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RBG-47811

December 12, 2017

Attn: Document Control Desk
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852-2738

SUBJECT: Submittal of Emergency Plan and Emergency Implementing Procedure
River Bend Station, Unit 1
Docket No. 50-458
License No. NPF-47

Dear Sir or Madam:

Pursuant to 10 CFR 50.54(q) and 10 CFR 50.4, enclosed are copies of recently revised Emergency Implementing Procedure (applicable to River Bend Station (RBS) only), Emergency Plan, and River Bend Station On-Shift Staffing Analysis Report. Included is the 10 CFR 50.54(q) screening, which documents that the pertinent revision does not decrease the effectiveness of the Emergency Plan.

There are no regulatory commitments contained in this submittal. If you require additional information, please contact Mr. Tim Schenk at (225)-381-4177 or tschenk@entergy.com.

Sincerely,

Alyson L. Coates for Timothy Schenk per DOA
TAS/alc

Attachments

EIP-2-001 Classification of Emergencies Revision 27
Emergency Plan Revision 43
River Bend Station On-Shift Staffing Analysis Final Report Revision 1
50.54(q) Screening

AX45
NRR

cc: (with Enclosure)

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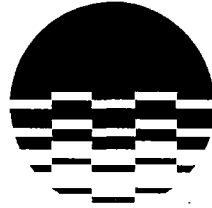
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RB1-17-0165

RBG-47811

EIP-2-001 Classification of Emergencies Revision 27



ENTERGY

**RIVER BEND STATION
STATION OPERATING MANUAL
*EMERGENCY IMPLEMENTING PROCEDURE**

****CLASSIFICATION OF EMERGENCIES***

PROCEDURE NUMBER:	*EIP-2-001
REVISION NUMBER:	*027
Effective Date:	*11/14/2017

NOTE : SIGNATURES ARE ON FILE.

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REFERENCE USE

***INDEXING INFORMATION**

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LETTER DESIGNATION TRACKING NUMBER	DETAILED DESCRIPTION OF CHANGES

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1 **PURPOSE**

- 1.1 This procedure provides guidelines for properly classifying emergencies.

2 **REFERENCES**

- 2.1 River Bend Station (RBS) Emergency Plan
- 2.2 EIP-2-002, Classification Actions
- 2.3 NEI 99-01 Rev 5, Methodology for Development of Emergency Action Levels
- 2.4 NUREG-1022, Event Reporting Guidelines: 10CFR50.72 and 10CFR50.73
- 2.5 NRC Bulletin 2005-02, Emergency Preparedness and Response Actions for Security-Based Events
- 2.6 NRC RIS 2003-18 Supp 2, Use of Nuclear Energy Institute (NEI) 99-01, Methodology for Development of Emergency Action Levels
- 2.7 10 CFR 50 Appendix E IV.C.2, Emergency Declaration Timeliness

3 DEFINITIONS

- 3.1 AFFECTING SAFE SHUTDOWN: Event in progress has adversely affected functions that are necessary to bring the plant to and maintain it in the applicable HOT or COLD SHUTDOWN condition. Plant condition applicability is determined by Technical Specification LCOs in effect.
 - 3.1.1. Example 1: Event causes damage that results in entry into an LCO that requires the plant to be placed in HOT SHUTDOWN. HOT SHUTDOWN is achievable, but COLD SHUTDOWN is not. This event is not "AFFECTING SAFE SHUTDOWN."
 - 3.1.2. Example 2: Event causes damage that results in entry into an LCO that requires the plant to be placed in COLD SHUTDOWN. HOT SHUTDOWN is achievable, but COLD SHUTDOWN is not. This event is "AFFECTING SAFE SHUTDOWN."
- 3.2 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 PAG exposure levels.
- 3.3 BOMB: Refers to an explosive device suspected of having sufficient force to damage plant systems or structures.
- 3.4 CIVIL DISTURBANCE: A group of persons violently protesting station operations or activities at the site.
- 3.5 CONFINEMENT BOUNDARY: The barrier(s) between areas containing radioactive substances and the environment. (ISFSI MPC Confinement Boundary)
- 3.6 CONTAINMENT CLOSURE: A containment condition where at least one integral barrier to the release of radioactive material is provided.
- 3.7 EXPLOSION: A rapid, violent, unconfined combustion, or catastrophic failure of pressurized/energized equipment that imparts energy of sufficient force to potentially damage permanent structures, systems, or components.

REFERENCE USE

- 3.8 EXTORTION: An attempt to cause an action at the station by threat of force.
- 3.9 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.
- 3.10 GENERAL EMERGENCY: 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 PAG exposure levels offsite for more than the immediate site area.
- 3.11 HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.
- 3.12 HOSTILE ACTION: An act toward a Nuclear Power Plant 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.).
- 3.13 HOSTILE FORCE: One or more individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.
- 3.14 IMMINENT: Mitigation actions have been ineffective, additional actions are not expected to be successful, and trended information indicates that the event or condition will occur. Where IMMINENT timeframes are specified, they shall apply.
- 3.15 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.
- 3.16 INTRUSION: A person(s) present in a specified area without authorization. Discovery of a BOMB in a specified area is indication of INTRUSION into that area by a HOSTILE FORCE.

REFERENCE USE

- 3.17 **NORMAL PLANT OPERATIONS:** Activities at the plant site associated with routine testing, maintenance, or equipment operations, in accordance with normal operating or administrative procedures. Entry into offnormal or emergency operating procedures, or deviation from normal security or radiological controls posture, is a departure from NORMAL PLANT OPERATIONS.
- 3.18 **NOTIFICATION OF UNUSUAL EVENT (NOUE):** 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.
- 3.19 **OWNER CONTROLLED AREA:** The area within the EOI property boundary.
- 3.20 **PROJECTILE:** An object directed toward a Nuclear Power Plant that could cause concern for its continued operability, reliability, or personnel safety.
- 3.21 **PROTECTED AREA:** Encompasses all controlled areas within the security protected area fence.
- 3.22 **SABOTAGE:** Deliberate damage, mis-alignment, or mis-operation of plant equipment with the intent to render the equipment inoperable. Equipment found tampered with or damaged due to malicious mischief may not meet the definition of SABOTAGE until this determination is made by security supervision.
- 3.23 **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.

REFERENCE USE

- 3.24 SIGNIFICANT TRANSIENT: An UNPLANNED event involving one or more of the following:
- 3.24.1. Automatic turbine runback >25% thermal reactor power,
 - 3.24.2. Electrical load rejection >25% full electrical load,
 - 3.24.3. Reactor Trip,
 - 3.24.4. Safety Injection Activation or
 - 3.24.5. Thermal power oscillations >10%.
- 3.25 SITE AREA EMERGENCY: 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 PAG exposure levels beyond the SITE BOUNDARY.
- 3.26 SITE BOUNDARY: For classification and dose projection purposes, the site boundary is the area defined as exclusion area or exclusion zone in 10CFR100.3 (a) which is a boundary of approximately 3,000 feet (or 0.5748 mile) from the RBS reactor centerline.
- 3.27 STRIKE ACTION: A work stoppage within the PROTECTED AREA by a body of workers to enforce compliance with demands made on Entergy or its affiliates. The STRIKE ACTION must threaten to interrupt NORMAL PLANT OPERATIONS.
- 3.28 UNISOLABLE: A breach or leak that cannot be promptly isolated.
- 3.29 UNPLANNED: a parameter change or an event that is not the result of an intended evolution and requires corrective or mitigative actions.
- 3.30 VALID: An indication, report, or condition, is considered to be VALID when it is verified by (1) an instrument channel check, (2) indications on related or redundant indicators, or (3) by direct observation by plant personnel, such that doubt related to the indicator's operability, the condition's existence, or the report's accuracy is removed. Implicit in this definition is the need for timely assessment.

- 3.31 **VISIBLE DAMAGE:** Damage to equipment or structure that is readily observable without measurements, testing, or analysis. Damage is sufficient to cause concern regarding the continued operability or reliability of the affected structure, system, or component. Example damage includes: deformation due to heat or impact, denting, penetration, rupture, cracking, paint blistering. Surface blemishes (e.g., paint chipping, scratches) should not be included.
- 3.32 **VITAL AREA:** Any area, normally within the PROTECTED AREA, which contains equipment, systems, components, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation.

4 **RESPONSIBILITIES**

- 4.1 **Operations Shift Manager (OSM) -** It is the responsibility of the OSM to:
 - 4.1.1. Recognize and properly classify emergency conditions, and
 - 4.1.2. Assume the responsibilities of the Emergency Director (ED) until relieved by the designated Emergency Director.
- 4.2 **Control Room Supervisor (CRS) -** It is the responsibility of the CRS to assume the responsibility of the OSM if the OSM becomes incapacitated.
- 4.3 **Designated Emergency Director –** It is the responsibility of the designated Emergency Director to assist the OSM as requested and if the emergency is classified at ALERT or higher, relieve the OSM of the ED duties and responsibilities as soon as practical.

5 **GENERAL**

- 5.1 Anytime Emergency Operating Procedures (EOPs) or Abnormal Operating Procedures (AOPs) are initiated, this procedure should be reviewed to determine if an emergency action level has been reached.
- 5.2 This procedure, with Attachment 1 through Attachment 8, is a guideline for classifying emergencies. In a situation not covered by the Emergency Action Levels, the OSM (Emergency Director) must use his best judgment in determining the appropriate emergency classification.
 - 5.2.1. Attachment 1 is a matrix that is useful as a quick review to determine if an EAL INITIATING CONDITION is met.

REFERENCE USE

- 5.2.2. The Emergency Action Levels and bases in Attachments 2 - 8 are consistent with the definitions and INITIATING CONDITIONS in the RBS Emergency Plan.
- 5.2.3. Attachment 9 is the user aid that presents the EALs in chart format.
- 5.3 For Emergency Action Levels based on plant instrumentation, the indication shall be a VALID indication. When all indications for a certain parameter have been lost, the Emergency Director should use his best judgment and other plant indications to classify the emergency (e.g., loss of level trend on all RPV level instrumentation).
 - 5.3.1. EPP-2-503, RBS Equipment Important to Emergency Preparedness, lists the instruments used for EAL identification and provides guidance for compensatory measures when an instrument is out of service.
- 5.4 The assessment, classification, and declaration of an emergency condition is expected to be completed within 15 minutes after the availability of indications (i.e. plant instrumentation, plant alarms, computer displays, or incoming verbal reports) to plant operators that an EAL has been exceeded.
 - 5.4.1. The 15 minute criterion is not to be construed as a grace period to restore plant conditions to avoid declaring the event.
 - 5.4.2. The emergency declaration should be made promptly without waiting for the 15 minute period to elapse once the EAL is recognized as being exceeded.
 - 5.4.3. For EALs that specify duration of the off-normal condition, such as fire lasting 15 minutes, loss of power for 15 minutes, etc.:
 - 1. The Emergency Director shall make the declaration at the first available opportunity when the time has elapsed (not after an additional 15 minutes).
 - 2. The declaration should be made before the EAL is met (before the time duration has elapsed) when the Emergency Director has information that the off-normal condition will not be corrected within the specified time duration.

REFERENCE USE

- 5.5 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.
- 5.6 Initiating condition and EAL Information is presented by recognition category:
- 5.6.1. A – Abnormal Rad Levels / Radiological Effluent
 - 5.6.2. C – Cold Shutdown / Refueling System Malfunctions
 - 5.6.3. E – Events Related to Independent Spent Fuel Storage Installations
 - 5.6.4. F – Fission Product Barrier Degradation
 - 5.6.5. H – Hazards and Other Conditions Affecting Plant Safety
 - 5.6.6. S – System Malfunction
- 5.7 ICs and EALs are numbered as follows:

NOTE

All sequential numbers are not used in some ICs to maintain standardization with NEI numbering and Entergy numbering system. (For example, there is no SU2, SU3, SU4, and SU5 between SU1 and SU6)

- 5.7.1. Initiating Conditions: X¹ X² X³
- ¹ Category (A, C, E, F, H, S)
 - ² Classification (U-NOUE, A-Alert, S-SAE, G-GE)
 - ³ Sequential IC number for classification level (e.g., AU1, AU2, HA1, HA2, etc)
- 5.7.2. EALs: sequential number for EAL in each IC
- XXX-# (e.g., AU1-1, AU1-2, etc.)

6 **PROCEDURE**

NOTE

The assessment, classification, and declaration of an emergency condition is expected to be completed within 15 minutes after the availability of indications (i.e. plant instrumentation, plant alarms, computer displays, or incoming verbal reports) to plant operators that an EAL has been exceeded

- 6.1 Anytime an event occurs that has the potential of causing or resulting in a hazard to personnel, onsite or offsite, the Emergency Director:
 - 6.1.1. Should review INITIATING CONDITIONS and EALs to determine if the event should be classified as an emergency.
 - 6.1.2. Shall classify the emergency in accordance with this procedure and implement EIP-2-002, Classification Actions, if criteria are met.
- 6.2 River Bend Station Senior Management or designated alternate shall:
 - 6.2.1. Provide assistance to the OSM, as requested, if the emergency is classified as an Unusual Event (NOUE).
 - 6.2.2. Relieve the OSM of the responsibilities of Emergency Director as soon as practical for an ALERT or higher classification and implement applicable EIP procedures.
 - 6.2.3. The Emergency Director will review this procedure and upgrade the emergency to a SITE AREA EMERGENCY or GENERAL EMERGENCY when warranted.
- 6.3 Declaration of an emergency class may not be necessary if it is discovered that an event or condition had existed that met an EAL threshold but that no emergency had been declared and the basis for the emergency class no longer exists at the time of the discovery. (REF 2.4)
 - 6.3.1. Cases of this nature, discovered well after the fact, may be due to a rapidly concluded event or an oversight in the emergency classification made during the event or it may be determined during a post-event review (e.g., routine log or record review).
 - 6.3.2. Reporting requirements of 10CFR50.72 are applicable and the guidance of NUREG-1022 may be applied.
 - 6.3.3. Notify the State and local agencies by phone.

REFERENCE USE

- 6.4 For some events, the condition may be corrected before a declaration has been made. The key consideration in this situation is to determine whether or not further plant damage occurred while the corrective actions were being taken. In some situations, this can be readily determined, in other situations, further analyses (e.g., coolant radiochemistry sampling, may be necessary). Classify the event as indicated and terminate the emergency once assessment shows that there were no consequences from the event and other termination criteria are met. (REF 2.3)
- 6.5 Existing guidance for classifying transient events addresses the period of time of event recognition and classification (15 minutes). However, in cases when EAL declaration criteria may be met momentarily during the normal expected response of the plant, declaration requirements should not be considered to be met when the conditions are a part of the designed plant response, or result from appropriate Operator actions.
- 6.6 When two or more Emergency Action Levels are determined, declaration will be made on the highest classification level for the plant.
- 6.7 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 threshold is imminent. If, in the judgment of the Emergency Director, an imminent situation is at hand, the classification should be made as if the threshold has been exceeded.
- 6.8 EPP-2-503, RBS Equipment Important to Emergency Preparedness, provides guidance when planning to take an instrument used to determine EAL conditions out of service or following an UNPLANNED loss of the instrument. The OSM/CRS should perform the following:
 - 6.8.1. Evaluate out-of-service equipment and determine if other instruments or compensatory measures are in place to assess for the associated EAL entry condition.
 - 6.8.2. Evaluate site effects and implement a contingency plan if applicable.
- 6.9 Attachment 9 contains the USER AIDS available to the OSM / ED to use in determining the EAL.

