the event via HU3, HU4, or HU6.

Basis Reference(s):

1. NEI 99-01, Rev 6 SA9
2. ABN-38, Station Seismic Event
3. ABN-29, Plant Fires
4. ABN-31, High Winds
5. ABN-32, Abnormal Intake Level

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MU6****Initiating Condition:**

RCS leakage for 15 minutes or longer.

Operating Mode Applicability:

1, 2

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

1. RCS unidentified or pressure boundary leakage in the Drywell > 10 gpm for ≥ 15 minutes.

OR

2. RCS identified leakage in the Drywell >25 gpm for ≥ 15 minutes.

OR

3. Leakage from the RCS to a location outside the Drywell >25 gpm for ≥ 15 minutes.

Basis:

UNISOLABLE: An open or breached system line that cannot be isolated, remotely or locally.

Failure to isolate the leak, within 15 minutes or if known that the leak cannot be isolated within 15 minutes, from the start of the leak requires immediate classification.

This IC addresses RCS leakage which may be a precursor to a more significant event. In this case, RCS leakage has been detected and operators, following applicable procedures, have been unable to promptly isolate the leak. This condition is considered to be a potential degradation of the level of safety of the plant.

EAL #1 and EAL #2 Basis

These EALs are focused on a loss of mass from the RCS due to "unidentified leakage", "pressure boundary leakage" or "identified leakage" (as these leakage types are defined in the plant Technical Specifications).

EAL #3 Basis

This EAL addresses a RCS mass loss caused by an UNISOLABLE leak through an interfacing system.

These EALs thus apply to leakage into the containment, a secondary-side system or a location outside of containment.

The leak rate values for each EAL were selected because they are usually observable with normal Control Room indications. Lesser values typically require time-consuming

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MU6 (cont)****Basis (cont):**

calculations to determine (e.g., a mass balance calculation). EAL #1 uses a lower value that reflects the greater significance of unidentified or pressure boundary leakage.

The release of mass from the RCS due to the as-designed/expected operation of any relief valve does not warrant an emergency classification.

A stuck-open Electromatic Relief Valve (EMRV) or EMRV leakage is not considered either identified or unidentified leakage by Technical Specification and, therefore, is not applicable to this EAL.

The 15-minute threshold duration allows sufficient time for prompt operator actions to isolate the leakage, if possible.

Escalation of the emergency classification level would be via ICs of Recognition Category R or F.

Basis Reference(s):

1. NEI 99-01 Rev 6, SU4
2. Technical Specifications 3.3.D, Reactor Coolant System Leakage

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MU7****Initiating Condition:**

Loss of all On-site or Off-site communications capabilities.

Operating Mode Applicability:

1, 2

Emergency Action Level (EAL):

1. Loss of all Table M3 **Onsite** communications capability affecting the ability to perform routine operations.

OR

2. Loss of all Table M3 **Offsite** communication capability affecting the ability to perform offsite notifications.

OR

3. Loss of all Table M3 **NRC** communication capability affecting the ability to perform NRC notifications.

| Table M3 Communications Capability | | | |
|---|---------------|----------------|------------|
| System | Onsite | Offsite | NRC |
| Plant Paging System | X | | |
| Station Radio | X | | |
| Conventional Telephone lines | X | X | X |
| Satellite Phone system | | X | X |
| NARS | | X | |
| HPN | | X | X |
| ENS | | X | X |

Basis:

This IC addresses a significant loss of on-site, offsite, or NRC communications capabilities. While not a direct challenge to plant or personnel safety, this event warrants prompt notifications to Offsite Response Organizations (OROs) and the NRC.

This IC should be assessed only when extraordinary means are being utilized to make communications possible (e.g., use of non-plant, privately owned equipment, relaying of on-site information via individuals or multiple radio transmission points, individuals being sent to offsite locations, etc.).

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
SYSTEM MALFUNCTIONS****MU7 (cont)****Basis (cont):****EAL #1 Basis**

Addresses a total loss of the communications methods used in support of routine plant operations.

EAL #2 Basis

Addresses a total loss of the communications methods used to notify all OROs of an emergency declaration. The OROs referred to here are listed in procedure EP-MA-114-100-F-03, State/Local Notification Form.

EAL #3 Basis

Addresses a total loss of the communications methods used to notify the NRC of an emergency declaration.

Basis Reference(s):

1. NEI 99-01 Rev 6, SU6
2. UFSAR Section 9.5.2, Communication Systems
3. EP-AA-124-1001, Facilities Inventories and Equipment Tests

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CA1****Initiating Condition:**

Loss of all offsite and all onsite AC power to emergency busses for 15 minutes or longer.

Operating Mode Applicability:

3, 4, D

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
1. Loss of all offsite AC power to 4160V Buses 1C and 1D.
AND
 2. Failure of EDG-1 and EDG-2 Emergency Diesel Generators to supply power to 4160V Buses 1C and 1D.
AND
 3. Failure to restore power to at least one 4160V bus (1C or 1D) in **< 15 minutes** from the time of loss of both offsite and onsite AC power.

Basis:

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related

This IC addresses a total loss of AC power that compromises the performance of all SAFETY SYSTEMS requiring electric power including those necessary for emergency core cooling, containment heat removal/pressure control, spent fuel heat removal and the ultimate heat sink.

When in the cold shutdown, refueling, or defueled mode, this condition is not classified as a Site Area Emergency because of the increased time available to restore an emergency bus to service. Additional time is available due to the reduced core decay heat load, and the lower temperatures and pressures in various plant systems. Thus, when in these modes, this condition represents an actual or potential substantial degradation of the level of safety of the plant.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

Escalation of the emergency classification level would be via IC CS6 or RS1.

Table OCGS 2-2 OCGS EAL Technical Basis

**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS**

CA1 (cont)

Basis Reference(s):

1. NEI 99-01 Rev 6, CA2
2. ABN-36, Loss of Off-Site Power and Station Blackout
3. ABN-60, Grid Emergency
4. OCGS Drawing BR 3000
5. UFSAR Section 8.2, Offsite Power System

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CU1****Initiating Condition:**

Loss of all but one AC power source to emergency buses for 15 minutes or longer.

Operating Mode Applicability:

3, 4, D

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
- 1. AC power capability to 4160V Buses 1C and 1D reduced to only one of the following power sources for **≥ 15 minutes**.
 - Startup Transformer SA
 - Startup Transformer SB
 - EDG-1 Emergency Diesel Generator
 - EDG-2 Emergency Diesel Generator

AND

2. **ANY** additional single power source failure will result in a loss of all AC power to SAFETY SYSTEMS.

Basis:

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

This IC describes a significant degradation of offsite and onsite AC power sources such that any additional single failure would result in a loss of all AC power to SAFETY SYSTEMS. In this condition, the sole AC power source may be powering one, or more than one, train of safety-related equipment.

When in the cold shutdown, refueling, or defueled mode, this condition is not classified as an Alert because of the increased time available to restore another power source to service. Additional time is available due to the reduced core decay heat load, and the lower temperatures and pressures in various plant systems. Thus, when in these modes, this condition is considered to be a potential degradation of the level of safety of the plant.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CU1 (cont)****Initiating Condition:**

An "AC power source" is a source recognized in ABNs and EOPs, and capable of supplying required power to an emergency bus. Some examples of this condition are presented below.

- A loss of all offsite power with a concurrent failure of all but one emergency power source (e.g., an onsite diesel generator).
- A loss of all offsite power and loss of all emergency power sources (e.g., onsite diesel generators) with a single train of emergency buses being back-fed from the unit main generator.
- A loss of emergency power sources (e.g., onsite diesel generators) with a single train of emergency buses being back-fed from an offsite power source.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of power.

The subsequent loss of the remaining single power source would escalate the event to an Alert in accordance with IC CA1.

Basis Reference(s):

1. NEI 99-01 Rev 6 CU2
2. ABN-36, Loss of Off-Site Power and Station Blackout
3. ABN-60, Grid Emergency
4. OCGS Drawing BR 3000
5. UFSAR Section 8.2, Offsite Power System

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CA2****Initiating Condition:**

Hazardous event affecting SAFETY SYSTEM required for the current operating mode.