7 DOCUMENTATION

- 7.1 NONE

INITIATING CONDITION MATRIX

RECOGNITION CATEGORY		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
Abnormal Rad Levels / Radiological Effluent	Radiological Effluents	AG1 Offsite dose resulting from an actual or IMMINENT release of gaseous radioactivity > 1000 mR TEDE or 5000 mR thyroid CDE for the actual or projected duration of the release using actual meteorology <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	AS1 Offsite dose resulting from an actual or IMMINENT release of gaseous radioactivity > 100 mR TEDE or 500 mR thyroid CDE for the actual or projected duration of the release <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	AA1 Any release of gaseous or liquid radioactivity to the environment > 200 times the ODCM limit for ≥ 15 minutes <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	AU1 Any release of gaseous or liquid radioactivity to the environment > 2 times the ODCM limit for ≥ 60 minutes <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>
	Abnormal Rad Levels			AA2 Damage to irradiated fuel or loss of water level that has resulted or will result in the uncovering of irradiated fuel outside the reactor vessel <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	AU2 UNPLANNED rise in plant radiation levels <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>
				AA3 Rise in radiation levels within the facility that impedes operation of systems required to maintain plant safety functions <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	

INITIATING CONDITION MATRIX

RECOGNITION CATEGORY		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
Fission Product Barrier Degradation	FPB Loss / Potential Loss	FG1 Loss of ANY two barriers AND loss or potential loss of the third barrier. <i>Op Mode: 1, 2, 3</i>	FS1 Loss or potential loss of ANY two barriers <i>Op Mode: 1, 2, 3</i>	FA1 ANY loss or ANY potential loss of EITHER fuel clad or RCS <i>Op Mode: 1, 2, 3</i>	FU1 ANY loss or ANY potential loss of containment <i>Op Mode: 1, 2, 3</i>
Hazards and Other Conditions Affecting Plant Safety	Security Events	HG1 HOSTILE ACTION resulting in loss of physical control of the facility <i>Op Mode: 1, 2, 3, 4, 5,</i> <i>DEFUELED</i>	HS1 HOSTILE ACTION within the PROTECTED AREA <i>Op Mode: 1, 2, 3, 4, 5,</i> <i>DEFUELED</i>	HA1 HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat <i>Op Mode: 1, 2, 3, 4, 5,</i> <i>DEFUELED</i>	HU1 Confirmed SECURITY CONDITION or threat which indicates a potential degradation in the level of safety of the plant <i>Op Mode: 1, 2, 3, 4, 5,</i> <i>DEFUELED</i>

INITIATING CONDITION MATRIX

RECOGNITION CATEGORY		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
Hazards and Other Conditions Affecting Plant Safety	Discretionary	HG2 Other conditions exist which in the judgment of the Emergency Director warrant declaration of a GENERAL EMERGENCY <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	HS2 Other conditions exist which in the judgment of the Emergency Director warrant declaration of a SITE AREA EMERGENCY <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	HA2 Other conditions exist which in the judgment of the Emergency Director warrant declaration of an ALERT. <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	HU2 Other conditions exist which in the judgment of the Emergency Director warrant declaration of a NOUE <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>
	Control Room Evacuation		HS3 Control Room evacuation has been initiated and plant control cannot be established <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	HA3 Control Room evacuation has been initiated <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	
	Fire			HA4 FIRE or EXPLOSION affecting the operability of plant safety systems required to establish or maintain safe shutdown <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED -</i>	HU4 FIRE within PROTECTED AREA boundary not extinguished within 15 minutes of detection or EXPLOSION within the PROTECTED AREA <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>

INITIATING CONDITION MATRIX

RECOGNITION CATEGORY		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
Hazards and Other Conditions Affecting Plant Safety	Toxic or Flammable gases			HA5 Access to a VITAL AREA is prohibited due to toxic, corrosive, asphyxiant or flammable gases which jeopardize operation of operable equipment required to maintain safe operations or safely shutdown the reactor <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	HU5 Release of toxic, corrosive, asphyxiant or flammable gases deemed detrimental to NORMAL PLANT OPERATIONS <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>
	Natural Phenomena			HA6 Natural or destructive phenomena affecting VITAL AREAS <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	HU6 Natural or destructive phenomena affecting the PROTECTED AREA <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>
System Malfunction	Loss of AC Power	SG1 Prolonged loss of all offsite and all onsite AC power to emergency busses <i>Op Mode: 1, 2, 3</i>	SS1 Loss of all offsite and all onsite AC power to emergency busses for ≥ 15 minutes <i>Op Mode: 1, 2, 3</i>	SA1 AC power capability to emergency busses reduced to a single power source for ≥ 15 minutes such that any additional single failure would result in station blackout <i>Op Mode: 1, 2, 3</i>	SU1 Loss of all offsite AC power to emergency busses for ≥ 15 minutes <i>Op Mode: 1, 2, 3</i>

INITIATING CONDITION MATRIX

RECOGNITION CATEGORY		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
System Malfunction	Failure of Reactor Protection System	SG3 Automatic scram and all manual actions fail to shutdown the reactor and indication of an extreme challenge to the ability to cool the core exists <i>Op Mode: 1, 2</i>	SS3 Automatic scram fails to shutdown the reactor and the manual actions taken from the reactor control console are not successful in shutting down the reactor <i>Op Mode: 1, 2</i>	SA3 Automatic scram fails to shutdown the reactor and the manual actions taken from the reactor control console are successful in shutting down the reactor <i>Op Mode: 1, 2</i>	
	Loss of DC Power		SS4 Loss of all vital DC power for \geq 15 minutes <i>Op Mode: 1, 2, 3</i>		

INITIATING CONDITION MATRIX

RECOGNITION CATEGORY		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
System Malfunction	Loss of Annunciators / Indication		SS6 Inability to monitor a SIGNIFICANT TRANSIENT in progress <i>Op Mode: 1, 2, 3</i>	SA6 UNPLANNED loss of safety system annunciation or indication in the control room with either (1) a SIGNIFICANT TRANSIENT in progress, or (2) compensatory non-alarming indicators are not available <i>Op Mode: 1, 2, 3</i>	SU6 UNPLANNED loss of safety system annunciation or indication in the Control Room for ≥ 15 minutes <i>Op Mode: 1, 2, 3</i>
	RCS Leakage				SU7 RCS leakage <i>Op Mode: 1, 2, 3</i>
	Loss of Communication				SU8 Loss of all onsite or offsite communications capabilities. <i>Op Mode: 1, 2, 3</i>
	Cladding Degradation				SU9 Fuel clad degradation <i>Op Mode: 1, 2, 3</i>
	Inadvertent Criticality				SU10 Inadvertent criticality <i>Op Mode: 3</i>

INITIATING CONDITION MATRIX

RECOGNITION CATEGORY		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
System Malfunction	TS LCO Limit Exceeded				SU11 Inability to reach required operating mode within Technical Specification limits <i>Op Mode: 1, 2, 3</i>
Cold Shutdown / Refueling	RCS Leakage	CG1 Loss of RCS/RPV inventory affecting fuel clad integrity with containment challenged <i>Op Mode:4, 5</i>	CS1 Loss of RCS/RPV inventory affecting core decay heat removal capability <i>Op Mode:4, 5</i>	CA1 Loss of RCS/RPV inventory <i>Op Mode:4, 5</i>	CU1 RCS leakage <i>Op Mode:4</i>
	Loss of RCS Inventory				CU2 UNPLANNED loss of RCS/RPV inventory <i>Op Mode: 5</i>
	Loss of Decay Heat Removal			CA3 Inability to maintain plant in cold shutdown <i>Op Mode:4, 5</i>	CU3 UNPLANNED loss of decay heat removal capability with irradiated fuel in the RPV <i>Op Mode: 4, 5</i>
	Loss of AC Power			CA5 Loss of all offsite and all onsite AC power to emergency busses for ≥ 15 minutes <i>Op Mode: 4, 5, Defueled</i>	CU5 AC power capability to emergency busses reduced to a single power source for ≥ 15 minutes such that any additional single failure would result in station blackout <i>Op Mode: 4, 5</i>

INITIATING CONDITION MATRIX

RECOGNITION CATEGORY		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
Cold Shutdown / Refueling	Loss of DC Power				CU6 Loss of required DC power for ≥ 15 minutes <i>Op Mode: 4, 5</i>
	Inadvertent Criticality				CU7 Inadvertent criticality <i>Op Mode: 4, 5</i>
	Loss of Communication				CU8 Loss of all onsite or offsite communications capabilities <i>Op Mode: 4, 5, Defueled</i>
ISFSI	Confinement Boundary Damage				E-HU1 Damage to a loaded cask CONFINEMENT BOUNDARY <i>Op Mode: All</i>

ABNORMAL RADIATION LEVELS / RADIOLOGICAL EFFLUENT

Radiological Effluent	GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
	AG1	AS1	AA1	AU1
	<p>Offsite dose resulting from an actual or IMMINENT release of gaseous radioactivity > 1000 mR TEDE or 5000 mR thyroid CDE for the actual or projected duration of the release using actual meteorology</p> <p>Emergency Action Level(s): (1 or 2 or 3) NOTE: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time. If dose assessment results are available, the classification should be based on EAL #2 instead of EAL #1. Do not delay declaration awaiting dose assessment results.</p> <p>1. VALID reading on any of the radiation monitors in Table R1 > the GENERAL EMERGENCY reading for ≥ 15 minutes OR 2. Dose assessment using actual meteorology indicates doses > 1000 mR TEDE or 5000 mR thyroid CDE at or beyond the SITE BOUNDARY OR 3. Field survey results indicate closed window dose rates > 1000 mR/hr expected to continue for ≥ 60 minutes; or analyses of field survey samples indicate thyroid CDE > 5000 mR for one hour of inhalation, at or beyond the SITE BOUNDARY</p>	<p>Offsite dose resulting from an actual or IMMINENT release of gaseous radioactivity > 100 mR TEDE or 500 mR thyroid CDE for the actual or projected duration of the release</p> <p>Emergency Action Level(s): (1 or 2 or 3) NOTE: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time. If dose assessment results are available, the classification should be based on EAL #2 instead of EAL #1. Do not delay declaration awaiting dose assessment results.</p> <p>1. VALID reading on any of the radiation monitors in Table R1 > the SITE AREA EMERGENCY reading for ≥ 15 minutes OR 2. Dose assessment using actual meteorology indicates doses > 100 mR TEDE or 500 mR thyroid CDE at or beyond the SITE BOUNDARY OR 3. Field survey results indicate closed window dose rates > 100 mR/hr expected to continue for ≥ 60 minutes; or analyses of field survey samples indicate thyroid CDE > 500 mR for one hour of inhalation, at or beyond the SITE BOUNDARY</p>	<p>Any release of gaseous or liquid radioactivity to the environment > 200 times the ODCM limit for ≥ 15 minutes</p> <p>Emergency Action Level(s): (1 or 2 or 3) NOTE: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.</p> <p>1. VALID reading on any of the radiation monitors in Table R1 > the ALERT reading for ≥ 15 minutes OR 2. For RMS-RE107 effluent monitor: EITHER VALID reading > 200 times the alarm setpoint established by a current radioactivity discharge permit for ≥ 15 minutes OR VALID reading > $1.27\text{E-}01 \mu\text{Ci/ml}$ for ≥ 15 minutes OR 3. Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 200 times the ODCM limit for ≥ 15 minutes</p>	<p>Any release of gaseous or liquid radioactivity to the environment > 2 times the ODCM limit for ≥ 60 minutes</p> <p>Emergency Action Level(s): (1 or 2 or 3) NOTE: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.</p> <p>1. VALID reading on any of the radiation monitors in Table R1 > the NOUE reading for ≥ 60 minutes OR 2. VALID reading on RMS-RE107 effluent monitor > 2 times the alarm setpoint established by a current radioactivity discharge permit for ≥ 60 minutes OR 3. Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 2 times the ODCM limit for ≥ 60 minutes</p>

Method	GENERAL		Table R1 EAL THRESHOLD		ALERT		NOUE	
	DRMS	Threshold	SITE AREA	Threshold	DRMS	Threshold	DRMS	Threshold
Main Plant Vent								
Primary	4GE125	4.50E+08 $\mu\text{Ci/sec}$	4GE125	4.50E+07 $\mu\text{Ci/sec}$	4GE125	3.06E+07 $\mu\text{Ci/sec}$	4GE125	3.06E+05 $\mu\text{Ci/sec}$
Secondary	N/A		N/A		1GE126	2.82E-01 $\mu\text{Ci/ml}$	1GE126	5.26E-03 $\mu\text{Ci/ml}$
Fuel Building Vent								
Primary	4GE005	1.00E+09 $\mu\text{Ci/sec}$	4GE005	1.00E+08 $\mu\text{Ci/sec}$	4GE005	2.19E+06 $\mu\text{Ci/sec}$	4GE005	2.19E+04 $\mu\text{Ci/sec}$
Secondary	N/A		N/A		5GE005	2.82E-01 $\mu\text{Ci/ml}$	5GE005	4.65E-03 $\mu\text{Ci/ml}$
Radwaste Building Vent								
Primary	N/A		N/A		4GE006	2.58E+06 $\mu\text{Ci/sec}$	4GE006	2.58E+04 $\mu\text{Ci/sec}$
Secondary					5GE006	6.84E-02 $\mu\text{Ci/ml}$	5GE006	6.84E-04 $\mu\text{Ci/ml}$

Plant Modes (white boxes indicate applicable modes) 1 Power Operations 2 Startup 3 Hot Shutdown 4 Cold Shutdown 5 Refuel D Defueled

ABNORMAL RADIATION LEVELS / RADIOLOGICAL EFFLUENT

GENERAL EMERGENCY		SITE AREA EMERGENCY		ALERT	NOUE
Abnormal Radiation Levels				AA2 1 2 3 4 5 D Damage to irradiated fuel or loss of water level that has resulted or will result in the uncovering of irradiated fuel outside the reactor vessel <u>Emergency Action Level(s): (1 or 2)</u> 1. A water level drop in the reactor refueling cavity, spent fuel pool or fuel transfer canal that will result in irradiated fuel becoming uncovered <u>OR</u> 2. A VALID reading on any of the following radiation monitors due to damage to irradiated fuel or loss of water level: RMS-RE140 2000 mR/hr RMS-RE141 2000 mR/hr RMS-RE192 2000 mR/hr RMS-RE193 2000 mR/hr RMS-RE5A 1.64E+03 µCi/sec RMS-RE5B (GE) 5.29E-04 µCi/ml	AU2 1 2 3 4 5 D UNPLANNED rise in plant radiation levels <u>Emergency Action Level(s): (1 or 2)</u> 1. a. UNPLANNED water level drop in a reactor refueling pathway as indicated by any of the following: a. Water level drop in the reactor refueling cavity, spent fuel pool, or fuel transfer canal indication on Control Room Panel 870 b. Personnel observation by visual or remote means. <u>AND</u> b. UNPLANNED VALID area radiation monitor alarm on any of the following: RMS-RE140 RMS-RE141 RMS-RE192 RMS-RE193 <u>OR</u> 2. UNPLANNED VALID area radiation monitor readings or survey results indicate a rise by a factor of 1000 over normal* levels <i>NOTE: For area radiation monitors with ranges incapable of measuring 1000 times normal* levels, classification shall be based on VALID full scale indications unless surveys confirm that area radiation levels are below 1000 times normal* within 15 minutes of the area radiation monitor indications going full scale.</i> *Normal can be considered the highest reading in the past 24 hours excluding the current peak value.
				AA3 1 2 3 4 5 D Rise in radiation levels within the facility that impedes operation of systems required to maintain plant safety functions <u>Emergency Action Level(s):</u> 1. Dose rate > 15 mR/hr in any of the following areas requiring continuous occupancy to maintain plant safety functions: Main Control Room CAS	

Plant Modes (white boxes indicate applicable modes) 1 Power Operations 2 Startup 3 Hot Shutdown 4 Cold Shutdown 5 Refuel D Defueled

FISSION PRODUCT BARRIER

GENERAL EMERGENCY		SITE AREA EMERGENCY		ALERT		NOUE	
FPB Loss / Potential Loss	FG1 Loss of ANY two barriers AND loss or potential loss of the third barrier <u>Emergency Action Level(s):</u> 1. Loss of any two barriers <u>AND</u> Loss or potential loss of the third barrier	FS1 Loss or potential loss of ANY two barriers <u>Emergency Action Level(s):</u> 1. Loss or potential loss of any two barriers	FA1 ANY loss or ANY potential loss of EITHER fuel clad or RCS <u>Emergency Action Level(s):</u> 1. Any loss or any potential loss of fuel clad <u>OR</u> Any loss or any potential loss of RCS	FU1 ANY loss or ANY potential loss of containment <u>Emergency Action Level(s):</u> 1. Any loss or any potential loss of containment			

FUEL CLAD (FC) Barrier			REACTOR COOLANT SYSTEM (RC) Barrier			PRIMARY CONTAINMENT (PC) Barrier		
Parameter	Loss	Potential Loss	Parameter	Loss	Potential Loss	Parameter	Loss	Potential Loss
FC1 Primary coolant activity level	Coolant activity > 300 $\mu\text{Ci/gm}$ dose equivalent I-131	None	RC1 Drywell pressure	Drywell pressure > 1.68 psid with indications of reactor coolant leak in drywell	None	PC1 Primary containment conditions	1. Rapid unexplained loss of PC pressure following initial pressure rise <u>OR</u> 2. PC pressure response not consistent with LOCA conditions	1. PC pressure > 15 psig and rising <u>OR</u> 2. a. PC hydrogen in the unsafe zone of HDOL curve <u>OR</u> b. DW hydrogen concentration > 9% <u>OR</u> 3. RPV pressure and suppression pool temperature cannot be maintained below the HCTL
FC2 Reactor vessel water level	RPV water level cannot be restored and maintained above -187 inches	RPV water level cannot be restored and maintained above -162 inches or cannot be determined	RC2 Reactor vessel water level	RPV water level cannot be restored and maintained above -162 inches or cannot be determined	None	PC2 Reactor vessel water level	None	Entry into PC flooding procedures SAP-1 and SAP-2
FC3 Primary Containment radiation monitors	Containment radiation monitor RMS-RE16 reading > 3,000 R/hr	None	RC3 RCS Leak Rate	1. UNISOLABLE main steam line break as indicated by the failure of both MSTVs in any one line to close <u>AND</u> High MSL flow annunciator (P601-19A- A2) <u>OR</u> 2. Indication of an UNISOLABLE HPCS, feedwater, RWCU or RCIC break <u>OR</u> 3. Emergency RPV depressurization is required	1. RCS leakage > 50 gpm inside the drywell <u>OR</u> 2. UNISOLABLE RCS leakage outside PC as indicated by exceeding either of the following: a. Max Normal Operating Temperature (Table F2) <u>OR</u> b. Max Normal Area Radiation (Table F2)	PC3 Primary containment isolation failure or bypass	1. a. Failure of all valves in any one line to close <u>AND</u> b. Direct downstream pathway to the environment exists after PC isolation signal <u>OR</u> 2. Intentional PC venting per EOPs or SAPs <u>OR</u> 3. UNISOLABLE RCS leakage outside PC as indicated by exceeding either of the following: a. Max Safe Operating Temperature (Table F1) <u>OR</u> b. Max Safe Area Radiation (Table F1)	None
			RC4 Drywell radiation	Drywell radiation monitor RMS-RE20 reading > 100 R/hr due to reactor coolant leakage	None	PC4 Primary containment radiation monitors	None	Containment radiation monitor RMS-RE16 reading > 10,000 R/hr
FC4 Emergency Director judgment	Any condition in the opinion of the Emergency Director that indicates loss of the Fuel Clad barrier	Any condition in the opinion of the Emergency Director that indicates potential loss of the Fuel Clad barrier	RC5 Emergency Director judgment	Any condition in the opinion of the Emergency Director that indicates loss of the RCS barrier	Any condition in the opinion of the Emergency Director that indicates potential loss of the RCS barrier	PC5 Emergency Director judgment	Any condition in the opinion of the Emergency Director that indicates loss of the Primary Containment barrier	Any condition in the opinion of the Emergency Director that indicates potential loss of the Primary Containment barrier

Plant Modes (white boxes indicate applicable modes) 1 Power Operations 2 Startup 3 Hot Shutdown 4 Cold Shutdown 5 Refuel D Defueled

FISSION PRODUCT BARRIER

TABLE F1

PC 3 Loss of Primary Containment

Parameter	Area Temperature	Area Radiation Level	
	Max Safe Operating Value	DRMS Grid 2	Max Safe Operating Value
RHR A equipment area	200° F	1213	9.5E+03 mR/hr
RHR B equipment area	200° F	1214	9.5E+03 mR/hr
RHR C equipment area	N/A	1215	9.5E+03 mR/hr
RCIC room	200° F	1219	9.5E+03 mR/hr
MSL Tunnel	200° F		N/A
RWCU pump room 1 (A) / 2 (B)	200° F		N/A

TABLE F2

RC 3 Potential Loss of RCS

Parameter	Area Temperature	Area Radiation Level	
	(isolation temperature alarm)	DRMS Grid 2	Max Normal Operating Value
RHR A equipment area	117° F (P601-20A-B4)	1213	8.2E+01 mR/hr
RHR B equipment area	117° F (P601-20A-B4)	1214	8.2E+01 mR/hr
RHR C equipment area	N/A	1215	8.2E+01 mR/hr
RCIC room	182° F (P601-21A-B6)	1219	1.20E+02 mR/hr
MSL Tunnel	173° F (P601-19A-A1/A3/B1/B3)		N/A
RWCU pump room 1 (A) / 2 (B)	165° F (P680-1A-A2/B2)		N/A

HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

GENERAL EMERGENCY		SITE AREA EMERGENCY		ALERT		NOUE	
Security	HG1 1 2 3 4 5 D HOSTILE ACTION resulting in loss of physical control of the facility <u>Emergency Action Level(s): (1 or 2)</u> 1. A HOSTILE ACTION has occurred such that plant personnel are unable to operate equipment required to maintain safety functions OR 2. A HOSTILE ACTION has caused failure of Spent Fuel Cooling Systems and IMMINENT fuel damage is likely for a freshly off-loaded reactor core in pool	HS1 1 2 3 4 5 D HOSTILE ACTION within the PROTECTED AREA <u>Emergency Action Level(s):</u> 1. A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the RBS security shift supervision	HA1 1 2 3 4 5 D HOSTILE ACTION within the OWNER-CONTROLLED AREA or airborne attack threat <u>Emergency Action Level(s): (1 or 2)</u> 1. A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the RBS security shift supervision OR 2. A validated notification from NRC of an airliner attack threat within 30 minutes of the site	HU1 1 2 3 4 5 D Confirmed SECURITY CONDITION or threat which indicates a potential degradation in the level of safety of the plant <u>Emergency Action Level(s): (1 or 2 or 3)</u> 1. A SECURITY CONDITION that does NOT involve a HOSTILE ACTION as reported by the RBS security shift supervision OR 2. A credible site specific security threat notification OR 3. A validated notification from NRC providing information of an aircraft threat			
	HG2 1 2 3 4 5 D Other conditions exist which in the judgment of the Emergency Director warrant declaration of a General Emergency <u>Emergency Action Level(s):</u> 1. 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						
Discretionary	HS2 1 2 3 4 5 D Other conditions exist which in the judgment of the Emergency Director warrant declaration of a SITE AREA EMERGENCY <u>Emergency Action Level(s):</u> 1. 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	HA2 1 2 3 4 5 D Other conditions exist which in the judgment of the Emergency Director warrant declaration of an ALERT <u>Emergency Action Level(s):</u> 1. 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	HU2 1 2 3 4 5 D Other conditions exist which in the judgment of the Emergency Director warrant declaration of a NOUE <u>Emergency Action Level(s):</u> 1. 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				

Plant Modes (white boxes indicate applicable modes) 1 Power Operations 2 Startup 3 Hot Shutdown 4 Cold Shutdown 5 Refuel D Defueled

HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

GENERAL EMERGENCY		SITE AREA EMERGENCY		ALERT		NOUE	
Control Room Evacuation		HS3 Control room evacuation has been initiated and plant control cannot be established <u>Emergency Action Level(s):</u> 1. a. Control room evacuation has been initiated <u>AND</u> b. Control of the plant cannot be established in accordance with AOP-0031, Shutdown from Outside the Main Control Room, within 15 minutes	1 2 3 4 5 D	HA3 Control room evacuation has been initiated <u>Emergency Action Level(s):</u> 1. AOP-0031, Shutdown from Outside the Main Control Room requires Control Room evacuation	1 2 3 4 5 D		
	Fire			HA4 FIRE or EXPLOSION affecting the operability of plant safety systems required to establish or maintain safe shutdown <u>Emergency Action Level(s):</u> 1. FIRE or EXPLOSION resulting in VISIBLE DAMAGE to any of the structures or areas in Table H2 containing safety systems or components or Control Room indication of degraded performance of those safety systems	1 2 3 4 5 D	HU4 FIRE within the PROTECTED AREA not extinguished within 15 minutes of detection or EXPLOSION within the PROTECTED AREA <u>Emergency Action Level(s): (1 or 2)</u> <i>Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the duration has exceeded, or will likely exceed, the applicable time.</i> 1. FIRE not extinguished within 15 minutes of Control Room notification or verification of a Control Room FIRE alarm in any Table H2 structure or area <u>OR</u> 2. EXPLOSION within the PROTECTED AREA	1 2 3 4 5 D
	Toxic or Flammable Gases			HA 5 Access to a VITAL AREA is prohibited due to toxic, corrosive, asphyxiant or flammable gases which jeopardize operation of operable equipment required to maintain safe operations or safely shutdown the reactor <u>Emergency Action Level(s):</u> <i>Note: If the equipment in the stated area was already inoperable, or out of service, before the event occurred, then this EAL should not be declared as it will have no adverse impact on the ability of the plant to safely operate or safely shutdown beyond that already allowed by Technical Specifications at the time of the event.</i> 1. Access to Main Control Room, Auxiliary Building, or 95' Control Building a VITAL AREA (Table H2) is prohibited due to toxic, corrosive, asphyxiant or flammable gases which jeopardize operation of systems required to maintain safe operations or safely shutdown the reactor		HU5 Release of toxic, corrosive, asphyxiant or flammable gases deemed detrimental to NORMAL PLANT OPERATIONS <u>Emergency Action Level(s): (1 or 2)</u> 1. Toxic, corrosive, asphyxiant or flammable gases in amounts that have or could adversely affect NORMAL PLANT OPERATIONS <u>OR</u> 2. Report by West Feliciana Parish for evacuation or sheltering of site personnel based on an offsite ev	1 2 3 4 5 D

Plant Modes (white boxes indicate applicable modes) 1 Power Operations 2 Startup 3 Hot Shutdown 4 Cold Shutdown 5 Refuel D Defueled

HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE																													
			1	2	3	4	5	D																								
Natural or Destructive Phenomena	<table><tr><th colspan="2">Table H1 Uncontrolled Flooding Threshold Area Water Level</th></tr><tr><th>Affected Location / Parameter</th><th>Max Safe Operating Value / Indicator</th></tr><tr><td>Aux Bldg Crescent Area 70' EL</td><td>6 inches above floor (must be verified locally)</td></tr><tr><td>HPCS Room 70'EL</td><td>4 inches above floor (P870-51A-G4)</td></tr><tr><td>RHR A Room 70'EL</td><td>4 inches above floor (P870-51A-G4)</td></tr><tr><td>RHR B Room 70'EL</td><td>4 inches above floor (P870-51A-G4)</td></tr><tr><td>RHR C Room 70'EL</td><td>4 inches above floor (P870-51A-G4)</td></tr><tr><td>LPCS Room 70'EL</td><td>4 inches above floor (P870-51A-G4)</td></tr><tr><td>RCIC Room 70'EL</td><td>4 inches above floor (P870-51A-G4)</td></tr></table>	Table H1 Uncontrolled Flooding Threshold Area Water Level		Affected Location / Parameter	Max Safe Operating Value / Indicator	Aux Bldg Crescent Area 70' EL	6 inches above floor (must be verified locally)	HPCS Room 70'EL	4 inches above floor (P870-51A-G4)	RHR A Room 70'EL	4 inches above floor (P870-51A-G4)	RHR B Room 70'EL	4 inches above floor (P870-51A-G4)	RHR C Room 70'EL	4 inches above floor (P870-51A-G4)	LPCS Room 70'EL	4 inches above floor (P870-51A-G4)	RCIC Room 70'EL	4 inches above floor (P870-51A-G4)	<table><tr><th colspan="2">Table H2 Structures Containing Functions or Systems Required for Safe Shutdown</th></tr><tr><td>Reactor Building</td><td>Standby Cooling Tower</td></tr><tr><td>Auxiliary Building</td><td>Diesel Generator Building</td></tr><tr><td>Control Building</td><td>Tunnels (B, D, E, F, G)</td></tr><tr><td>Fuel Building</td><td></td></tr></table>	Table H2 Structures Containing Functions or Systems Required for Safe Shutdown		Reactor Building	Standby Cooling Tower	Auxiliary Building	Diesel Generator Building	Control Building	Tunnels (B, D, E, F, G)	Fuel Building		<p>HA6 Natural or destructive phenomena affecting VITAL AREAS Emergency Action Level(s): (1 or 2 or 3 or 4 or 5 or 6)</p> <p>1. a. Seismic event > Operating Basis Earthquake (OBE) as indicated by: Annunciator "Seismic Tape Recording System Start" (P680-02A-D06) AND Event Indicator on ERS-NBI-102 is white AND Receipt of EITHER 1 OR 2: 1. Annunciator "Seismic Event High" (P680-02A-C06) 2. Annunciator "Seismic Event High-High" (P680-02A-B06) AND amber light(s) on panel NBI-101 AND b. Earthquake confirmed by any of the following: • Earthquake felt in plant • National Earthquake Center • Control Room indication of degraded performance of systems required for the safe shutdown of the plant</p> <p>OR</p> <p>2. Tornado striking resulting in VISIBLE DAMAGE to any of the Table H2 structures or areas containing safety systems or components or Control Room indication of degraded performance of those safety systems</p> <p>OR</p> <p>3. Internal flooding in Auxiliary Building 70 ft elevation resulting in an electrical shock hazard that precludes access to operate or monitor safety equipment or Control Room indication of degraded performance of those safety systems</p> <p>OR</p> <p>4. Turbine failure-generated PROJECTILES resulting in VISIBLE DAMAGE to or penetration of any of the Table H2 structures or areas containing safety systems or components or Control Room indication of degraded performance of those safety systems</p> <p>OR</p> <p>5. Vehicle crash resulting in VISIBLE DAMAGE to any of the Table H2 structures or areas containing safety systems or components or Control Room indication of degraded performance of those safety systems</p> <p>OR</p> <p>6. Hurricane or high SUSTAINED wind conditions ≥ 74 mph within the PROTECTED AREA boundary and resulting in VISIBLE DAMAGE to any of the Table H2 structures or areas containing safety systems or components or Control Room indication of degraded performance of those safety systems</p>	<p>HU6 Natural or destructive phenomena affecting the PROTECTED AREA Emergency Action Level(s): (1 or 2 or 3 or 4 or 5)</p> <p>1. Seismic event identified by any 2 of the following: ▪ Seismic event confirmed by activated seismic switch as indicated by receipt of EITHER a OR b: a. Annunciator "Seismic Tape Recording SYS Start" (P680-02A-D06) b. Event Indicator on ERS-NBI-102 is white ▪ Earthquake felt in plant ▪ National Earthquake Center</p> <p>OR</p> <p>2. Tornado striking within the PROTECTED AREA boundary</p> <p>OR</p> <p>3. Internal flooding that has the potential to affect safety related equipment required by Technical Specifications for the current operating mode in any Table H1 area</p> <p>OR</p> <p>4. Turbine failure resulting in casing penetration or damage to turbine or generator seals</p> <p>OR</p> <p>5. Severe weather or hurricane conditions with indication of SUSTAINED high winds ≥ 74 mph within the PROTECTED AREA boundary</p>
	Table H1 Uncontrolled Flooding Threshold Area Water Level																															
Affected Location / Parameter	Max Safe Operating Value / Indicator																															
Aux Bldg Crescent Area 70' EL	6 inches above floor (must be verified locally)																															
HPCS Room 70'EL	4 inches above floor (P870-51A-G4)																															
RHR A Room 70'EL	4 inches above floor (P870-51A-G4)																															
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Reactor Building	Standby Cooling Tower																															
Auxiliary Building	Diesel Generator Building																															
Control Building	Tunnels (B, D, E, F, G)																															
Fuel Building																																

SYSTEM MALFUNCTION

	GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
Loss of AC Power	SG1 1 2 3 4 5 D Prolonged loss of all offsite and all onsite AC power to emergency busses <u>Emergency Action Level(s):</u> 1. a. Loss of all offsite and all onsite AC power to Div I, II and III ENS busses AND b. Either of the following: • Restoration of at least one emergency bus in < 4 hours is not likely OR • RPV level cannot be maintained > -162 inches	SS1 1 2 3 4 5 D Loss of all offsite and all onsite AC power to emergency busses for ≥ 15 minutes <u>Emergency Action Level(s):</u> <i>Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.</i> 1. Loss of all offsite and all onsite AC power to Div I, II and III ENS busses for ≥ 15 minutes	SA1 1 2 3 4 5 D AC power capability to emergency busses reduced to a single power source for ≥ 15 minutes such that any additional single failure would result in station blackout <u>Emergency Action Level(s):</u> <i>Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.</i> 1. a. AC power capability to Div I and Div II ENS busses reduced to a single power source for ≥ 15 minutes AND b. Any additional single failure will result in a station blackout	SU1 1 2 3 4 5 D Loss of all offsite AC power to emergency busses for ≥ 15 minutes <u>Emergency Action Level(s):</u> <i>Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.</i> 1. Loss of all offsite AC power to Div I and II ENS busses for ≥ 15 minutes
Failure of Reactor Protection System	SG3 1 2 3 4 5 D Automatic scram and all manual actions fail to shutdown the reactor and indication of an extreme challenge to the ability to cool the core exists <u>Emergency Action Level(s):</u> 1. a. An automatic scram failed to shutdown the reactor AND b. All manual actions do not shutdown the reactor as indicated by reactor power ≥ 5% AND c. Either of the following exist or have occurred due to continued power generation: • Core cooling is extremely challenged as indicated by RPV level can not be maintained > -187 inches OR • Heat removal is extremely challenged as indicated by RPV pressure and Suppression Pool temperature cannot be maintained in the EOP Heat Capacity Temperature Limit (HCTL) Safe Zone	SS3 1 2 3 4 5 D Automatic scram fails to shutdown the reactor and the manual actions taken from the reactor control console are not successful in shutting down the reactor <u>Emergency Action Level(s):</u> 1. a. An automatic scram failed to shutdown the reactor AND b. Manual actions taken at the reactor control console do not shutdown the reactor as indicated by reactor power ≥ 5%	SA3 1 2 3 4 5 D Automatic scram fails to shutdown the reactor and the manual actions taken from the reactor control console are successful in shutting down the reactor <u>Emergency Action Level(s):</u> 1. a. An automatic scram failed to shutdown the reactor AND b. Manual actions taken at the reactor control console successfully shutdown the reactor as indicated by reactor power < 5%	
Loss of DC Power		SS4 1 2 3 4 5 D Loss of all vital DC power for ≥ 15 minutes <u>Emergency Action Level(s):</u> <i>Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.</i> 1. < 105 VDC on all vital DC busses for ≥ 15 minutes		

SYSTEM MALFUNCTION

	GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
Loss of Annunciation / Indication		SS6 1 2 3 4 5 D Inability to monitor a SIGNIFICANT TRANSIENT in progress <u>Emergency Action Level(s):</u> <i>Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.</i> 1. a. UNPLANNED loss of > approximately 75% of the following for ≥ 15 minutes: <ul style="list-style-type: none"> Control Room safety system annunciation <u>OR</u> <ul style="list-style-type: none"> Control Room safety system indication <u>AND</u> b. A SIGNIFICANT TRANSIENT is in progress <u>AND</u> c. Compensatory indications are unavailable	SA6 1 2 3 4 5 D UNPLANNED loss of safety system annunciation or indication in the control room with either (1) a SIGNIFICANT TRANSIENT in progress, or (2) compensatory non-alarming indicators are not available <u>Emergency Action Level(s):</u> <i>Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.</i> 1. a. UNPLANNED loss of > approximately 75% of the following for ≥ 15 minutes: <ul style="list-style-type: none"> Control Room safety system annunciation <u>OR</u> <ul style="list-style-type: none"> Control Room safety system indication <u>AND</u> b. Either of the following: <ul style="list-style-type: none"> A SIGNIFICANT TRANSIENT is in progress <u>OR</u> c. Compensatory indications are unavailable	SU6 1 2 3 4 5 D UNPLANNED loss of safety system annunciation or indication in the Control Room for ≥ 15 minutes <u>Emergency Action Level(s):</u> <i>Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.</i> 1. UNPLANNED loss of > approximately 75% of the following for ≥ 15 minutes: <ul style="list-style-type: none"> Control Room safety system annunciation <u>OR</u> <ul style="list-style-type: none"> Control Room safety system indication
RCS Leakage				SU7 1 2 3 4 5 D RCS leakage <u>Emergency Action Level(s): (1 or 2)</u> <i>Note: A relief valve that operates and fails to close per design should be considered applicable if the relief valve cannot be isolated.</i> 1. Unidentified or pressure boundary leakage > 10 gpm <u>OR</u> 2. Identified leakage > 35 gpm

SYSTEM MALFUNCTION

	GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE																		
Loss of Communication				<div>SU812345D</div> <div>Loss of all onsite or offsite communications capabilities</div> <div><u>Emergency Action Level(s): (1 or 2)</u></div> <div>1. Loss of all of the following onsite communications methods affecting the ability to perform routine operations:<div>Plant radio system</div><div>Plant paging system</div><div>Sound powered phones</div><div>In-plant telephones</div></div> <div><u>OR</u></div> <div>2. Loss of all of the following offsite communications methods affecting the ability to perform offsite notifications:<div>All telephones</div><div>NRC phones</div><div>State of Louisiana Radio</div><div>Offsite notification system and hotline</div></div>																		
Cladding Degradation			<div>Table S1</div> <table><tr><th>FLOW (cfm)</th><th>Dose Rate Limit (mR/hr)</th></tr><tr><td>≤15</td><td>9000</td></tr><tr><td>>15-17</td><td>8000</td></tr><tr><td>>17-20</td><td>7000</td></tr><tr><td>>20-25</td><td>5000</td></tr><tr><td>>25-30</td><td>4000</td></tr><tr><td>>30-60</td><td>2000</td></tr><tr><td>>60-140</td><td>1000</td></tr><tr><td>>140-200</td><td>700</td></tr></table>	FLOW (cfm)	Dose Rate Limit (mR/hr)	≤15	9000	>15-17	8000	>17-20	7000	>20-25	5000	>25-30	4000	>30-60	2000	>60-140	1000	>140-200	700	<div>SU912345D</div> <div>Fuel clad degradation</div> <div><u>Emergency Action Level(s): (1 or 2)</u></div> <div>1. Offgas pre-treatment radiation monitor reading > the Table S1 Dose Rate Limit for the actual indicated offgas flow indicating fuel clad degradation > T.S. allowable limits</div> <div><u>OR</u></div> <div>2. Reactor coolant sample activity value indicating fuel clad degradation > T.S. allowable limits<div>a. > 4.0 μCi/gm dose equivalent I-131</div><div><u>OR</u></div><div>• > 0.2 μCi/gm dose equivalent I-131 for > 48 hours</div></div>
FLOW (cfm)	Dose Rate Limit (mR/hr)																					
≤15	9000																					
>15-17	8000																					
>17-20	7000																					
>20-25	5000																					
>25-30	4000																					
>30-60	2000																					
>60-140	1000																					
>140-200	700																					
Inadvertent Criticality				<div>SU1012345D</div> <div>Inadvertent criticality</div> <div><u>Emergency Action Level(s):</u></div> <div>1. UNPLANNED sustained positive period observed on nuclear instrumentation</div>																		

SYSTEM MALFUNCTION

	GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
TECH SPEC Time Limit Exceeded				<div>SU11</div> <div>Inability to reach required operating mode within Technical Specification limits</div> <div><u>Emergency Action Level(s):</u></div> <div>1. Plant is not brought to required operating mode within Technical Specifications LCO Action Statement time</div> <div>12345D</div>

COLD SHUTDOWN / REFUELING

Loss of RCS/RPV Inventory	GENERAL EMERGENCY					SITE AREA EMERGENCY					ALERT					NOUE																					
	CGI					CS1					CA1					CU1																					
	Loss of RCS/RPV inventory affecting fuel clad integrity with containment challenged					Loss of RCS/RPV inventory affecting core decay heat removal capability					Loss of RCS/RPV inventory					RCS leakage																					
	<u>Emergency Action Level(s): (1 or 2)</u>					<u>Emergency Action Level(s): (1 or 2 or 3)</u>					<u>Emergency Action Level(s): (1 or 2)</u>					<u>Emergency Action Level(s):</u>																					
	1. a. RPV level < -162 inches (TAF) for ≥ 30 minutes					<i>NOTE: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.</i>					<i>NOTE: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.</i>					<i>NOTE: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.</i>																					
	<u>AND</u>																																				
	b. Any containment challenge indication in Table C1					1. With CONTAINMENT CLOSURE <u>not</u> established, UNPLANNED RPV level < -49 inches					1. UNPLANNED loss of RCS inventory as indicated by RPV level < -43 inches (Level 2)					1. RCS leakage results in the inability to maintain or restore RPV level > +9.7 inches (Level 3) for ≥ 15 minutes																					
	<u>OR</u>					<u>OR</u>					<u>OR</u>																										
	2. a. RCS level cannot be monitored with core uncover indicated by any of the following for ≥ 30 minutes:					2. With CONTAINMENT CLOSURE established, RPV level < -162 inches (TAF)					2. RCS level cannot be monitored for ≥ 15 minutes with a loss of RCS inventory as indicated by an unexplained rise in floor or equipment sump level, Suppression Pool level, vessel make-up rate or observation of leakage or inventory loss																										
	<ul style="list-style-type: none">RMS-RE16 reading > 100 R/hrErratic Source Range Monitor indicationUnexplained rise in floor or equipment sump level, Suppression Pool level, vessel make-up rate or observation of leakage or inventory loss					3. RCS level cannot be monitored for ≥ 30 minutes with a loss of RCS inventory as indicated by any of the following:																															
<u>AND</u>					<ul style="list-style-type: none">RMS-RE16 reading > 100 R/hrErratic Source Range Monitor indicationUnexplained rise in floor or equipment sump level, Suppression Pool level, vessel make-up rate or observation of leakage or inventory loss																																
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COLD SHUTDOWN / REFUELING

GENERAL EMERGENCY		SITE AREA EMERGENCY		ALERT		NOUE	
Loss of RCS/RPV Inventory						CU2	12345D
						UNPLANNED loss of RCS/RPV inventory <u>Emergency Action Level(s) (1 or 2)</u> <i>Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.</i> 1. UNPLANNED RCS level drop as indicated by either of the following: a. RCS water level drop below the RPV flange for ≥ 15 minutes when the RCS level band is established above the RPV flange <u>OR</u> b. RCS water level drop below the RPV level band for ≥ 15 minutes when the RCS level band is established below the RPV flange <u>OR</u> 2. RCS level cannot be monitored with a loss of RCS inventory as indicated by an unexplained rise in floor or equipment sump level, Suppression Pool level, vessel make-up rate or observation of leakage or inventory loss	
Loss of Decay Heat Removal				CA3	12345D	CU3	12345D
				Inability to maintain plant in cold shutdown <u>Emergency Action Level(s): (1 or 2)</u> 1. An UNPLANNED event results in RCS temperature $> 200^{\circ}\text{F}$ > the specified duration in Table C2 <u>OR</u> 2. An UNPLANNED event results in RCS pressure rise > 10 psig due to a loss of RCS cooling		UNPLANNED loss of decay heat removal capability with irradiated fuel in the RPV <u>Emergency Action Level(s): (1 or 2)</u> <i>Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.</i> 1. An UNPLANNED event results in RCS temperature exceeding 200°F <u>OR</u> 2. Loss of all RCS temperature and RCS/RPV level indication for ≥ 15 minutes	

Plant Modes (white boxes indicate applicable modes) 1 Power Operations 2 Startup 3 Hot Shutdown 4 Cold Shutdown 5 Refuel D Defueled