Operating Mode Applicability:

3, 4

Emergency Action Level (EAL):**Note:**

- If it is determined that the conditions of CA2 are not met then assess the event via HU3, HU4, or HU6.
1. The occurrence of **ANY** of the following hazardous events:
 - Seismic event (earthquake)
 - Internal or external flooding event
 - High winds or tornado strike
 - FIRE
 - EXPLOSION
 - Other events with similar hazard characteristics as determined by the Shift Manager
- AND**
2. **EITHER** of the following:
 - a. Event damage has caused indications of degraded performance in at least one train of a SAFETY SYSTEM required by Technical Specifications for the current operating mode.
- OR**
- b. The event has caused **VISIBLE DAMAGE** to a SAFETY SYSTEM component or structure required by Technical Specifications for the current operating mode.

Basis:

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute FIRES. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

EXPLOSION: A rapid, violent and catastrophic failure of a piece of equipment due to combustion, chemical reaction or overpressurization. A release of steam (from high energy lines or components) or an electrical component failure (caused by short circuits, grounding, arcing, etc.) should not automatically be considered an explosion. Such events may require a post-event inspection to determine if the attributes of an explosion are present.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CA2 (cont)****Basis (cont):**

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

VISIBLE DAMAGE: Damage to a component or structure that is readily observable without measurements, testing, or analysis. The visual impact of the damage is sufficient to cause concern regarding the operability or reliability of the affected component or structure.

This IC addresses a hazardous event that causes damage to a SAFETY SYSTEM, or a structure containing SAFETY SYSTEM components, required for the current operating mode, "required", i.e. required to be operable by Technical Specifications for the current operating mode. This condition significantly reduces the margin to a loss or potential loss of a fission product barrier, and therefore represents an actual or potential substantial degradation of the level of safety of the plant. Manual or automatic electrical isolation of safety equipment due to flooding, in and of itself, does not constitute degraded performance and is classified under HU6.

EAL #2.a addresses damage to a SAFETY SYSTEM train that is required to be operable by Technical Specifications for the current operating mode, and is in operation since indications for it will be readily available. The indications of degraded performance should be significant enough to cause concern regarding the operability or reliability of the SAFETY SYSTEM train.

EAL #2.b addresses damage to a SAFETY SYSTEM component that is required to be operable by Technical Specifications for the current operating mode, and is not in operation or readily apparent through indications alone, or to a structure containing SAFETY SYSTEM components. Operators will make this determination based on the totality of available event and damage report information. This is intended to be a brief assessment not requiring lengthy analysis or quantification of the damage.

Escalation of the emergency classification level would be via IC CS6 or RS1.

If the EAL conditions of CA2 are not met then assess the event via HU3, HU4, or HU6.

Basis Reference(s):

1. NEI 99-01 Rev 6, CA6
2. ABN-38, Station Seismic Event
3. FSAR Update Section 3.7 (Seismic)
4. FSAR Update Section 3.3.1 (High winds)
5. ABN-31, High Winds
6. ABN-32, Abnormal Intake Level
7. ABN-29, Plant Fires

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CU3****Initiating Condition:**

Loss of Vital DC power for 15 minutes or longer.

Operating Mode Applicability:

3, 4

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

Voltage is **< 115 VDC** on required 125 VDC battery busses B and C for **≥ 15 minutes**.

Basis:

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

This IC addresses a loss of Vital DC power which compromises the ability to monitor and control operable SAFETY SYSTEMS when the plant is in the cold shutdown or refueling mode. In these modes, the core decay heat load has been significantly reduced, and coolant system temperatures and pressures are lower; these conditions increase the time available to restore a vital DC bus to service. Thus, this condition is considered to be a potential degradation of the level of safety of the plant.

As used in this EAL, "required" means the Vital DC buses necessary to support operation of the in-service, or operable, train or trains of SAFETY SYSTEM equipment. For example, if Train A is out-of-service (inoperable) for scheduled outage maintenance work and Train B is in-service (operable), then a loss of Vital DC power affecting Train B would require the declaration of an Unusual Event. A loss of Vital DC power to Train A would not warrant an emergency classification.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

Depending upon the event, escalation of the emergency classification level would be via IC CA6 or CA5, or an IC in Recognition Category R.

Basis Reference(s):

1. NEI 99-01 Rev 6, CU4
2. UFSAR Section 8.3.2, DC Power Systems
3. OCGS Drawing BR 3000
4. ABN-54, DC Bus B and Panel/MCC Failures
5. ABN-55, DC Bus C and Panel/MCC Failures

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CU4****Initiating Condition:**

Loss of all onsite or offsite communications capabilities.

Operating Mode Applicability:

3, 4, D

Emergency Action Level (EAL):

1. Loss of all Table C1 **Onsite** communications capability affecting the ability to perform routine operations.

OR

2. Loss of all Table C1 **Offsite** communication capability affecting the ability to perform offsite notifications.

OR

3. Loss of all Table C1 **NRC** communication capability affecting the ability to perform NRC notifications.

| Table C1 – Communications Capability | | | |
|---|---------------|----------------|------------|
| System | Onsite | Offsite | NRC |
| Plant Paging System | X | | |
| Station Radio | X | | |
| Conventional Telephone lines | X | X | X |
| Satellite Phone System | | X | X |
| NARS | | X | |
| HPN | | X | X |
| ENS | | X | X |

Basis:

This IC addresses a significant loss of on-site, offsite, or NRC communications capabilities. While not a direct challenge to plant or personnel safety, this event warrants prompt notifications to Offsite Response Organizations (OROs) and the NRC.

This IC should be assessed only when extraordinary means are being utilized to make communications possible (e.g., use of non-plant, privately owned equipment, relaying of on-site information via individuals or multiple radio transmission points, individuals being sent to offsite locations, etc.).

EAL #1 Basis

Addresses a total loss of the communications methods used in support of routine plant operations.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CU4 (cont)****Basis (cont):****EAL #2 Basis**

Addresses a total loss of the communications methods used to notify all OROs of an emergency declaration. The OROs referred to here are listed in procedure EP-MA-114-100-F-03, State/Local Notification Form.

EAL #3 Basis

Addresses a total loss of the communications methods used to notify the NRC of an emergency declaration.

Basis Reference(s):

1. NEI 99-01 Rev 6, CU5
2. UFSAR Section 9.5.2, Communication Systems
3. EP-AA-124-1001, Facilities Inventories and Equipment Tests

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CA5****Initiating Condition:**

Inability to maintain the plant in cold shutdown.

Operating Mode Applicability:

3, 4

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
- A momentary UNPLANNED excursion above the Technical Specification cold shutdown temperature limit when heat removal function is available does not warrant classification.

1. UNPLANNED rise in RCS temperature > 212°F for > Table C2 duration.

| Table C2 RCS Heat-up Duration Thresholds | | |
|--|-----------------------------------|-------------------------|
| RCS Status | Containment Closure Status | Heat-up Duration |
| Intact | Not Applicable | 60 minutes* |
| Not Intact | Established | 20 minutes* |
| | Not Established | 0 minutes |
| * If an RCS heat removal system is in operation within this time frame and RCS temperature is being reduced, then EAL #1 is <u>not</u> applicable. | | |

OR

2. UNPLANNED RPV pressure rise > 10 psig as a result of temperature rise.

Basis:

UNPLANNED: A parameter change or an event that is not 1) the result of an intended evolution or 2) an expected plant response to a transient. The cause of the parameter change or event may be known or unknown.

CONTAINMENT CLOSURE: The procedurally defined conditions or actions taken to secure containment (primary or secondary) and its associated structures, systems, and components as a functional barrier to fission product release under shutdown conditions.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CA5 (cont)****Basis (cont):**

RCS is intact when the RCS pressure boundary is in its normal condition for the Cold Shutdown mode of operation (e.g. no freeze seals, or steam line nozzle plugs, etc.).

This IC addresses conditions involving a loss of decay heat removal capability or an addition of heat to the RCS in excess of that which can currently be removed. Either condition represents an actual or potential substantial degradation of the level of safety of the plant.

A momentary UNPLANNED excursion above the Technical Specification cold shutdown temperature limit when the heat removal function is available does not warrant a classification.

The RCS Heat-up Duration Thresholds table addresses a rise in RCS temperature when CONTAINMENT CLOSURE is established but the RCS is not intact. The 20-minute criterion was included to allow time for operator action to address the temperature rise.