COLD SHUTDOWN / REFUELING

GENERAL EMERGENCY		SITE AREA EMERGENCY		ALERT	NOUE
				CA5 1 2 3 4 5 D	CU5 1 2 3 4 5 D
Loss of AC Power				<p>Loss of all offsite and all onsite AC power to emergency busses for ≥ 15 minutes</p> <p>Emergency Action Level(s): <i>Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.</i></p> <p>1. Loss of all offsite and all onsite AC power to Div I and Div II ENS busses for ≥ 15 minutes</p>	<p>AC power capability to emergency busses reduced to a single power source for ≥ 15 minutes such that any additional single failure would result in station blackout</p> <p>Emergency Action Level(s): <i>Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.</i></p> <p>1. a. AC power capability to Div I and Div II ENS busses reduced to a single power source for ≥ 15 minutes</p> <p>AND</p> <p>b. Any additional single power source failure will result in station blackout</p>
Loss of DC Power					<p>CU6 Loss of required DC power for ≥ 15 minutes Emergency Action Level(s): <i>Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time</i></p> <p>1. < 105 VDC on required Vital DC busses for ≥ 15 minutes</p>
Inadvertent Criticality					<p>CU7 Inadvertent criticality Emergency Action Level(s):</p> <p>1. UNPLANNED sustained positive period observed on nuclear instrumentation</p>
Loss of Communications					<p>CU8 Loss of all onsite or offsite communications capabilities Emergency Action Level(s): (1 or 2)</p> <p>1. Loss of all of the following onsite communication methods affecting the ability to perform routine operations: Plant radio system Plant paging system Sound powered phones In-plant telephones</p> <p>OR</p> <p>2. Loss of all of the following offsite communication methods affecting the ability to perform offsite notifications: All telephones NRC phones State of Louisiana Radio Offsite notification system and hotline</p>

EVENTS RELATED TO ISFSI

GENERAL EMERGENCY		SITE AREA EMERGENCY		ALERT	NOUE
Cask Damage					E-HU1 Damage to a loaded cask CONFINEMENT BOUNDARY <u>Emergency Action Levels(s):</u> 1. Damage to a loaded cask CONFINEMENT BOUNDARY

EAL BASES

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EAL BASES

Introduction and Background Information**General Notes on Basis Document Use**

This document provides an explanation and rationale for each Emergency Action Level (EAL) included in the RBS EAL scheme based on NEI 99-01 Revision 5. It should be used to facilitate review of the RBS EALs, provide historical documentation for future reference and serve as a resource for training. Decision makers responsible for implementation of EIP-2-001, Classification of Emergencies, may use this document as a technical reference in support of EAL interpretation.

The expectation is that emergency classifications are to be made as soon as conditions are present and recognizable for the classification, but within 15 minutes or less in all cases of conditions present. Use of this document for assistance is not intended to delay the emergency classification.

Emergency Classification Level Thresholds

The most common bases for establishing these boundaries are the technical specifications and setpoints that have been developed in the design basis calculations and the Updated Safety Analysis Report (USAR).

For those conditions that are easily measurable and instrumented, the boundary is likely to be the EAL (observable by plant staff, instrument reading, alarm setpoint, etc.) that indicates entry into a particular emergency classification level.

In addition to the continuously measurable indicators, such as coolant temperature, coolant levels, leak rates, containment pressure, etc., the USAR provides indications of the consequences associated with design basis events. Examples include steam pipe breaks, MSIV malfunctions, and other anticipated events that, upon occurrence, place the plant immediately into an emergency classification level.

Another approach for defining these boundaries is the use of a plant specific probabilistic safety assessment (PSA - also known as probabilistic risk analysis, PRA). PSAs can be used as a good first approximation of the relevant ICs and risk associated with emergency conditions. RBS has an Individual Plant Evaluation (IPE) and an Individual Plant Evaluation for External Events (IPEEE).

Another critical element of the analysis to arrive at these threshold (boundary) conditions is the time that the plant might stay in that condition before moving to a higher emergency classification level. In particular, station blackout coping analyses performed in response to 10 CFR 50.63 and Regulatory Guide 1.155, "Station Blackout," are used to determine whether RBS enters a Site Area Emergency or a General Emergency directly, and when escalation to General Emergency is indicated. The time dimension is critical to the EAL since the purpose of the emergency classification level for state and local officials is to notify them of the level of mobilization that may be necessary to handle the emergency. This is particularly true when a Site

EAL BASES

Introduction and Background Information**Emergency Classification Level Thresholds (Cont'd)**

Area Emergency or General Emergency is IMMINENT. Establishing EALs for such conditions must take estimated evacuation time into consideration to minimize the potential for the plume to pass while evacuation is underway.

Regardless of whether or not containment integrity is challenged, it is possible for significant radioactive inventory within containment to result in EPA PAG plume exposure levels being exceeded even assuming containment is within technical specification allowable leakage rates. With or without containment challenge, however, a major release of radioactivity requiring offsite protective actions from core damage is not possible unless a major failure of fuel cladding allows radioactive material to be released from the core into the reactor coolant. NUREG-1228, "Source Estimations During Incident Response to Severe Nuclear Power Plant Accidents," indicates that such conditions do not exist when the amount of clad damage is less than 20%.

Emergency Action Levels (EALs)

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 RBS Technical Specifications. Activities which cause the site to operate beyond that allowed by the Technical Specifications, planned or unplanned, may result in an EAL threshold being met or exceeded. Planned evolutions to test, manipulate, repair, perform maintenance or modifications to systems and equipment that result in an EAL value 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 operating license. However, these conditions may be subject to the reporting requirements of 10 CFR 50.72.

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 definition is the need for timely assessment.

With the emergency classification levels defined, the thresholds that must be met for each EAL to be placed under the emergency classification level can be determined. There are two basic approaches to determining these EALs. EALs and emergency classification level boundaries coincide for those continuously measurable, instrumented ICs, such as radioactivity, core temperature, coolant levels, etc. For these ICs, the EAL is the threshold reading that most closely corresponds to the emergency classification level description using the best available information.

EAL BASES

Introduction and Background Information**Emergency Action Levels (EALs) (Cont'd)**

For discrete (discontinuous) events, the approach is somewhat different. Typically, in this category are internal and external hazards such as FIRE or earthquake. The purpose for including hazards in EALs is to assure that RBS personnel and offsite emergency response organizations are prepared to deal with consequential damage these hazards may cause. If, indeed, hazards have caused damage to safety functions or fission product barriers, this should be confirmed by symptoms or by observation of such failures. Therefore, it may be appropriate to enter an Alert status for events approaching or exceeding design basis limits such as Operating Basis Earthquake (OBE), design basis wind loads, FIRE within VITAL AREAS, etc. This would give the operating staff additional support and improved ability to determine the extent of plant damage. If damage to barriers or challenges to Critical Safety Functions (CSFs) have occurred or are identified, then the additional support can be used to escalate or terminate the emergency classification level based on what has been found. Of course, security events must reflect potential for rising security threat levels.

Emergency Operating Procedures (EOP) are designed to maintain and/or restore a set of CSFs which are listed in the order of priority for restoration efforts during accident conditions.

There are diverse and redundant plant systems to support each CSF. By monitoring the CSFs instead of the individual system component status, the impact of multiple events is inherently addressed (e.g., the number of operable components available to maintain the critical safety function.).

The EOPs contain detailed instructions regarding the monitoring of these functions and provides a scheme for classifying the significance of the challenge to the functions. In providing EALs based on these schemes, the emergency classification level can flow from the EP assessment rather than being based on a separate EAL assessment. This is desirable as it reduces ambiguity and the time necessary to classify the event.

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 threshold has been exceeded. While this is particularly prudent at the higher emergency classification levels (as the early classification may provide for more effective implementation of protective measures), it is nonetheless applicable to all emergency classification levels.

EAL BASES

Introduction and Background Information**Treatment of Multiple Events and Classification Level Upgrading**

The above discussion deals primarily with simpler emergencies and events that may not escalate rapidly. However, usable EAL guidance must also consider rapidly evolving and complex events. Hence, emergency classification level upgrading and consideration of multiple events must be addressed.

When multiple simultaneous events occur, the emergency classification level is based on the highest EAL reached. For example, two Alerts remain in the Alert category. or, an Alert and a Site Area Emergency is a Site Area Emergency. Further guidance is provided in RIS 2007-02, Clarification of NRC Guidance for Emergency Notifications During Quickly Changing Events.

Emergency Classification Level Downgrading

Another important aspect of usable EAL guidance is the consideration of what to do when the risk posed by an emergency is clearly lowering. RBS uses a combination approach involving recovery (generally for higher classifications) and termination (for lower classifications). Downgrading to lower emergency classification levels is not used at RBS.

Classifying Transient Events

For some events, the condition may be corrected before a declaration has been made. The key consideration in this situation is to determine whether or not further plant damage occurred while the corrective actions were being taken. In some situations, this can be readily determined, in other situations, further analyses (e.g., coolant radiochemistry sampling, may be necessary). Classify the event as indicated and terminate the emergency once assessment shows that there were no consequences from the event and other termination criteria are met.

Existing guidance for classifying transient events addresses the period of time of event recognition and classification (15 minutes). However, in cases when EAL declaration criteria may be met momentarily during the normal expected response of the plant, declaration requirements should not be considered to be met when the conditions are a part of the designed plant response, or result from appropriate Operator actions.

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 and the guidance of NUREG-1022, Event Reporting Guidelines 10 CFR 50.72 and 50.73, should be applied.

EAL BASES

Introduction and Background Information**Operating 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 level can be declared, the emergency classification level 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 EALs are applicable only to events that initiate in Hot Shutdown or higher.

Plant Operating Mode Usage for RBS EALs:

MODE	TITLE	REACTOR MODE SWITH POSITION	AVERAGE REACTOR COOLANT TEMPERATIURE (°F)
1	Power Operation	Run	N/A
2	Startup	Refuel ^(a) or Startup/Hot Standby	N/A
3	Hot Shutdown ^(a)	Shutdown	> 200
4	Cold Shutdown ^(a)	Shutdown	≤ 200
5	Refueling ^(b)	Shutdown or Refuel	N/A

(a) All reactor vessel head closure bolts fully tensioned.

(b) One or more reactor vessel head closure bolts less than fully tensioned.

Defueled (D) – All reactor fuel removed from reactor pressure vessel (full core offload during refueling or extended outage). This is not an operating mode designation by Technical Specifications.

EAL BASES

AU1**Initiating Condition – NOTIFICATION OF UNUSUAL EVENT**

Any release of gaseous or liquid radioactivity to the environment > 2 times the ODCM limit for ≥ 60 minutes

Operating Mode Applicability: All

Emergency Action Level(s): (1 or 2 or 3)

Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.

1. VALID reading on any of the radiation monitors in Table R1 > the NOUE reading for ≥ 60 minutes

OR

2. VALID reading on RMS-RE107 effluent monitor > 2 times the alarm setpoint established by a current radioactivity discharge permit for ≥ 60 minutes

OR

3. Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 2 times the ODCM limit for ≥ 60 minutes

Table R1 EAL THRESHOLD			
Method		NOUE	
		DRMS Grid 6	Threshold
Main Plant Vent	Primary	4GE125	3.06E+05 $\mu\text{Ci/sec}$
	Secondary	1GE126	5.26E-03 $\mu\text{Ci/ml}$
Fuel Building Vent	Primary	4GE005	2.19E+04 $\mu\text{Ci/sec}$
	Secondary	5GE005	4.65E-03 $\mu\text{Ci/ml}$
Radwaste Building Vent	Primary	4GE006	2.58E+04 $\mu\text{Ci/sec}$
	Secondary	5GE006	6.84E-04 $\mu\text{Ci/ml}$

EAL BASES

AU1**Basis:**

The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.

This IC addresses a potential reduction in the level of safety of the plant as indicated by a radiological release that exceeds regulatory commitments for an extended period of time.

RBS incorporates features intended to control the release of radioactive effluents to the environment. Further, there are administrative controls established to prevent unintentional releases, or control and monitor intentional releases (Offsite Dose Calculation Manual - ODCM). The occurrence of extended, uncontrolled radioactive releases to the environment is indicative of a degradation in these features and/or controls.

The ODCM multiples are specified in AU1 and AA1 only to distinguish between non-emergency conditions, and from each other. While these multiples obviously correspond to an offsite dose or dose rate, the emphasis in classifying these events is the degradation in the level of safety of the plant, not the magnitude of the associated dose or dose rate.

Releases should not be prorated or averaged over 60 minutes. For example, a release exceeding 4 X the ODCM limit for 30 minutes does not meet the threshold for this IC.

This Initiating Condition includes any release for which a radioactivity discharge permit was not prepared, or a release that exceeds the conditions (e.g., minimum dilution flow, maximum discharge flow, alarm setpoints, etc.) on the applicable permit.

EAL #1

This EAL addresses radioactivity releases, that for whatever reason, cause effluent radiation monitor readings to exceed the threshold identified in the Initiating Condition.

This EAL is intended for sites that have established effluent monitoring on non-routine release pathways for which a discharge permit would not normally be prepared.

Any release on the routine effluent monitors in excess of the TRM limit is considered a non-routine release. Table R1 provides the monitors' EAL setpoint values. Values are provided for a primary and secondary source for NOUE and Alert EAL determination. The Division I safety related monitors (DRMS 4GE125 and 4GE005) are the preferred source for main plant exhaust and fuel building EAL determination. Radwaste building preferred value is the effluent monitor (4GE006). The secondary monitors in Table R1 should be used to determine EALs if the preferred monitors are inoperable.

EAL #2

This EAL addresses radioactivity releases, that for whatever reason, cause effluent radiation monitor readings to exceed the threshold identified in this Initiating Condition established by the radioactivity discharge permit. This value is associated with a planned batch release.

EAL BASES

AU1EAL #3

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

References:

T.R. 3.11

RSP-0008, *Offsite Dose Calculation Manual* (ODCM)G.13.18.9.6*012 Rev 0, *Effect of Core Uprate on the DRMS Process Safety Limit / Conversion Factors* / PR-C-495 Rev 2 p 4

ESK-RMS05

ESK-RMS25

EAL BASES

AU2**Initiating Condition - NOTIFICATION OF UNUSUAL EVENT**

UNPLANNED rise in plant radiation levels

Operating Mode Applicability: All**Emergency Action Level(s):** (1 or 2)

1. a. UNPLANNED water level drop in a reactor refueling pathway as indicated by any of the following:
 - Water level drop in the reactor refueling cavity, spent fuel pool or fuel transfer canal indication on Control Room Panel 870
 - Personnel observation by visual or remote means

AND

- b. UNPLANNED VALID area radiation monitor alarm on any of the following:

RMS-RE140
RMS-RE141
RMS-RE192
RMS-RE193

OR

2. UNPLANNED VALID area radiation monitor readings or survey results indicate a rise by a factor of 1000 over normal* levels

NOTE: For area radiation monitors with ranges incapable of measuring 1000 times normal* levels, classification shall be based on VALID full scale indications unless surveys confirm that area radiation levels are below 1000 times normal* within 15 minutes of the area radiation monitor indications going full scale.