The RCS Heat-up Duration Thresholds table also addresses a rise in RCS temperature with the RCS intact. The status of CONTAINMENT CLOSURE is not crucial in this condition since the intact RCS is providing a high pressure barrier to a fission product release. The 60-minute time frame should allow sufficient time to address the temperature rise without a substantial degradation in plant safety.

Finally, in the case where there is a rise in RCS temperature, the RCS is not intact, and CONTAINMENT CLOSURE is not established, no heat-up duration is allowed (i.e., 0 minutes). This is because 1) the evaporated reactor coolant may be released directly into the Containment atmosphere and subsequently to the environment, and 2) there is reduced reactor coolant inventory above the top of irradiated fuel.

EAL #2 provides a pressure-based indication of RCS heat-up.

Escalation of the emergency classification level would be via IC CS6 or RS1.

Basis Reference(s):

1. NEI 99-01 Rev 6, CA3
2. Technical Specifications 1.7
3. OU-AA-103, Shutdown Safety Management Program

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CU5****Initiating Condition:**

UNPLANNED rise in RCS temperature

Operating Mode Applicability:

3, 4

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
- A momentary UNPLANNED excursion above the Technical Specification cold shutdown temperature limit when heat removal function is available does not warrant classification.

1. UNPLANNED rise in RCS temperature $> 212^{\circ}\text{F}$.**OR**2. Loss of the following for ≥ 15 minutes.

- **ALL** RCS temperature indications

AND

- **ALL** RPV water level indications

Basis:

UNPLANNED: A parameter change or an event that is not 1) the result of an intended evolution or 2) an expected plant response to a transient. The cause of the parameter change or event may be known or unknown.

CONTAINMENT CLOSURE: The procedurally defined conditions or actions taken to secure containment (primary or secondary) and its associated structures, systems, and components as a functional barrier to fission product release under shutdown conditions.

This IC addresses an UNPLANNED rise in RCS temperature above the Technical Specification cold shutdown temperature limit, or the inability to determine RCS temperature and level, represents a potential degradation of the level of safety of the plant. If the RCS is not intact and CONTAINMENT CLOSURE is not established during this event, the Emergency Director should also refer to IC CA5.

RCS is intact when the RCS pressure boundary is in its normal condition for the Cold Shutdown mode of operation (e.g. no freeze seals, or steam line nozzle plugs, etc.).

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CU5 (cont)****Basis (cont):**

A momentary UNPLANNED excursion above the Technical Specification cold shutdown temperature limit when the heat removal function is available does not warrant a classification.

EAL #1 involves a loss of decay heat removal capability, or an addition of heat to the RCS in excess of that which can currently be removed, such that reactor coolant temperature cannot be maintained below the cold shutdown temperature limit specified in Technical Specifications. During this condition, there is no immediate threat of fuel damage because the core decay heat load has been reduced since the cessation of power operation.

During an outage, the level in the reactor vessel will normally be maintained above the reactor vessel flange. Refueling evolutions that lower water level below the reactor vessel flange are carefully planned and controlled. A loss of forced decay heat removal at reduced inventory may result in a rapid rise in reactor coolant temperature depending on the time after shutdown.

EAL #2 reflects a condition where there has been a significant loss of instrumentation capability necessary to monitor RCS conditions and operators would be unable to monitor key parameters necessary to assure core decay heat removal. During this condition, there is no immediate threat of fuel damage because the core decay heat load has been reduced since the cessation of power operation.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of indication.

Escalation to Alert would be via IC CA6 based on an inventory loss or IC CA5 based on exceeding plant configuration-specific time criteria.

Basis Reference(s):

1. NEI 99-01 Rev 6, CU3
2. Technical Specifications 1.7
3. 2000-GLN-3200.01, Plant Specific Technical Guideline
4. 205.94.0, RPV Floodup Using Core Spray
5. 205.95.0, Reactor Flood-up / Drain-down

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CG6****Initiating Condition:**

Loss of RPV inventory affecting fuel clad integrity with containment challenged.

Operating Mode Applicability:

3, 4

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

1. a. RPV water level **< 0 inches TAF** for **≥ 30 minutes**.

AND

- b. Any Containment Challenge Indication (Table C4)

OR

2. a. RPV water level **cannot** be monitored for **≥ 30 minutes**.

AND

- b. Core uncover is indicated by **ANY** of the following:

- Table C3 indications of a sufficient magnitude to indicate core uncover.

OR

- Refuel Floor Area Radiation Monitor C-10, North Wall, reading **>3 R/hr.**

AND

- c. **ANY** Containment Challenge Indication (Table C4)

Table C3 Indications of RCS Leakage

- UNPLANNED floor or equipment sump level rise*
- UNPLANNED Torus level rise*
- UNPLANNED vessel make up rate rise*
- Observation of leakage or inventory loss

*Rise in level is attributed to a loss of RPV inventory.

Table OCGS 2-2 OCGS EAL Technical Basis

RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS

CG6 (cont)**Emergency Action Level (EAL) (cont):****Table C4 Containment Challenge Indications**

- Primary Containment Hydrogen Concentration $\geq 6\%$ and Oxygen Concentration $\geq 5\%$
- UNPLANNED rise in containment pressure
- CONTAINMENT CLOSURE not established*
- Any Secondary Containment radiation monitor $> \text{EMG-3200.11 Maximum Safe}$ (Table 12).

* if CONTAINMENT CLOSURE is re-established prior to exceeding the 30-minute core uncover time limit, then escalation to a General Emergency is not required.

Basis:

UNPLANNED: A parameter change or an event that is not 1) the result of an intended evolution or 2) an expected plant response to a transient. The cause of the parameter change or event may be known or unknown.

IMMINENT: The trajectory of events or conditions is such that an EAL will be met within a relatively short period of time regardless of mitigation or corrective actions.

CONTAINMENT CLOSURE: The procedurally defined conditions or actions taken to secure containment (primary or secondary for BWR) and its associated structures, systems, and components as a functional barrier to fission product release under shutdown conditions.

This IC addresses the inability to restore and maintain reactor vessel level above the top of active fuel with containment challenged. This condition represents actual or IMMINENT substantial core degradation or melting with potential for loss of containment integrity. Releases can be reasonably expected to exceed EPA Protective Action Guidelines (PAG) exposure levels offsite for more than the immediate site area.

Following an extended loss of core decay heat removal and inventory makeup, decay heat will cause reactor coolant boiling and a further reduction in reactor vessel level. If RCS/reactor vessel level cannot be restored, fuel damage is probable.

With CONTAINMENT CLOSURE not established, there is a high potential for a direct and unmonitored release of radioactivity to the environment. If CONTAINMENT CLOSURE is re-established prior to exceeding the 30-minute time limit, then declaration of a General Emergency is not required.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CG6 (cont)****Basis (cont):**

UNPLANNED: A parameter change or an event that is not 1) the result of an intended evolution or 2) an expected plant response to a transient. The cause of the parameter change or event may be known or unknown.

The existence of an explosive mixture means, at a minimum, that the containment atmospheric hydrogen concentration is sufficient to support a hydrogen burn (i.e., at the lower deflagration limit). A hydrogen burn will raise containment pressure and could result in collateral equipment damage leading to a loss of containment integrity. It therefore represents a challenge to Containment integrity.

In the early stages of a core uncover event, it is unlikely that hydrogen buildup due to a core uncover could result in an explosive gas mixture in containment. If all installed hydrogen gas monitors are out-of-service during an event leading to fuel cladding damage, it may not be possible to obtain a containment hydrogen gas concentration reading as ambient conditions within the containment will preclude personnel access. During periods when installed containment hydrogen gas monitors are out-of-service, operators may use the other listed indications to assess whether or not containment is challenged.

EAL #1 Basis

The 30-minute criterion is tied to a readily recognizable event start time (i.e., the total loss of ability to monitor level), and allows sufficient time to monitor, assess and correlate reactor and plant conditions to determine if core uncover has actually occurred (i.e., to account for various accident progression and instrumentation uncertainties). It also allows sufficient time for performance of actions to terminate leakage, recover inventory control/makeup equipment and/or restore level monitoring.

The inability to monitor RPV water level may be caused by instrumentation and/or power failures, or water level dropping below the range of available instrumentation. If water level cannot be monitored, operators may determine that an inventory loss is occurring by observing changes in sump and/or Torus levels. Sump and/or Torus level changes must be evaluated against other potential sources of water flow to ensure they are indicative of leakage from the RPV.

These EALs address concerns raised by Generic Letter 88-17, *Loss of Decay Heat Removal*; SECY 91-283, *Evaluation of Shutdown and Low Power Risk Issues*; NUREG-1449, *Shutdown and Low-Power Operation at Commercial Nuclear Power Plants in the United States*; and NUMARC 91-06, *Guidelines for Industry Actions to Assess Shutdown Management*.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CG6 (cont)****Basis Reference(s):**

1. NEI 99-01 Rev 6, CG1
2. EMG-3200.01A, RPV Control – No ATWS
3. Technical Specifications 5.2 Basis
4. 2000-GLN-3200.03, Plant Specific Technical Guidelines for Severe Accident5Guidelines
5. EMG-3200.11, Secondary Containment Control
6. FSAR Update 6.2.1.1.3
7. EMG-3200.02, Primary Containment Control
8. EP-AEL-0501, Estimation of Radiation Monitor Readings Indicating Core Uncovery

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CS6****Initiating Condition:**

Loss of RPV inventory affecting core decay heat removal capability.

Operating Mode Applicability:

3, 4

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
1. With CONTAINMENT CLOSURE not established, RPV water level < **56 inches TAF**.
OR
 2. With CONTAINMENT CLOSURE established, RPV water level < **0 inches TAF**.
OR
 3. a. RPV water level cannot be monitored for **≥ 30 minutes**
AND
b. Core uncover is indicated by **ANY** of the following:
 - Table C3 indications of a sufficient magnitude to indicate core uncover.**OR**
 - Refuel Floor Area Radiation Monitor C-10, North Wall, reading **>3 R/hr**.

Table C3 Indications of RCS Leakage

- | |
|--|
| <ul style="list-style-type: none">• UNPLANNED floor or equipment sump level rise*• UNPLANNED Torus level rise*• UNPLANNED vessel make up rate rise*• Observation of leakage or inventory loss |
| *Rise in level is attributed to a loss of RPV inventory. |

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CS6 (cont)****Basis:**

UNPLANNED: A parameter change or an event that is not 1) the result of an intended evolution or 2) an expected plant response to a transient. The cause of the parameter change or event may be known or unknown.

CONTAINMENT CLOSURE: The procedurally defined conditions or actions taken to secure containment (primary or secondary for BWR) and its associated structures, systems, and components as a functional barrier to fission product release under shutdown conditions.

The lost inventory may be due to a RCS component failure, a loss of configuration control or prolonged boiling of reactor coolant. These conditions entail major failures of plant functions needed for protection of the public and thus warrant a Site Area Emergency declaration.

Following an extended loss of core decay heat removal and inventory makeup, decay heat will cause reactor coolant boiling and a further reduction in reactor vessel level. If RCS/reactor vessel level cannot be restored, fuel damage is probable. Outage/shutdown contingency plans typically provide for re-establishing or verifying CONTAINMENT CLOSURE following a loss of heat removal or RCS inventory control functions. The difference in the specified RCS/reactor vessel levels of EALs #1 and #2 reflect the fact that with CONTAINMENT CLOSURE established, there is a lower probability of a fission product release to the environment.

In EAL #3.a the 30-minute criterion is tied to a readily recognizable event start time (i.e., the total loss of ability to monitor level), and allows sufficient time to monitor, assess and correlate reactor and plant conditions to determine if core uncover has actually occurred (i.e., to account for various accident progression and instrumentation uncertainties). It also allows sufficient time for performance of actions to terminate leakage, recover inventory control/makeup equipment and/or restore level monitoring.

The inability to monitor RPV water level may be caused by instrumentation and/or power failures, or water level dropping below the range of available instrumentation. If water level cannot be monitored, operators may determine that an inventory loss is occurring by observing changes in sump and/or Torus levels. Sump and/or Torus level changes must be evaluated against other potential sources of water flow to ensure they are indicative of leakage from the RPV.

These EALs address concerns raised by Generic Letter 88-17, *Loss of Decay Heat Removal*; SECY 91-283, *Evaluation of Shutdown and Low Power Risk Issues*; NUREG-1449, *Shutdown and Low-Power Operation at Commercial Nuclear Power Plants in the United States*; and NUMARC 91-06, *Guidelines for Industry Actions to Assess Shutdown Management*.

Escalation of the emergency classification level would be via IC CG6 or RG1.

Table OCGS 2-2 OCGS EAL Technical Basis

**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS**

CS6 (cont)

Basis Reference(s):

1. NEI 99-01 Rev 6, CS1
2. Technical Specification Table 3.1.1
3. EMG-3200.01A, RPV Control – No ATWS
4. 2000-GLN-3200.03, Plant Specific Technical Guidelines for EOPs
5. EP-EAL-0501, Estimation of Radiation Monitor Readings Indicating Core Uncovery

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CA6****Initiating Condition:**

Loss of RPV inventory.

Operating Mode Applicability:

3, 4

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
1. Loss of RPV inventory as indicated by level **< 86 inches TAF.**
OR
 2. a. RPV water level **cannot** be monitored for **≥ 15 minutes.**
AND
b. Loss of RPV inventory per Table C3 indications.

| Table C3 Indications of RCS Leakage |
|---|
| <ul style="list-style-type: none"> • UNPLANNED floor or equipment sump level rise* • UNPLANNED Torus level rise* • UNPLANNED vessel make up rate rise* • Observation of leakage or inventory loss |
| *Rise in level is attributed to a loss of RPV inventory. |

Basis:

UNPLANNED: A parameter change or an event that is not 1) the result of an intended evolution or 2) an expected plant response to a transient. The cause of the parameter change or event may be known or unknown.

This IC addresses conditions that are precursors to a loss of the ability to adequately cool irradiated fuel (i.e., a precursor to a challenge to the fuel clad barrier). This condition represents a potential substantial reduction in the level of plant safety.

EAL #1 Basis

A lowering of water level below 86 inches indicates that operator actions have not been successful in restoring and maintaining RPV water level. The heat-up rate of the coolant will rise as the available water inventory is reduced. A continuing drop in water level will lead to core uncover.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CA6 (cont)****Basis (cont):**

Although related, EAL #1 is concerned with the loss of RCS inventory and not the potential concurrent effects on systems needed for decay heat removal (e.g., loss of a Residual Heat Removal suction point). A rise in RCS temperature caused by a loss of decay heat removal capability is evaluated under IC CA5.

EAL #2 Basis

The inability to monitor RPV water level may be caused by instrumentation and/or power failures, or water level dropping below the range of available instrumentation. If water level cannot be monitored, operators may determine that an inventory loss is occurring by observing changes in sump and/or Torus levels. Sump and/or Torus level changes must be evaluated against other potential sources of water flow to ensure they are indicative of leakage from the RPV.

The 15-minute duration for the loss of level indication was chosen because it is half of the EAL duration specified in IC CS6

If the RPV water level continues to lower, then escalation to Site Area Emergency would be via IC CS6.

Basis Reference(s):

1. NEI 99-01 Rev 6, CA1
2. Technical Specification Table 3.1.1
3. 2000-BAS-3200.02 EOP User's Guide
4. 2000-GLN-3200.01 Plant Specific Technical Guideline
5. 205.94.0 RPV Floodup Using Core Spray
6. 205.95.0 Reactor Flood-up / Drain-down
7. FSAR Figure 7.6-3

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CU6****Initiating Condition:**

UNPLANNED loss of RPV inventory for 15 minutes or longer.

Operating Mode Applicability:

3, 4

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
1. UNPLANNED loss of reactor coolant results in the inability to restore and maintain RPV water level to above the **procedurally established lower limit** for **≥ 15 minutes**.
OR
 2. a. RPV water level **cannot** be monitored
AND
b. Loss of RPV inventory per Table C3 indications.

| Table C3 Indications of RCS Leakage |
|--|
| <ul style="list-style-type: none">• UNPLANNED floor or equipment sump level rise*• UNPLANNED Torus level rise*• UNPLANNED vessel make up rate rise*• Observation of leakage or inventory loss |
| *Rise in level is attributed to a loss of RPV inventory. |

Basis:

UNPLANNED: A parameter change or an event that is not 1) the result of an intended evolution or 2) an expected plant response to a transient. The cause of the parameter change or event may be known or unknown.