*Normal can be considered as the highest reading in the past twenty-four hours excluding the current peak value.

Basis:

This IC addresses elevated radiation levels as a result of a water level drop above irradiated fuel or events that have resulted, or may result, in UNPLANNED rises in radiation dose rates within plant buildings. These radiation rises represent a loss of control over radioactive material and represent a potential degradation in the level of safety of the plant.

EAL BASES

AU2EAL #1

The locations of the EAL specific area radiation monitors are:

Containment RMS-RE140, North Refueling Floor
RMS-RE141, South Refueling Floor

Fuel Building RMS-RE192, South Operating Floor
RMS-RE193, North Operating Floor

The refueling pathway is a site specific combination of cavities, tubes, canals and pools. While a radiation monitor could detect a rise in dose rate due to a drop in the water level, it might not be a reliable indication of whether or not the fuel is covered.

For example, a refueling bridge ARM reading may increase due to planned evolutions such as head lift, or even a fuel assembly being raised in the manipulator mast. Also, a monitor could in fact be properly responding to a known event involving transfer or relocation of a source, stored in or near the fuel pool or responding to a planned evolution such as removal of the reactor head. Generally, increased radiation monitor indications will need to be combined with another indicator (or personnel report) of water loss.

For refueling events where the water level drops below the RPV flange classification would be via CU2. This event escalates to an Alert per AA2 if irradiated fuel outside the reactor vessel is uncovered. For events involving irradiated fuel in the reactor vessel, escalation would be via the Fission Product Barrier Matrix for events in operating modes 1-3.

EAL #2

This EAL addresses rises in plant radiation levels that represent a loss of control of radioactive material resulting in a potential degradation in the level of safety of the plant.

This EAL excludes radiation level rises that result from planned activities such as use of radiographic sources and movement of radioactive waste materials. A specific list of ARMs is not required as it would restrict the applicability of the Threshold. The intent is to identify loss of control of radioactive material in any monitored area.

References:

EAL BASES

AA1**Initiating Condition - ALERT**

Any release of gaseous or liquid radioactivity to the environment > 200 times the ODCM limit for ≥ 15 minutes

Operating Mode Applicability: All

Emergency Action Level(s): (1 or 2 or 3)

Note: *The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the release duration has exceeded, or will likely exceed, the applicable time. In the absence of data to the contrary, assume that the release duration has exceeded the applicable time if an ongoing release is detected and the release start time is unknown.*

1. VALID reading on any of the radiation monitors in Table R1 > the ALERT reading for ≥ 15 minutes

OR

2. For RMS-RE107 effluent monitor:

EITHER

VALID reading > 200 times the
alarm setpoint established by a current radioactivity discharge permit for
 ≥ 15 minutes

OR

VALID reading > $1.27\text{E-}01$ $\mu\text{Ci/ml}$ for ≥ 15 minutes

OR

3. Confirmed sample analyses for gaseous or liquid releases indicate concentrations or release rates > 200 times the ODCM limit for ≥ 15 minutes

EAL BASES

AA1

Table R1 EAL THRESHOLD			
Method		ALERT	
		DRMS Grid 6	Threshold
Main Plant Vent	Primary	4GE125	3.06E+07 $\mu\text{Ci/sec}$
	Secondary	1GE126	2.82E-01 $\mu\text{Ci/ml}$
Fuel Building Vent	Primary	4GE005	2.19E+06 $\mu\text{Ci/sec}$
	Secondary	5GE005	2.82E-01 $\mu\text{Ci/ml}$
Radwaste Building Vent	Primary	4GE006	2.58E+06 $\mu\text{Ci/sec}$
	Secondary	5GE006	6.84E-02 $\mu\text{Ci/ml}$

Basis:

The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.

This IC addresses an actual or substantial potential reduction in the level of safety of the plant as indicated by a radiological release that exceeds regulatory commitments for an extended period of time. RBS incorporates features intended to control the release of radioactive effluents to the environment. Further, there are administrative controls established to prevent unintentional releases, or control and monitor intentional releases. The occurrence of extended, uncontrolled radioactive releases to the environment is indicative of a degradation in these features and/or controls.

The ODCM multiples are specified in AU1 and AA1 only to distinguish between non-emergency conditions, and from each other. While these multiples obviously correspond to an off-site dose or dose rate, the emphasis in classifying these events is the degradation in the level of safety of the plant, not the magnitude of the associated dose or dose rate.

Releases should not be prorated or averaged. For example, a release exceeding 600 times the ODCM limit for 5 minutes does not meet the threshold for this IC.

This Initiating Condition includes any release for which a radioactivity discharge permit was not prepared, or a release that exceeds the conditions (e.g., minimum dilution flow, maximum discharge flow, alarm setpoints, etc.) on the applicable permit.

EAL #1

This EAL addresses radioactivity releases, that for whatever reason, cause effluent radiation monitor readings to exceed the threshold identified in the Initiating Condition.

This EAL is intended for sites that have established effluent monitoring on non-routine release pathways for which a discharge permit would not normally be prepared.

EAL BASES

AA1

Any release on the routine effluent monitors in excess of the TRM limit is considered a non-routine release. Table R1 provides the monitors' EAL setpoint values. Values are provided for a primary and secondary source for NOUE and Alert EAL determination. The Division I safety related monitors (DRMS 4GE125 and 4GE005) are the preferred source for main plant exhaust and fuel building EAL determination. Radwaste building preferred value is the effluent monitor (4GE006). The secondary monitors in Table R1 should be used to determine EALs if the preferred monitors are inoperable.

EAL #2

This EAL addresses radioactivity releases, that for whatever reason, cause effluent radiation monitor readings to exceed the threshold identified in this Initiating Condition established by the radioactivity discharge permit. This value is associated with a planned batch release.

Historical release permits indicate that the Alert value of 200 times the radiation monitor setpoint established by the current permit may exceed the operating range of the RMS-RE107 effluent monitor in some instances. This potentially affected monitor is listed in EAL #2 with a corresponding value for the top of its indicating range.

EAL #3

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

References:

T.R. 3.11

RSP-0008, *Offsite Dose Calculation Manual (ODCM)*

G.13.18.9.6*012 Rev 0, *Effect of Core Update on the DRMS Process Safety Limit / Conversion Factors* / PR-C-495 Rev 2 p 4

ESK-RMS05

ESK-RMS25

EAL BASES

AA2**Initiating Condition - ALERT**

Damage to irradiated fuel or loss of water level that has resulted or will result in the uncovering of irradiated fuel outside the reactor vessel

Operating Mode Applicability: All

Emergency Action Level(s): (1 or 2)

1. A water level drop in the reactor refueling cavity, spent fuel pool or fuel transfer canal that will result in irradiated fuel becoming uncovered

OR

2. A VALID reading on any of the following radiation monitors due to damage to irradiated fuel or loss of water level:

RMS-RE140 2000 mR/hr
 RMS-RE141 2000 mR/hr
 RMS-RE192 2000 mR/hr
 RMS-RE193 2000 mR/hr
 RMS-RE5A 1.64E+03 μ Ci/sec
 RMS-RE5B (GE) 5.29E-04 μ Ci/ml

Basis:

This IC addresses rises in radiation dose rates within plant buildings, and may be a precursor to a radioactivity release to the environment. These events represent a loss of control over radioactive material and represent an actual or substantial potential degradation in the level of safety of the plant.

These events escalate from AU2 in that fuel activity has been released, or is anticipated due to fuel heatup. This IC applies to spent fuel requiring water coverage and is not intended to address spent fuel which is licensed for dry storage.

The locations of the EAL specific area radiation monitors are:

Containment	RMS-RE140	North Refueling Floor
	RMS-RE141	South Refueling Floor
Fuel Building	RMS-RE192	South Operating Floor
	RMS-RE193	North Operating Floor
	RMS-RE5A (B)	Fuel Building Ventilation Exhaust

EAL BASES

AA2EAL #1

Indications may include instrumentation such as water level and local area radiation monitors, and personnel (e.g., refueling crew) reports. Depending on available level indication, the declaration may be based on indications of water makeup rate or decrease in Refueling Water Storage Pool level. Video cameras (Security or outage-related) may allow remote observation of level.

EAL #2

This EAL addresses radiation monitor indications of fuel uncover and/or fuel damage.

Elevated ventilation monitor readings may be an indication of a radioactivity release from the fuel, confirming that damage has occurred. Elevated background at the ventilation monitor due to water level drop may mask elevated ventilation exhaust airborne activity and needs to be considered.

While a radiation monitor could detect a rise in dose rate due to a drop in the water level, it might not be a reliable indication of whether or not the fuel is covered.

For example, a refueling bridge ARM reading may increase due to planned evolutions such as head lift, or even a fuel assembly being raised in the manipulator mast. Also, a monitor could in fact be properly responding to a known event involving transfer or relocation of a source, stored in or near the fuel pool or responding to a planned evolution such as removal of the reactor head. **Generally, elevated radiation monitor indications will need to be combined with another indicator (or personnel report) of water loss.**

The Abnormal Operating Procedure (AOP) provides a table for guidance on pool level and of potential scenarios and the expected pool level assuming no operator action. The AOP is also entered for UNPLANNED lowering of refueling cavity or lower fuel pool water level during refueling operations. When control rod blades are stored in the Spent Fuel Pool, dose rate rise in the area may be attributed to the stored items instead of uncovered fuel assemblies.

Escalation of this emergency classification level, if appropriate, would be based on AS1 or AG1.

References:

TS Table 3.3.6.2-1

Calculation G13.18.9.4*10

EAL BASES

AA3**Initiating Condition - ALERT**

Rise in radiation levels within the facility that impedes operation of systems required to maintain plant safety functions

Operating Mode Applicability: All

Emergency Action Level(s):

Dose rate > 15 mR/hr in any of the following areas requiring continuous occupancy to maintain plant safety functions:

Main Control Room
CAS

Basis:

This IC addresses elevated radiation levels that: impact continued operation in areas requiring continuous occupancy to maintain safe operation or to perform a safe shutdown.

The cause and/or magnitude of the rise in radiation levels is not a concern of this IC. The Emergency Director must consider the source or cause of the elevated radiation levels and determine if any other IC may be involved.

This IC is not meant to apply to increases in the containment dome radiation monitors as these are events which are addressed in the fission product barrier matrix EALs.

RP surveys should be performed in the CAS area if radiation above the program limit is detected outside the RCA. The Control Room area radiation monitor should be observed for EAL conditions if rising radiation levels are detected outside the RCA.

The Main Control Room and CAS are the areas at RBS requiring continuous occupancy.

References:

EAL BASES

AS1**Initiating Condition -- SITE AREA EMERGENCY**

Offsite dose resulting from an actual or IMMINENT release of gaseous radioactivity
> 100 mR TEDE or 500 mR thyroid CDE for the actual or projected duration of the release

Operating Mode Applicability: All

Emergency Action Level(s): (1 or 2 or 3)

Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time. If dose assessment results are available, the classification should be based on EAL #2 instead of EAL #1. Do not delay declaration awaiting dose assessment results.

1. VALID reading on any of the radiation monitors in Table R1 > the SITE AREA EMERGENCY reading for ≥ 15 minutes

OR

2. Dose assessment using actual meteorology indicates doses > 100 mR TEDE or 500 mR thyroid CDE at or beyond the SITE BOUNDARY

OR

3. Field survey results indicate closed window dose rates > 100 mR/hr expected to continue for ≥ 60 minutes; or analyses of field survey samples indicate thyroid CDE > 500 mR for one hour of inhalation, at or beyond the SITE BOUNDARY

Table R1 EAL THRESHOLD			
Method		SITE AREA EMERGENCY DRMS Grid 6 Threshold	
Main Plant Vent	Primary	4GE125	4.50E+07 $\mu\text{Ci/sec}$
	Secondary	N/A	
Fuel Building Vent	Primary	4GE005	1.00E+08 $\mu\text{Ci/sec}$
	Secondary	N/A	
Radwaste Building Vent		N/A	

EAL BASES

AS1**Basis:**

This IC addresses radioactivity releases that result in doses at or beyond the SITE BOUNDARY that exceed 10% of the EPA Protective Action Guides (PAGs). Releases of this magnitude are associated with the failure of plant systems needed for the protection of the public.

EAL #1

The monitor list in EAL #1 includes monitors on all potential release pathways.

EAL #2

Since dose assessment in EAL #2 is based on actual meteorology, whereas the monitor readings in EAL #1 are not, the results from these assessments may indicate that the classification is not warranted, or may indicate that a higher classification is warranted. For this reason, emergency implementing procedures should call for the timely performance of dose assessments using actual meteorology and release information. If the results of these dose assessments are available when the classification is made (e.g., initiated at a lower classification level), the dose assessment results override the monitor reading EALs.

References:

EAL BASES

AG1**Initiating Condition -- GENERAL EMERGENCY**

Offsite dose resulting from an actual or IMMINENT release of gaseous radioactivity
 > 1000 mR TEDE or 5000 mR thyroid CDE for the actual or projected duration of the release using
 actual meteorology

Operating Mode Applicability: All

Emergency Action Level(s): (1 or 2 or 3)

Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time. If dose assessment results are available, the classification should be based on EAL #2 instead of EAL #1. Do not delay declaration awaiting dose assessment results.

1. VALID reading on any of the radiation monitors in Table R1 > the GENERAL EMERGENCY reading for ≥ 15 minutes

OR

2. Dose assessment using actual meteorology indicates doses > 1000 mR TEDE or 5000 mR thyroid CDE at or beyond the SITE BOUNDARY

OR

3. Field survey results indicate closed window dose rates > 1000 mR/hr expected to continue for ≥ 60 minutes; or analyses of field survey samples indicate thyroid CDE > 5000 mR for one hour of inhalation, at or beyond the SITE BOUNDARY

Table R1 EAL THRESHOLD			
Method		GENERAL EMERGENCY	
		DRMS Grid 6	Threshold
Main Plant Vent	Primary	4GE125	4.50E+08 μ Ci/sec
	Secondary	N/A	
Fuel Building Vent	Primary	4GE005	1.00E+09 μ Ci/sec
	Secondary	N/A	
Radwaste Building Vent		N/A	

EAL BASES

AG1**Basis:**

This IC addresses radioactivity releases that result in doses at or beyond the SITE BOUNDARY that exceed the EPA Protective Action Guides (PAGs). Public protective actions will be necessary. Releases of this magnitude are associated with the failure of plant systems needed for the protection of the public and likely involve fuel damage.

EAL #1

The monitor list in EAL #1 includes monitors on all potential release pathways.

EAL #2

Since dose assessment in EAL #2 is based on actual meteorology, whereas the monitor readings in EAL #1 are not, the results from these assessments may indicate that the classification is not warranted. For this reason, emergency implementing procedures should call for the timely performance of dose assessments using actual meteorology and release information. If the results of these dose assessments are available when the classification is made (e.g., initiated at a lower classification level), the dose assessment results override the monitor reading EALs.