This IC addresses the inability to restore and maintain water level to a required minimum level (or the lower limit of a level band), or a loss of the ability to monitor RPV water level concurrent with indications of coolant leakage. Either of these conditions is considered to be a potential degradation of the level of safety of the plant.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
COLD SHUTDOWN / REFUELING SYSTEM MALFUNCTIONS****CU6 (cont)****Basis (cont):**

The procedurally established lower limit is not an operational band established above the procedural limit to allow for operator action prior to exceeding the procedural limit, but it is the procedurally established lower limit.

Refueling evolutions that lower RCS water inventory are carefully planned and controlled. An UNPLANNED event that results in water level decreasing below a procedurally required limit warrants the declaration of an Unusual Event due to the reduced water inventory that is available to keep the core covered.

EAL #1 Basis

Recognizes that the minimum required RPV water level can change several times during the course of a refueling outage as different plant configurations and system lineups are implemented. This EAL is met if the minimum level, specified for the current plant conditions, cannot be maintained for 15 minutes or longer. The minimum level is typically specified in the applicable operating procedure but may be specified in another controlling document.

The 15-minute threshold duration allows sufficient time for prompt operator actions to restore and maintain the expected water level. This criterion excludes transient conditions causing a brief lowering of water level.

EAL #2 Basis

Addresses a condition where all means to determine RPV water level have been lost. In this condition, operators may determine that an inventory loss is occurring by observing changes in sump and/or Torus levels. Sump and/or Torus level changes must be evaluated against other potential sources of water flow to ensure they are indicative of leakage from the RPV.

Continued loss of RCS inventory may result in escalation to the Alert emergency classification level via either IC CA6 or CA5.

Basis Reference(s):

1. NEI 99-01, Rev. 6 CU1
2. Technical Specifications Section 3.3.D
3. 205.94.0, RPV Floodup Using Core Spray
4. 205.95.0, Reactor Flood-up / Drain-down
5. FSAR Figure 7.6-3

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HG1****Initiating Condition:**

HOSTILE ACTION resulting in loss of physical control of the facility.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):

1. A notification from the Security Force that a HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA.

AND

2. a. **ANY** Table H1 safety function cannot be controlled or maintained.

OR

- b. Damage to spent fuel has occurred or is IMMINENT

| Table H1 Safety Functions |
|--|
| <ul style="list-style-type: none">• Reactivity Control (ability to shut down the reactor and keep it shutdown)• RPV Water Level (ability to cool the core)• RCS Heat Removal (ability to maintain heat sink) |

Basis:

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

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.

PROJECTILE: An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.

PROTECTED AREA: An area that normally encompasses all controlled areas within the security protected area fence.

IMMINENT: The trajectory of events or conditions is such that an EAL will be met within a relatively short period of time regardless of mitigation or corrective actions.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HG1 (cont)****Basis (cont):**

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

This IC addresses an event in which a HOSTILE FORCE has taken physical control of the facility to the extent that the plant staff can no longer operate equipment necessary to maintain key safety functions. It also addresses a HOSTILE ACTION leading to a loss of physical control that results in actual or IMMINENT damage to spent fuel due to 1) damage to a spent fuel pool cooling system (e.g., pumps, heat exchangers, controls, etc.) or, 2) loss of spent fuel pool integrity such that sufficient water level cannot be maintained.

Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security-related event.

Security plans and terminology are based on the guidance provided by NEI 03-12, *Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]*.

Basis Reference(s):

1. NEI 99-01, Rev. 6 HG1
2. Station Security Plan – Appendix C
3. ABN-41, Security Event

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HS1****Initiating Condition:**

HOSTILE ACTION within the PROTECTED AREA.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):

A notification from the Security Force that a HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA.

Basis:

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

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.

PROJECTILE: An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.

PROTECTED AREA: An area that normally encompasses all controlled areas within the security protected area fence.

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

INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI): A complex that is designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel storage.

This IC addresses the occurrence of a HOSTILE ACTION within the PROTECTED AREA. This event will require rapid response and assistance due to the possibility for damage to plant equipment.

Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security-related event.

Security plans and terminology are based on the guidance provided by NEI 03-12, *Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]*.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HS1 (cont)****Basis (cont):**

As time and conditions allow, these events require a heightened state of readiness by the plant staff and implementation of onsite protective measures (e.g., evacuation, dispersal or sheltering). The Site Area Emergency declaration will mobilize ORO resources and have them available to develop and implement public protective actions in the unlikely event that the attack is successful in impairing multiple safety functions.

This IC does not apply to a HOSTILE ACTION directed at an ISFSI PROTECTED AREA located outside the plant PROTECTED AREA; such an attack should be assessed using IC HA1. It also does not apply to incidents that are accidental events, acts of civil disobedience, or otherwise are not a HOSTILE ACTION perpetrated by a HOSTILE FORCE. Examples include the crash of a small aircraft, shots from hunters, physical disputes between employees, etc. Reporting of these types of events is adequately addressed by other EALs, or the requirements of 10 CFR § 73.71 or 10 CFR § 50.72.

Escalation of the emergency classification level would be via IC HG1.

Basis Reference(s):

1. NEI 99-01 Rev 6, HS1
2. Station Security Plan – Appendix C

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HA1****Initiating Condition:**

HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):

1. A validated notification from NRC of an aircraft attack threat < 30 minutes from the site.

OR

2. Notification by the Security Force that a HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA.

Basis:

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

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.

PROJECTILE: An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.

OWNER CONTROLLED AREA (OCA): The property associated with the station and owned by the company. Access is normally limited to persons entering for official business.

PROTECTED AREA: An area that normally encompasses all controlled areas within the security protected area fence.

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

This IC addresses the occurrence of a HOSTILE ACTION within the OWNER CONTROLLED AREA or notification of an aircraft attack threat. This event will require rapid response and assistance due to the possibility of the attack progressing to the PROTECTED AREA, or the need to prepare the plant and staff for a potential aircraft impact.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HA1 (cont)****Basis (cont):**

Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security-related event.

Security plans and terminology are based on the guidance provided by NEI 03-12, *Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]*.

As time and conditions allow, these events require a heightened state of readiness by the plant staff and implementation of onsite protective measures (e.g., evacuation, dispersal or sheltering). The Alert declaration will also heighten the awareness of Offsite Response Organizations, allowing them to be better prepared should it be necessary to consider further actions.

This IC does not apply to incidents that are accidental events, acts of civil disobedience, or otherwise are not a HOSTILE ACTION perpetrated by a HOSTILE FORCE. Examples include the crash of a small aircraft, shots from hunters, physical disputes between employees, etc. Reporting of these types of events is adequately addressed by other EALs, or the requirements of 10 CFR § 73.71 or 10 CFR § 50.72.

EAL #1 Basis

Addresses the threat from the impact of an aircraft on the plant, and the anticipated arrival time is within 30 minutes. The intent of this EAL is to ensure that threat-related notifications are made in a timely manner so that plant personnel and OROs are in a heightened state of readiness. This EAL is met when the threat-related information has been validated in accordance with ABN-41, Security Event.

EAL #2 Basis

Applicable for any HOSTILE ACTION occurring, or that has occurred, in the OWNER CONTROLLED AREA. This includes any action directed against an ISFSI that is located outside the plant PROTECTED AREA.

The NRC Headquarters Operations Officer (HOO) will communicate to the licensee if the threat involves an aircraft. The status and size of the plane may be provided by NORAD through the NRC.

In some cases, it may not be readily apparent if an aircraft impact within the OWNER CONTROLLED AREA was intentional (i.e., a HOSTILE ACTION). It is expected, although not certain, that notification by an appropriate Federal agency to the site would clarify this point. In this case, the appropriate federal agency is intended to be NORAD, FBI, FAA or NRC. The emergency declaration, including one based on other ICs/EALs, should not be unduly delayed while awaiting notification by a Federal agency.

Escalation of the emergency classification level would be via IC HS1.

Table OCGS 2-2 OCGS EAL Technical Basis

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HA1 (cont)

Basis Reference(s):

1. NEI 99-01 Rev 6, HA1
2. Station Security Plan – Appendix C
3. ABN-41, Security Event

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HU1****Initiating Condition:**

Confirmed SECURITY CONDITION or threat.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):

1. Notification of a credible security threat directed at the site as determined per SY-AA-101-132, Security Assessment and Response to Unusual Activities.

OR

2. A validated notification from the NRC providing information of an aircraft threat.

OR

3. Notification by the Security Force of a SECURITY CONDITION that does not involve a HOSTILE ACTION.

Basis:

SECURITY CONDITION: Any Security Event as listed in the approved security contingency plan that constitutes a threat/compromise to site security, threat/risk to site personnel, or a potential degradation to the level of safety of the plant. A SECURITY CONDITION does not involve a HOSTILE ACTION

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

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

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.

PROJECTILE: An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.

This IC addresses events that pose a threat to plant personnel or SAFETY SYSTEM equipment, and thus represent a potential degradation in the level of plant safety. Security events which do not meet one of these EALs are adequately addressed by the requirements of 10 CFR § 73.71 or 10 CFR § 50.72. Security events assessed as HOSTILE ACTIONS are classifiable under ICs HA1, HS1 and HG1.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HU1 (cont)****Basis (cont):**

Timely and accurate communications between Security Shift Supervision and the Control Room is essential for proper classification of a security-related event. Classification of these events will initiate appropriate threat-related notifications to plant personnel and OROs.

Security plans and terminology are based on the guidance provided by NEI 03-12, *Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program]*.

EAL #1 Basis

Addresses the receipt of a credible security threat. The credibility of the threat is assessed in accordance with SY-AA-101-132.

EAL #2 Basis

Addresses the threat from the impact of an aircraft on the plant. The NRC Headquarters Operations Officer (HOO) will communicate to the licensee if the threat involves an aircraft. The status and size of the plane may also be provided by NORAD through the NRC. Validation of the threat is performed in accordance with ABN-41, Security Event.

EAL #3 Basis

References Security Force because these are the individuals trained to confirm that a security event is occurring or has occurred. Training on security event confirmation and classification is controlled due to the nature of Safeguards and 10 CFR § 2.39 information.

Escalation of the emergency classification level would be via IC HA1.

Basis Reference(s):

1. NEI 99-01 Rev 6, HU1
2. Station Security Plan – Appendix C
3. ABN-41, Security Event
4. SY-AA-101-132, Security Assessment and Response to Unusual Activities

Table OCGS 2-2 OCGS EAL Technical Basis

RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

HS2**Initiating Condition:**

Inability to control a key safety function from outside the Control Room.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
1. A Control Room evacuation has resulted in plant control being transferred from the Control Room to alternate locations per ABN-30 Control Room Evacuation.
- AND**
2. Control of **ANY** Table H1 safety function is not reestablished in **< 15 minutes**.

| Table H1 Safety Functions |
|--|
| <ul style="list-style-type: none"> • Reactivity Control (ability to shut down the reactor and keep it shutdown) • RPV Water Level (ability to cool the core) • RCS Heat Removal (ability to maintain heat sink) |

Basis:

The time period to establish control of the plant starts when either:

- a. Control of the plant is no longer maintained in the Main Control Room
- OR
- b. The last Operator has left the Main Control Room.

This IC addresses an evacuation of the Control Room that results in transfer of plant control to alternate locations, and the control of a key safety function cannot be reestablished in a timely manner. The failure to gain control of a key safety function following a transfer of plant control to alternate locations is a precursor to a challenge to any fission product barriers within a relatively short period of time.

The determination of whether or not "control" is established at the remote safe shutdown location(s) is based on Emergency Director judgment. The Emergency Director is expected to make a reasonable, informed judgment within 15 minutes whether or not the operating staff has control of key safety functions from the remote safe shutdown location(s).

Escalation of the emergency classification level would be via IC FG1 or CG6.

Table OCGS 2-2 OCGS EAL Technical Basis

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HS2 (cont)

Basis Reference(s):

1. NEI 99-01, Rev 6 HS6
2. ABN-30 Control Room Evacuation
3. Procedure 346 Operation of the Remote and Local Shutdown Panels

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HA2****Initiating Condition:**

Control Room evacuation resulting in transfer of plant control to alternate locations.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):

A Control Room evacuation has resulted in plant control being transferred from the Control Room to alternate locations per ABN-30 Control Room Evacuation.

Basis:

This IC addresses an evacuation of the Control Room that results in transfer of plant control to alternate locations outside the Control Room. The loss of the ability to control the plant from the Control Room is considered to be a potential substantial degradation in the level of plant safety.

Following a Control Room evacuation, control of the plant will be transferred to alternate shutdown locations. The necessity to control a plant shutdown from outside the Control Room, in addition to responding to the event that required the evacuation of the Control Room, will present challenges to plant operators and other on-shift personnel. Activation of the ERO and emergency response facilities will assist in responding to these challenges.

Escalation of the emergency classification level would be via IC HS2.

Basis Reference(s):

1. NEI 99-01, Rev 6 HA6
2. ABN-30 Control Room Evacuation
3. Procedure 346 Operation of the Remote and Local Shutdown Panels

Table OCGS 2-2 OCGS EAL Technical Basis

RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

HU3**Initiating Condition:**

FIRE potentially degrading the level of safety of the plant.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):**Note:**

- The Emergency Director should declare the event promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.
 - Escalation of the emergency classification level would be via IC CA2 or MA5
1. A FIRE in **ANY** Table H2 area is **not** extinguished in **< 15-minutes** of **ANY** of the following FIRE detection indications:
- Report from the field (i.e., visual observation)
 - Receipt of multiple (more than 1) fire alarms or indications
 - Field verification of a single fire alarm

| Table H2 Vital Areas |
|---|
| <ul style="list-style-type: none"> • Reactor Building (when inerted the Drywell is exempt) • 4160V Switchgear Rooms (1C and 1D) • Control Room Complex (MOB, Upper and Lower Cable Spreading Rooms) • Main Transformer/Condensate Transfer Pad • Intake Structure • #1 EDG Vault • #2 EDG Vault • EDG Fuel Oil Storage Tank |

OR

2. a. Receipt of a single fire alarm in **ANY** Table H2 area (i.e., no other indications of a FIRE).

AND

- b. The existence of a FIRE is **not** verified in **< 30 minutes** of alarm receipt.

OR

- 3 A FIRE within the plant PROTECTED AREA **not** extinguished in **< 60 minutes** of the initial report, alarm or indication.

OR

- 4 A FIRE within the plant PROTECTED AREA that requires firefighting support by an offsite fire response agency to extinguish.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HU3 (cont)****Basis:**

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute FIRES. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

PROTECTED AREA: An area that normally encompasses all controlled areas within the security protected area fence.

This IC addresses the magnitude and extent of FIRES that may be indicative of a potential degradation of the level of safety of the plant.

EAL #1 Basis

The intent of the 15-minute duration is to size the FIRE and to discriminate against small FIRES that are readily extinguished (e.g., smoldering waste paper basket). In addition to alarms, other indications of a FIRE could be a drop in fire main pressure, automatic activation of a suppression system, etc.

Upon receipt, operators will take prompt actions to confirm the validity of an initial fire alarm, indication, or report. For EAL assessment purposes, the emergency declaration clock starts at the time that the initial alarm, indication, or report was received, and not the time that a subsequent verification action was performed. Similarly, the fire duration clock also starts at the time of receipt of the initial alarms, indication or report.

EAL #2 Basis

This EAL addresses receipt of a single fire alarm, and the existence of a FIRE is not verified (i.e., proved or disproved) within 30-minutes of the alarm. Upon receipt, operators will take prompt actions to confirm the validity of a single fire alarm. For EAL assessment purposes, the 30-minute clock starts at the time that the initial alarm was received, and not the time that a subsequent verification action was performed.

A single fire alarm, absent other indication(s) of a FIRE, may be indicative of equipment failure or a spurious activation, and not an actual FIRE. For this reason, additional time is allowed to verify the validity of the alarm. The 30-minute period is a reasonable amount of time to determine if an actual FIRE exists; however, after that time, and absent information to the contrary, it is assumed that an actual FIRE is in progress.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HU3 (cont)****Basis (cont):**

If an actual FIRE is verified by a report from the field, then EAL #1 is immediately applicable, and the emergency must be declared if the FIRE is not extinguished within 15-minutes of the report. If the alarm is verified to be due to an equipment failure or a spurious activation, and this verification occurs within 30-minutes of the receipt of the alarm, then this EAL is not applicable and no emergency declaration is warranted.