References:

EAL BASES

FU1

INITIATING CONDITION – NOTIFICATION OF UNUSUAL EVENT

ANY loss or ANY potential loss of containment

Operating Mode Applicability:		Mode 1	Power Operation
	Mode 2	Startup	
		Mode 3	Hot Shutdown

Emergency Action Level(s):

- 1. Any loss or any potential loss of containment

Bases:

Comparison of conditions / values with those listed in Fission Product Barrier Matrix indicates a loss or any potential loss of containment.

The Fuel Cladding (FC) and the Reactor Coolant System (RCS) are weighted more heavily than the Primary Containment (PC) barrier. NOUE ICs associated with RCS and FC barriers are addressed under System Malfunction ICs.

Loss of containment would be a potential degradation in the level of plant safety. The PC barrier includes the drywell, the wetwell, their respective interconnecting paths, and other connections up to and including the outermost containment isolation valves. Containment barrier thresholds are used primarily as discriminators for escalation from an Alert to a Site Area Emergency or a General Emergency.

EAL BASES

FA1**INITIATING CONDITION – ALERT**

Any loss or any potential loss of either fuel clad or RCS

Operating Mode Applicability:

		Mode 1	Power Operation
		Startup	
	Mode 2		
	Hot Shutdown		
Mode 3			

Emergency Action Level(s):

1. Any loss or any potential loss of fuel clad

OR

Any loss or any potential loss of RCS

Bases:

Comparison of conditions / values with those listed in Fission Product Barrier Matrix indicates a loss or potential loss of a Fuel Clad barrier or a loss or potential loss of the RCS barrier.

The Fuel Cladding and the Reactor Coolant System are weighted more heavily than the Primary Containment barrier.

Loss of either the Fuel Cladding or the Reactor Coolant System would be a substantial degradation in the level of plant safety.

The Fuel Clad barrier is the zircalloy or stainless steel fuel bundle tubes that contain the fuel pellets.

The RCS barrier is the reactor coolant system pressure boundary and includes the reactor vessel and all reactor coolant system piping up to the isolation valves.

EAL BASES

FS1

INITIATING CONDITION – SITE AREA EMERGENCY

Loss or potential loss of any two barriers

Operating Mode Applicability:

		Mode 1	Power Operation
		Startup	
	Mode 2		
	Hot Shutdown		
Mode 3			

Emergency Action Level(s):

1. Loss or potential loss of any two barriers

Bases:

Comparison of conditions / values with those listed in Fission Product Barrier Matrix indicates loss or potential loss of any two barriers.

Loss of 2 Fission Product Barriers would be a major failure of plant systems needed for protection of the public.

EAL BASES

FG1**INITIATING CONDITION – GENERAL EMERGENCY**

Loss of any two barriers and loss or potential loss of third barrier

Operating Mode Applicability:

		Mode 1	Power Operation
		Startup	
	Mode 2		
	Hot Shutdown		
Mode 3			

Emergency Action Level(s):

1. Loss of any two barriers

AND

Loss or potential loss of the third barrier

Bases:

Comparison of conditions / values with those listed in Fission Product Barrier Matrix indicates a loss of any two barriers and the loss or potential loss of the third barrier.

Conditions / events required to cause the loss of 2 Fission Product Barriers with the potential loss of the third could reasonably be expected to cause a release beyond the immediate site area exceeding EPA Protective Action Guidelines.

EAL BASES

PC1

PRIMARY CONTAINMENT

Emergency Action Level:

Primary containment conditions

EAL threshold:

LOSS:.....1. Rapid unexplained loss of PC pressure following initial pressure rise

OR

2. PC pressure response not consistent with LOCA conditions

POTENTIAL LOSS:.....1. PC pressure > 15 psig and rising

OR

2. a. PC hydrogen in the unsafe zone of HDOL curve

OR

a. DW hydrogen concentration > 9%

OR

3. RPV pressure and suppression pool temperature cannot be maintained below the HCTL

EAL BASES

PC1**Bases:**

LOSS – Rapid unexplained loss of pressure (i.e., not attributable to condensation effects or restoration of containment or drywell unit coolers) following an initial pressure rise from a high energy line break indicates a loss of containment integrity. Primary containment pressure should rise as a result of mass and energy released into containment from a LOCA. Thus, primary containment pressure not rising under these conditions indicates a loss of containment integrity. This indicator relies on operator recognition of an unexpected response for the condition and therefore does not have a specific value associated with it. The unexpected response is important because it is the indicator for a containment bypass condition. Control room indicators may include ERIS data points, P808 CMS indication, or back-panel CMS pressure indication.

POTENTIAL LOSS - The site specific pressure is based on the primary containment design pressure. Primary Containment pressure greater than 15 psig and rising is based on the design pressure of the Primary Containment. If the Containment pressure is exceeded, this represents a condition outside the analyzed conditions. This constitutes a potential loss of the Primary Containment barrier even if a failure to isolate has not occurred.

The Emergency Procedure Guidelines and Severe Accident Guidelines identify that deflagration could occur if containment hydrogen concentration reaches the HDOL or drywell hydrogen concentration reaches 9%. The deflagration of Hydrogen represents a potential loss of the primary containment. Indication of actual hydrogen concentration in the containment is affected by the environmental conditions (i.e., the presence of water vapor). The RBS hydrogen monitoring system removes water vapor from the sample before hydrogen concentration is measured and, thus, may provide readings that are higher than the actual hydrogen concentration.

The Heat Capacity Temperature Limit (HCTL) is the highest suppression pool temperature from which emergency RPV depressurization will not raise: suppression chamber temperature above the maximum temperature capability of the suppression chamber and equipment within the suppression chamber which may be required to operate when the RPV is pressurized,

OR

Suppression chamber pressure above PC pressure limit A, while the rate of energy transfer from the RPV to the containment is greater than the capacity of the containment vent.

The HCTL is a function of RPV pressure and suppression pool 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.

References:

EAL BASES

PC2**PRIMARY CONTAINMENT
Emergency Action Level:**

Reactor vessel water level

EAL Threshold:**LOSS:**NONE**POTENTIAL LOSS:**.....Entry into PC flooding procedures SAP-1 and SAP-2**Bases:****LOSS – NONE**

POTENTIAL LOSS - The potential loss requirement for Primary Containment Flooding indicates adequate core cooling cannot be established and maintained and that core melt is possible. Entry into SAP-1 and SAP-2 is a logical escalation in response to the inability to maintain adequate core cooling.

The condition in this potential loss threshold represents a potential core melt sequence which, if not corrected, could lead to vessel failure and higher potential for containment failure. In conjunction with Reactor Vessel water level "loss" thresholds in the fuel clad and RCS barrier columns, this threshold will result in the declaration of a General Emergency -- loss of two barriers and the potential loss of a third.

References:

EAL BASES

PC3**PRIMARY CONTAINMENT****Emergency Action Level:**

Primary containment isolation failure or bypass

EAL Threshold:**LOSS:**.....1. a. Failure of all valves in any one line to close**AND**

b. Direct downstream pathway to the environment exists after PC isolation signal

OR

2. Intentional PC venting per EOPs or SAPs

OR

3. UNISOLABLE RCS leakage outside PC as indicated by exceeding either of the following:

a. Max Safe Operating Temperature (Table F1)

OR

b. Max Safe Area Radiation (Table F1)

POTENTIAL LOSS:..... NONE

TABLE F1			
PC 3 Loss of Primary Containment			
Parameter	Area Temperature	Area Radiation Level	
	Max Safe Operating Value	DRMS Grid 2	Max Safe Operating Value
RHR A equipment area	200° F	1213	9.5E+03 mR/hr
RHR B equipment area	200° F	1214	9.5E+03 mR/hr
RHR C equipment area	N/A	1215	9.5E+03 mR/hr
RCIC room	200° F	1219	9.5E+03 mR/hr
MSL Tunnel	200° F		N/A
RWCU pump room 1 (A) / 2 (B)	200° F		N/A

EAL BASES

PC3**Bases:**

These thresholds address incomplete containment isolation that allows direct release to the environment.

LOSS – Failure to isolate - Inability to isolate means the primary containment isolation valve(s) did not fully close after a VALID automatic or manual isolation signal and is not isolable from the Main Control Room, or an attempt for isolation from the Main Control Room has been made and was unsuccessful. An attempt for isolation should be made upon identification and prior to the accident classification. If isolated from the Main Control Room upon identification, this INITIATING CONDITION is not applicable. Dispatch of Operators outside the Control Room for manual attempts to close the valve is not considered.

Primary Containment isolation valves are described in the Technical Specifications bases for Primary Containment, Primary Containment Airlock and Primary Containment Isolation Valves (T.S. 3.6.1.1). The Containment airlock is not considered in this EAL since airlock failure would be a potential failure mode to cause the EAL PC1 threshold.

The use of the modifier “direct” in defining the release path discriminates against release paths through interfacing liquid systems. The existence of an in-line charcoal filter does not make a release path indirect since the filter is not effective at removing fission product noble gases. Typical filters have an efficiency of 95-99% removal of iodine. Given the magnitude of the core inventory of iodine, significant releases could still occur. In addition, since the fission product release would be driven by boiling in the reactor vessel, the high humidity in the release stream can be expected to render the filters ineffective in a short period.

Containment Venting - Site specific EOPs and SAPs may direct containment isolation valve logic(s) to be intentionally bypassed, regardless of radioactivity release rates. Under these conditions with a valid containment isolation signal, the containment should also be considered lost if containment venting is actually performed.

Intentional venting of primary containment for primary containment pressure or combustible gas control per EOPs or SAPs to the secondary containment and/or the environment is considered a loss of containment. Containment venting for pressure when not in an accident situation should not be considered.

Area temperature or radiation – The presence of area radiation or temperature Max Safe Operating setpoints indicating unisolable primary system leakage outside the primary containment are addressed after a containment isolation. The indicators should be confirmed to be caused by RCS leakage. Leakage into a closed system is to be considered a loss of primary containment only if the closed system is breached and thereby creates a path to the environment.

POTENTIAL LOSS - None

References:

EAL BASES

PC4**PRIMARY CONTAINMENT****Emergency Action Level:**

Primary containment radiation monitors

EAL Threshold:**LOSS:**NONE**POTENTIAL LOSS:**Containment radiation monitor RMS-RE16 reading > 10,000 R/hr**BASIS****LOSS – NONE**

POTENTIAL LOSS – The site specific reading is a value that indicates significant fuel damage well in excess of that required for loss of RCS and fuel clad.

Regardless of whether containment is challenged, this amount of activity in containment, if released, could have such severe consequences that it is prudent to treat this as a potential loss of containment, such that a General Emergency declaration is warranted.

References:

.....Calculation G13.18.9.4-045 Rev. 0

EAL BASES

PC5**REACTOR COOLANT SYSTEM****Emergency Action Level:**

Emergency Director judgment

EAL Threshold:**LOSS:**Any condition in the opinion of the Emergency Director that indicates loss of the Primary Containment barrier**POTENTIAL LOSS:**.....Any condition in the opinion of the Emergency Director that indicates potential loss of the Primary Containment barrier**Bases:**

LOSS or POTENTIAL LOSS – This EAL addresses any other factors that are to be used by the Emergency Director in determining whether the primary containment barrier is lost or potentially lost. In addition, the inability to monitor the barrier should also be considered in this EAL as a factor in Emergency Director judgment that the barrier may be considered lost or potentially lost.

The primary containment barrier should not be declared lost or potentially lost based on exceeding Technical Specification action statement criteria, unless there is an event in progress requiring mitigation by the Primary Containment barrier. When no event is in progress (loss or potential loss of either fuel clad and/or RCS) the Primary Containment barrier status is addressed by Technical Specifications.

References:

EAL BASES

FC1**FUEL CLAD****Emergency Action Level:**

Primary coolant activity level

EAL Threshold:**LOSS:**..... Coolant activity > 300 $\mu\text{Ci/g}$ dose equivalent I-131**POTENTIAL LOSS:**.....NONE**Bases:**

LOSS – The site specific value is 300 $\mu\text{Ci/gm}$ dose equivalent I-131. Assessment by the EAL Task Force indicates that this amount of coolant activity is well above that expected for iodine spikes and corresponds to less than 5% fuel clad damage. This amount of radioactivity indicates significant clad damage and thus the Fuel Clad barrier is considered lost.

POTENTIAL LOSS - NONE**References:**

EAL BASES

FC2**FUEL CLAD****Emergency Action Level:**

Reactor vessel water level

EAL Threshold:

LOSS:.....RPV water level cannot be restored and maintained above
-187 inches

POTENTIAL LOSS:.....RPV water level cannot be restored and maintained above -162 inches
or cannot be determined

Bases:

LOSS - This site specific value corresponds to the level used in EOPs to indicate challenge of core cooling. This is the minimum value to assure core cooling without further degradation of the clad. Reactor vessel water level less than the minimum steam cooling RPV water level (-187") with injection is the lowest level with adequate core cooling to maintain peak clad temperature less than 1500°F where fuel clad damage (fuel rod perforation) may begin. Corrective actions as described in the Emergency Operating Procedures (EOPs) and Severe Accident Guidelines (SAGs) will be needed to mitigate fuel clad/core damage.

POTENTIAL LOSS – This threshold is the same as the RCS barrier loss threshold RC2 and corresponds to the site specific water level at the top of the active fuel. 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. With Reactor vessel water level less than the top of active fuel (-162"), adequate core cooling is still assured but is sufficiently low that any further drop in water level could result in the significant degradation of the cladding. Corrective actions as described in the Emergency Operating Procedures (EOPs) will be needed to mitigate fuel clad/core damage.

References:

EAL BASES

FC3**FUEL CLAD****Emergency Action Level:**

Primary containment radiation monitors

EAL Threshold:

LOSS: Containment radiation monitor RMS-RE16 reading
> 3,000 R/hr

POTENTIAL LOSS:NONE

Bases:

LOSS - Containment radiation monitors reading in excess of 3000 R/hr after Reactor Shutdown are indicative of both the loss of the reactor coolant system and 5% clad failure with the instantaneous release and dispersal of the reactor coolant noble gas and Iodine inventory into the drywell and containment atmosphere.

Reactor coolant concentrations of this magnitude are several times larger than the maximum concentrations (including iodine spiking) allowed within Technical Specifications and are therefore indicative of fuel damage.

POTENTIAL LOSS - NONE

References:

Calculation G13.18.9.4-045 Rev. 0

EAL BASES

FC4**FUEL CLAD****Emergency Action Level:**

Emergency Director judgment

EAL Threshold:

LOSS:Any condition in the opinion of the Emergency Director that indicates loss of the Fuel Clad barrier

POTENTIAL LOSS:.....Any condition in the opinion of the Emergency Director that indicates potential loss of the Fuel Clad barrier

Bases:

LOSS or POTENTIAL LOSS – This EAL addresses any other factors that are to be used by the Emergency Director in determining whether the Fuel Clad barrier is lost or potentially lost. In addition, the inability to monitor the barrier should also be considered in this EAL as a factor in Emergency Director judgment that the barrier may be considered lost or potentially lost.

References:

EAL BASES

RC1

REACTOR COOLANT SYSTEM

Emergency Action Level:

Drywell pressure

EAL Threshold:

LOSS:.....Drywell pressure > 1.68 psid with indications of reactor coolant leak in
drywell

POTENTIAL LOSS:NONE

Bases:

LOSS - The site specific primary containment pressure is based on the drywell high pressure set point which indicates a LOCA by automatically initiating the ECCS or equivalent makeup system.