EAL #3 Basis

In addition to a FIRE addressed by EAL #1 or EAL #2, a FIRE within the plant PROTECTED AREA not extinguished within 60-minutes may also potentially degrade the level of plant safety.

EAL #4 Basis

If a FIRE within the plant PROTECTED AREA is of sufficient size to require a response by an offsite firefighting agency (e.g., a local town Fire Department), then the level of plant safety is potentially degraded. The dispatch of an offsite firefighting agency to the site requires an emergency declaration only if it is needed to actively support firefighting efforts because the fire is beyond the capability of the Fire Brigade to extinguish. Declaration is not necessary if the agency resources are placed on stand-by, or supporting post-extinguishment recovery or investigation actions.

ISFSI is not specifically addressed in EAL #3 and #4 since it is within the plant PROTECTED AREA and is therefore covered under EALs #3 and #4.

Basis-Related Requirements from Appendix R

Appendix R to 10 CFR 50, states in part:

Criterion 3 of Appendix A to this part specifies that "Structures, systems, and components important to safety shall be designed and located to minimize, consistent with other safety requirements, the probability and effect of fires and explosions."

When considering the effects of fire, those systems associated with achieving and maintaining safe shutdown conditions assume major importance to safety because damage to them can lead to core damage resulting from loss of coolant through boil-off.

Because fire may affect safe shutdown systems and because the loss of function of systems used to mitigate the consequences of design basis accidents under post-fire conditions does not per se impact public safety, the need to limit fire damage to systems required to achieve and maintain safe shutdown conditions is greater than the need to limit fire damage to those systems required to mitigate the consequences of design basis accidents.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HU3 (cont)****Basis (cont):**

In addition, Appendix R to 10 CFR 50, requires, among other considerations, the use of 1-hour fire barriers for the enclosure of cable and equipment and associated non-safety circuits of one redundant train (G.2.c). As used in EAL #2, the 30-minutes to verify a single alarm is well within this worst-case 1-hour time period.

Depending upon the plant mode at the time of the event, escalation of the emergency classification level would be via IC CA2 or MA5.

Basis Reference(s):

1. NEI 99-01, Rev 6 HU4
2. ABN-29, Plant Fires

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HU4****Initiating Condition:**

Seismic event greater than OBE levels.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):**Note:**

- Escalation of the emergency classification level would be via IC CA2 or MA5
- For emergency classification if EAL 2 is not able to be confirmed, then the occurrence of a seismic event is confirmed in manner deemed appropriate by the Shift Manager or Emergency Director in **≤ 15 mins** of the event.

Seismic event as indicated by:

1. Control Room personnel feel an actual or potential seismic event.

AND

2. **ANY** one of the following confirmed in **≤ 15 mins** of the event:

- The earthquake resulted in Modified Mercalli Intensity (MMI) **$\geq VI$** and occurred **≤ 3.5 miles** of the plant.
- The earthquake was magnitude **≥ 6.0**
- The earthquake was magnitude **≥ 5.0** and occurred **≤ 125 miles** of the plant.

Basis:

This IC addresses a seismic event that results in accelerations at the plant site greater than those specified for an Operating Basis Earthquake (OBE)¹. An earthquake greater than an OBE but less than a Safe Shutdown Earthquake (SSE)² should have no significant impact on safety-related systems, structures and components; however, some time may be required for the plant staff to ascertain the actual post-event condition of the plant (e.g., performs walk-downs and post-event inspections). Given the time necessary to perform walk-downs and inspections, and fully understand any impacts, this event represents a potential degradation of the level of safety of the plant.

¹ An OBE is vibratory ground motion for which those features of a nuclear power plant necessary for continued operation without undue risk to the health and safety of the public will remain functional.

² An SSE is vibratory ground motion for which certain (generally, safety-related) structures, systems, and components must be designed to remain functional.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HU4 (cont)****Basis (cont):**

Event verification with external sources should not be necessary during or following an OBE. Earthquakes of this magnitude should be readily felt by on-site personnel and recognized as a seismic event (e.g., typical lateral accelerations are in excess of 0.08g).

EAL #2 and the accompanying note is included to ensure that a declaration does not result from felt vibrations caused by a non-seismic source (e.g., a dropped load). The Shift Manager or Emergency Director may seek external verification if deemed appropriate (e.g., call to USGS, check internet source, etc.) however, the verification action must not preclude a timely emergency declaration. This guidance recognizes that it may cause the site to declare an Unusual Event while another site, similarly affected but with readily available OBE indications in the Control Room, may not.

Depending upon the plant mode at the time of the event, escalation of the emergency classification level would be via IC CA2 or MA5.

Basis Reference(s):

1. NEI 99-01, Rev 6 HU2
2. ABN-38, Station Seismic Event
3. FSAR Update Section 3.7 (Seismic)
4. US NRC Reg. Guide 1.166, Pre-Earthquake Planning and Immediate Nuclear Power Plant Operator Earthquake Actions.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HA5****Initiating Condition:**

Gaseous release impeding access to equipment necessary for normal plant operations, cooldown or shutdown.

Operating Mode Applicability:

3, 4

Emergency Action Level (EAL):**Note:**

- If the equipment in the listed room or area was already inoperable, or out of service, before the event occurred, then no emergency classification is warranted.
1. Release of a toxic, corrosive, asphyxiant or flammable gas in a Table H3 area.

| Table H3 Areas with Entry Related Mode Applicability | |
|---|---|
| Area | Entry Related Mode Applicability |
| Reactor Building 51' elevation | Modes 3 and 4 |

AND

2. Entry into the room or area is prohibited or impeded

Basis:

This IC addresses an event involving a release of a hazardous gas that precludes or impedes access to equipment necessary to transition the plant from normal plant operation to cooldown and shutdown as specified in normal plant procedures. This condition represents an actual or potential substantial degradation of the level of safety of the plant.

Assuming all plant equipment is operating as designed, normal operation is capable from the Main Control Room (MCR). The plant is also able to transition into a hot shutdown condition from the MCR, therefore Table H3 is a list of plant rooms or areas with entry-related mode applicability that contain equipment which require a manual/local action necessary to transition the plant from normal plant operation to cooldown and shutdown as specified in normal operating procedures (establish shutdown cooling), where if this action is not completed the plant would not be able to attain and maintain cold shutdown. This Table does not include rooms or areas for which entry is required solely to perform actions of an administrative or record keeping nature (e.g., normal rounds or routine inspections).

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HA5 (cont)****Basis (cont):**

This Table does not include the Control Room since adequate engineered safety/design features are in place to preclude a Control Room evacuation due to the release of a hazardous gas.

An Alert declaration is warranted if entry into the affected room/area is, or may be, procedurally required during the plant operating mode in effect and the gaseous release preclude the ability to place shutdown cooling in service. The emergency classification is not contingent upon whether entry is actually necessary at the time of the release.

Evaluation of the IC and EAL do not require atmospheric sampling; it only requires the Emergency Director's judgment that the gas concentration in the affected room/area is sufficient to preclude or significantly impede procedurally required access. This judgment may be based on a variety of factors including an existing job hazard analysis, report of ill effects on personnel, advice from a subject matter expert or operating experience with the same or similar hazards. Access should be considered as impeded if extraordinary measures are necessary to facilitate entry of personnel into the affected room/area (e.g., requiring use of protective equipment, such as SCBAs, that is not routinely employed).

An emergency declaration is not warranted if any of the following conditions apply.

- The plant is in an operating mode different than the mode specified for the affected room/area (i.e., entry is not required during the operating mode in effect at the time of the gaseous release). For example, the plant is in Mode 1 when the gaseous release occurs, and the procedures used for normal operation, cooldown and shutdown do not require entry into the affected room until Mode 4.
- The gas release is a planned activity that includes compensatory measures which address the temporary inaccessibility of a room or area (e.g., fire suppression system testing).
- The action for which room/area entry is required is of an administrative or record keeping nature (e.g., normal rounds or routine inspections).
- The access control measures are of a conservative or precautionary nature, and would not actually prevent or impede a required action.

An asphyxiant is a gas capable of reducing the level of oxygen in the body to dangerous levels. Most commonly, asphyxiants work by merely displacing air in an enclosed environment. This reduces the concentration of oxygen below the normal level of around 19%, which can lead to breathing difficulties, unconsciousness or even death.

This EAL does not apply to firefighting activities that generate smoke, that automatically or manually activate a fire suppression system in an area, or to intentional inerting of containment.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HA5 (cont)****Basis (cont):**

The Operating Mode Applicability of this EAL has been revised from All Modes to modes 3 and 4 due to the mode applicability of the areas of concern in Table H-3. In the future should the areas of concern in Table H-3 be revised then the Operating Mode Applicability of this EAL should be reevaluated.

Escalation of the emergency classification level would be via Recognition Category R, C or F ICs.

Basis Reference(s):

1. NEI 99-01, Rev 6 HA5
2. ABN-33, Toxic or Flammable Gas Release
3. AR 660892, Station Halon and IDLH Evaluations
4. 29CFR1910.134(b) and 29CFR1910.134(d)(2)(iii)

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HU6****Initiating Condition:**

Hazardous Event

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):**Note:**

- EAL #4 does not apply to routine traffic impediments such as fog, snow, ice, or vehicle breakdowns or accidents.
- Escalation of the emergency classification level would be via IC CA2 or MA5

1. Tornado strike within the PROTECTED AREA.

OR

2. Internal room or area flooding of a magnitude sufficient to require manual or automatic electrical isolation of a SAFETY SYSTEM component required by Technical Specifications for the current operating mode.

OR

3. Movement of personnel within the PROTECTED AREA is impeded due to an offsite event involving hazardous materials (e.g., an offsite chemical spill or toxic gas release).

OR

4. A hazardous event that results in on-site conditions sufficient to prohibit the plant staff from accessing the site via personal vehicles.

OR

5. Abnormal Intake Structure level, as indicated by **EITHER**:

- **> 4.5 ft. MSL** (> 4.25 psig on PI-533-1172 and PI-533-1173 or > 4.5 ft MSL on CR-423-11 pt 24 and pt 23).

OR

- **≤ -3.0 ft. MSL** (≤ 0.95 psig on PI-533-1172 and PI-533-1173 or ≤ -3.0 ft MSL on CR-423-11 pt 24 and pt 23).

MSL = Mean Sea Level**Basis:**

PROTECTED AREA: An area that normally encompasses all controlled areas within the security protected area fence.

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HU6 (cont)****Basis (cont):**

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These are typically systems classified as safety-related.

This IC addresses hazardous events that are considered to represent a potential degradation of the level of safety of the plant.

EAL #1 Basis

Addresses a tornado striking (touching down) within the Protected Area.

EAL #2 Basis

Addresses flooding of a building room or area that results in operators isolating power to a SAFETY SYSTEM component due to water level or other wetting concerns. Classification is also required if the water level or related wetting causes an automatic isolation of a SAFETY SYSTEM component from its power source (e.g., a breaker or relay trip). To warrant classification, operability of the affected component must be required by Technical Specifications for the current operating mode.

EAL #3 Basis

Addresses a hazardous materials event originating at an offsite location and of sufficient magnitude to impede the movement of personnel within the PROTECTED AREA.

EAL #4 Basis

Addresses a hazardous event that causes an on-site impediment to vehicle movement and significant enough to prohibit the plant staff from accessing the site using personal vehicles. Examples of such an event include site flooding caused by a hurricane, heavy rains, or high winds.

This EAL is not intended to apply to routine impediments such as fog, snow, ice, or vehicle breakdowns or accidents, but rather to more significant conditions such as the Hurricane Andrew strike on Turkey Point in 1992, the flooding around the Cooper Station during the Midwest floods of 1993, or the flooding around Ft. Calhoun Station in 2011.

EAL #5 Basis:

High Intake Structure level, is sufficiently high to require plant shutdown per ABN-32, Abnormal Intake Level.

Low Intake Structure level indicates the possible loss of Service Water pumps and is approaching levels, which may result in a loss of vital cooling equipment.

Escalation of the emergency classification level would be based on ICs in Recognition Categories R, F, M, H or C.

Table OCGS 2-2 OCGS EAL Technical Basis

**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY**

HU6 (cont)

Basis Reference(s):

1. NEI 99-01, Rev 6 HU3
2. FSAR Update 3.3.1 (High winds)
3. ABN-31, High Winds
4. ABN-32, Abnormal Intake Level
5. ABN-38, Station Seismic Event
6. ABN-33, Toxic or Flammable Gas Release

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HG7****Initiating Condition:**

Other conditions exist which in the judgment of the Emergency Director warrant declaration of a GENERAL EMERGENCY.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress 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.

Basis:

IMMINENT: The trajectory of events or conditions is such that an EAL will be met within a relatively short period of time regardless of mitigation or corrective actions.

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

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station

PROJECTILE: An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.

This IC addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Director to fall under the emergency classification level description for a General Emergency.

Basis Reference(s):

1. NEI 99-01, Rev 6 HG7

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HS7****Initiating Condition:**

Other conditions exist which in the judgment of the Emergency Director warrant declaration of a SITE AREA EMERGENCY.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress 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.

Basis:

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

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station

PROJECTILE: An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.

This IC addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Director to fall under the emergency classification level description for a Site Area Emergency.

Basis Reference(s):

1. NEI 99-01, Rev 6 HS7

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HA7****Initiating Condition:**

Other conditions exist which in the judgment of the Emergency Director warrant declaration of an ALERT.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):

Other conditions exist which, in the judgment of the Emergency Director, indicate that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

Basis:

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

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station

PROJECTILE: An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.

This IC addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Director to fall under the emergency classification level description for an Alert.

Basis Reference(s):

1. NEI 99-01, Rev 6 HA7

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY****HU7****Initiating Condition:**

Other conditions exist which in the judgment of the Emergency Director warrant declaration of an UNUSUAL EVENT.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):

Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress 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.

Basis:

This IC addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Director to fall under the emergency classification level description for an UNUSUAL EVENT.

Basis Reference(s):

1. NEI 99-01, Rev 6 HU7

Table OCGS 2-2 OCGS EAL Technical Basis**RECOGNITION CATEGORY
ISFSI MALFUNCTIONS****E-HU1****Initiating Condition**

Damage to a loaded cask CONFINEMENT BOUNDARY.

Operating Mode Applicability:

1, 2, 3, 4, D

Emergency Action Level (EAL):

Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by a radiation reading:

- > 1400 mrem/hr (gamma + neutron) on the HSM front surface (applicable to type 1 61BTH DSC only)

OR

- > 800 mrem/hr (gamma + neutron) 3 feet from the HSM surface (applicable to 61BT DSC only)

OR

- > 200 mrem/hr (gamma + neutron) outside the HSM door on centerline of DSC

OR

- > 40 mrem/hr (gamma + neutron) end of shield wall exterior

Basis:

CONFINEMENT BOUNDARY: The irradiated fuel dry storage cask barrier(s) between areas containing radioactive substances and the environment.

INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI) : A complex that is designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel storage.

This IC addresses an event that results in damage to the CONFINEMENT BOUNDARY of a storage cask containing spent fuel. It applies to irradiated fuel that is licensed for dry storage beginning at the point that the loaded storage cask is sealed. The word cask, as used in this EAL, refers to the storage container in use at the site for dry storage of irradiated fuel. The issues of concern are the creation of a potential or actual release path to the environment, degradation of any fuel assemblies due to environmental factors, and configuration changes which could cause challenges in removing the cask or fuel from storage.

The existence of "damage" is determined by radiological survey. The technical specification multiple of "2 times", which is also used in Recognition Category R IC RU1, is used here to distinguish between non-emergency and emergency conditions. The emphasis for this classification is the degradation in the level of safety of the spent fuel cask and not the magnitude of the associated dose or dose rate. It is recognized that in the case of extreme damage to a loaded cask, the fact that the "on-contact" dose rate limit is exceeded may be determined based on measurement of a dose rate at some distance from the cask.

Security-related events for ISFSIs are covered under ICs HU1 and HA1.

Table OCGS 2-2 OCGS EAL Technical Basis

**RECOGNITION CATEGORY
ISFSI MALFUNCTIONS**

E-HU1 (cont)

Basis Reference(s):

1. NEI 99-01, Rev 6 E-HU1
2. Oyster Creek Generating Station ISFSI 10CFR72.212 Evaluation Rev. 5
3. Certificate of Compliance Number 1004, Attachment A Technical Specifications,
Docket Number 72-1004, Amendments 4, 7, 9 and 10