Pressure rise due solely to loss of containment or drywell heat removal capability, testing, etc are not considered for this EAL threshold.

POTENTIAL LOSS - NONE.

References:

EAL BASES

RC2**REACTOR COOLANT SYSTEM****Emergency Action Level:**

Reactor vessel water level

EAL Threshold:

LOSS:RPV water level cannot be restored and maintained above -162 inches
or cannot be determined

POTENTIAL LOSS:.....NONE

Bases:

LOSS - The loss EAL threshold of site specific RPV water level corresponds to the level that is used in EOPs to indicate challenge of core cooling.

This threshold is the same as the Fuel Clad barrier potential loss EAL threshold FC2 and corresponds to a challenge to core cooling. Thus, this threshold indicates a loss of the RCS barrier and potential loss of the Fuel Clad barrier that appropriately escalates the emergency classification level to a Site Area Emergency.

POTENTIAL LOSS – NONE

References:

EAL BASES

RC3**REACTOR COOLANT SYSTEM**
Emergency Action Level:

RCS leak rate

EAL Threshold:**LOSS:**1. UNISOLABLE main steam line break as indicated by the failure of both MSIVs in any one line to close**AND**

High MSL flow annunciator (P601-19A-A2)

OR

2. Indication of an UNISOLABLE HPCS, Feedwater, RWCU or RCIC break

OR

3. Emergency RPV depressurization is required

POTENTIAL LOSS:1. *RCS leakage > 50 gpm inside the drywell***OR**2. UNISOLABLE RCS leakage outside PC as indicated by exceeding
either of the following:

b. Max Normal Operating Temperature (Table F2)

OR

b. Max Normal Area Radiation (Table F2)

EAL BASES

RC3

TABLE F2			
RC 3 Potential Loss of RCS			
Parameter	Area Temperature (isolation temperature alarm)	Area Radiation Level	
		DRMS Grid 2	Max Normal Operating Value
RHR A equipment area	117° F (P601-20A-B4)	1213	8.2E+01 mR/hr
RHR B equipment area	117° F (P601-20A-B4)	1214	8.2E+01 mR/hr
RHR C equipment area	N/A	1215	8.2E+01 mR/hr
RCIC room	182° F (P601-21A-B6)	1219	1.20E+02 mR/hr
MSL Tunnel	173°F (P601-19A-A1/A3/B1/B3)		N/A
RWCU pump room 1 (A) / 2 (B)	165° F (P680-1A-A2/B2)		N/A

Bases:

LOSS - An UNISOLABLE MSL break is a breach of the RCS barrier. Thus, this EAL threshold is included for consistency with the Alert emergency classification level.

Other large high-energy line breaks such as HPCS, Feedwater, RWCU, or RCIC that are UNISOLABLE also represent a significant loss of the RCS barrier and should be considered as MSL breaks for purposes of classification.

The leak is NOT isolable from the Main Control Room **OR** an attempt for isolation from the Main Control Room panels has been made and was not successful. An attempt for isolation should be made prior to the accident classification. If isolable upon identification, this INITIATING CONDITION is not applicable. Dispatch of operators outside the Control Room for manual attempts to close the valve is not considered.

Plant symptoms requiring Emergency RPV depressurization per the site specific EOPs are indicative of a loss of the RCS barrier. If Emergency RPV depressurization is required, the plant operators are directed to open safety relief valves (SRVs) and keep them open. Even though the RCS is being vented into the suppression pool, a loss of the RCS should be considered to exist due to the diminished effectiveness of the RCS pressure barrier to a release of fission products beyond its boundary.

EAL BASES

RC3

POTENTIAL LOSS - This threshold is based on leakage set at a level indicative of a small breach of the RCS but which is well within the makeup capability of normal and emergency high pressure systems. Core uncover is not a significant concern for a 50 gpm leak, however, break propagation leading to significantly larger loss of inventory is possible.

If the leak detection system leak rate information is unavailable (i.e., LOCA isolation, loss of power), other indicators of RCS leakage should be used. Other indications include a rise in drywell temperature and pressure and a rise in the drywell radiation monitors. If the leakage computer is unavailable, sump level and pump status may help determine if the leakage is greater than 50 gpm.

If the DFR discharge line containment isolation valves have not isolated and a pump is running continuously without lowering sump level, the leakage may be assumed to exceed 50 gpm. The second pump can be started to verify that the first pump is not degraded. It is not intended to conclude a potential loss of the RCS barrier exists if both pumps are degraded and the observed leak rate as noted by rate of rise of level in the sump or calculated by the computer is such that it clearly confirms leakage below 50 gpm.

References:

EAL BASES

RC4**REACTOR COOLANT SYSTEM****Emergency Action Level:**

Drywell radiation

EAL Threshold:**LOSS:**Drywell radiation monitor RMS-RE20 reading > 100 R/hr**POTENTIAL LOSS:**NONE**Bases:**

NOTE: Under post-LOCA conditions coaxial cables used on the drywell post accident monitors (RMS-RE20A/B) are susceptible to Thermally Induced Currents (TIC). These currents may cause the drywell PAMs to read falsely high (~469 R/hr) on a rapid temperature increase and read falsely low on a rapid temperature decrease. When accident temperature conditions stabilize indicated radiation dose rates would be more accurate. The duration of the spurious signal would last approximately 15 minutes. During the period of false readings operators should rely on other indications of RCS leakage including a rise in drywell temperature and pressure.

LOSS – The site specific reading is a value which indicates the release of reactor coolant to the drywell.

This reading is less than that specified for Fuel Clad barrier Loss EAL threshold FC4. Thus, this threshold would be indicative of a RCS leak only. If the radiation monitor reading rose to that value specified by the Fuel Clad Barrier EAL threshold, fuel damage would also be indicated..

POTENTIAL LOSS - NONE**References:**

G13.18.9.4-051

NRC Information Notice IN 97-45

EAL BASES

RC5

REACTOR COOLANT SYSTEM
Emergency Action Level:

Emergency Director judgment

EAL Threshold:

LOSS:Any condition in the opinion of the Emergency Director that indicates loss of the RCS barrier

POTENTIAL LOSS:.....Any condition in the opinion of the Emergency Director that indicates potential loss of the RCS barrier

Bases:

LOSS or POTENTIAL LOSS – This EAL addresses any other factors that are to be used by the Emergency Director in determining whether the RCS barrier is lost or potentially lost. In addition, the inability to monitor the barrier should also be considered in this EAL as a factor in Emergency Director judgment that the barrier may be considered lost or potentially lost.

References:

EAL BASES

HU1**Initiating Condition - NOTIFICATION OF UNUSUAL EVENT**

Confirmed SECURITY CONDITION or threat which indicates a potential degradation in the level of safety of the plant

Operating Mode Applicability: All

Emergency Action Level(s): (1 or 2 or 3)

1. A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the RBS security shift supervision

OR

2. A credible site specific security threat notification

OR

3. A validated notification from NRC providing information of an aircraft threat

Basis:

NOTE: Timely and accurate communication between Security Shift Supervision and the Control Room is crucial for the implementation of effective Security EALs.

Security events which do not represent a potential degradation in the level of safety of the plant are reported under 10 CFR 73.71 or in some cases under 10 CFR 50.72. Security events assessed as HOSTILE ACTIONS are classifiable under HA1, HS1 and HG1.

A higher initial classification could be made based upon the nature and timing of the security threat and potential consequences. Consideration shall be given to upgrading the emergency response status and emergency classification in accordance with the Safeguards Contingency Plan and Emergency Plan.

EAL #1

The Security Shift Supervisor is the designated individual on-site qualified and trained to confirm that a security event is occurring or has occurred. Training on security event classification confirmation is closely controlled due to the strict secrecy controls placed on the plant Safeguards Contingency Plan.

This EAL is based on the Safeguards Contingency Plan. The Safeguards Contingency Plan is based on guidance provided in NEI 03-12.

EAL #2

This EAL is included to ensure that appropriate notifications for the security threat are made in a timely manner. This includes information of a credible threat. Only the plant to which the specific threat is made need declare the Notification of Unusual Event.

EAL BASES

HU1

The determination of "credible" is made through use of information found in the Safeguards Contingency Plan.

EAL #3

The intent of this EAL is to ensure that notifications for the aircraft threat are made in a timely manner and that Offsite Response Organizations and plant personnel are at a state of heightened awareness regarding the credible threat. It is not the intent of this EAL to replace existing non-hostile related EALs involving aircraft.

This EAL is met when a plant receives information regarding an aircraft threat from NRC. Validation is performed by calling the NRC or by other approved methods of authentication. Only the plant to which the specific threat is made need declare the Unusual Event.

The NRC Headquarters Operations Officer (HOO) will communicate to the licensee if the threat involves an airliner (airliner is meant to be a large aircraft with the potential for causing significant damage to the plant). The status and size of the plane may be provided by NORAD through the NRC.

Escalation to Alert via HA1 would be appropriate if the threat involves an airliner within 30 minutes of the plant.

References:

NEI 03-12

EAL BASES

HU2**Initiating Condition - NOTIFICATION OF UNUSUAL EVENT**

Other conditions exist which in the judgment of the Emergency Director warrant declaration of a NOUE

Operating Mode Applicability: All

Emergency Action Level(s):

1. 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 EAL 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 NOUE emergency classification level.

References:

EAL BASES

HU4**Initiating Condition - NOTIFICATION OF UNUSUAL EVENT**

FIRE within the PROTECTED AREA not extinguished within 15 minutes of detection or EXPLOSION within the PROTECTED AREA

Operating Mode Applicability: All

Emergency Action Level(s): (1 or 2)

Note: *The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the duration has exceeded, or will likely exceed, the applicable time.*

1. FIRE not extinguished within 15 minutes of Control Room notification or verification of a Control Room FIRE alarm in any Table H2 structure or area.

OR

2. EXPLOSION within the PROTECTED AREA

Table H2	
Structures Containing Functions or Systems Required for Safe Shutdown	
Reactor Building	Standby Cooling Tower
Auxiliary Building	Diesel Generator Building
Control Building	Tunnels (B, D, E, F, G)
Fuel Building	

Basis:

This IC addresses the magnitude and extent of FIRES or EXPLOSIONS that may be potentially significant precursors of damage to safety systems. It addresses the FIRE / EXPLOSION, and not the degradation in performance of affected systems that may result.

As used here, detection is visual observation and report by plant personnel or sensor alarm indication.

EAL BASES

HU4EAL #1

The 15 minute time period begins with a credible notification that a FIRE is occurring, or indication of a fire detection system alarm/actuation. Verification of a fire detection system alarm/actuation includes actions that can be taken within the control room or other nearby site specific location to ensure that it is not spurious. An alarm is assumed to be an indication of a FIRE unless it is disproved within the 15 minute period by personnel dispatched to the scene. In other words, a personnel report from the scene may be used to disprove a sensor alarm if received within 15 minutes of the alarm, but shall not be required to verify the alarm.

The intent of this 15 minute duration is to size the FIRE and to discriminate against small FIRES that are readily extinguished (e.g., smoldering waste paper basket).

EAL #2

This EAL addresses only those EXPLOSIONS of sufficient force to damage permanent structures or equipment within the PROTECTED AREA.

No attempt is made to assess the actual magnitude of the damage. The occurrence of the EXPLOSION is sufficient for declaration.

The Emergency Director also needs to consider any security aspects of the EXPLOSION, if applicable.

Escalation of this emergency classification level, if appropriate, would be based on HA4.

References:

EAL BASES

HU5**Initiating Condition - NOTIFICATION OF UNUSUAL EVENT**

Release of toxic, corrosive, asphyxiant, or flammable gases deemed detrimental to NORMAL PLANT OPERATIONS

Operating Mode Applicability: All

Emergency Action Level(s): (1 or 2)

1. Toxic, corrosive, asphyxiant or flammable gases in amounts that have or could adversely affect NORMAL PLANT OPERATIONS

OR

2. Report by West Feliciana Parish for evacuation or sheltering of site personnel based on an off-site event

Basis:

This IC is based on the release of toxic, corrosive, asphyxiant or flammable gases of sufficient quantity to affect NORMAL PLANT OPERATIONS.

The fact that SCBAs may be worn does not eliminate the need to declare the event.

This IC is not intended to require significant assessment or quantification. It assumes an uncontrolled process that has the potential to affect plant operations. This would preclude small or incidental releases, or releases that do not impact structures needed for plant operation.

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.

Escalation of this emergency classification level, if appropriate, would be based on HA5.

References:

EAL BASES

HU6**Initiating Condition - NOTIFICATION OF UNUSUAL EVENT**

Natural or destructive phenomena affecting the PROTECTED AREA

Operating Mode Applicability: All**Emergency Action Level(s):** (1 or 2 or 3 or 4 or 5)

1. Seismic event identified by any 2 of the following:

- Seismic event confirmed by activated seismic switch as indicated by receipt of EITHER a OR b:
 - a. Annunciator "Seismic Tape Recording SYS Start" (P680-02A-D06)
 - b. Event Indicator on ERS-NBI-102 is white
- Earthquake felt in plant
- National Earthquake Center

OR

2. Tornado striking within PROTECTED AREA boundary

OR

3. Internal flooding that has the potential to affect safety related equipment required by Technical Specifications for the current operating mode in any Table H1 area

OR

4. Turbine failure resulting in casing penetration or damage to turbine or generator seals

OR5. Severe weather or hurricane conditions with indication of SUSTAINED high winds
≥ 74 mph within the PROTECTED AREA boundary

EAL BASES

HU6

Table H1 Uncontrolled Flooding Threshold Area Water Level	
<u>Affected Location / Parameter</u>	<u>Max Safe Operating Value / Indicator</u>
Aux Bldg Crescent Area 70' EL	6 inches above floor (must be verified locally)
HPCS Room 70'EL	4 inches above floor (P870-51A-G4)
RHR A Room 70'EL	4 inches above floor (P870-51A-G4)
RHR B Room 70'EL	4 inches above floor (P870-51A-G4)
RHR C Room 70'EL	4 inches above floor (P870-51A-G4)
LPCS Room 70'EL	4 inches above floor (P870-51A-G4)
RCIC Room 70'EL	4 inches above floor (P870-51A-G4)

Basis:

These EALs are categorized on the basis of the occurrence of an event of sufficient magnitude to be of concern to plant operators.

EAL #1

Damage may be caused to some portions of the site, but should not affect ability of safety functions to operate.

A "felt earthquake" is an earthquake of sufficient intensity such that the vibratory ground motion is felt at the nuclear plant site and recognized as an earthquake based on a consensus of control room operators on duty at the time.

The annunciators "Seismic Tape Recording SYS Start" and the "white" event indicator are listed in the Alarm Response Procedure as verification of an earthquake event.

The National Earthquake Center can confirm if an earthquake has occurred in the area of the plant.

EAL #2

This EAL is based on a tornado striking (touching down) within the PROTECTED AREA.

Escalation of this emergency classification level, if appropriate, would be based on VISIBLE DAMAGE, or by other in plant conditions, via HA6.

EAL BASES

HU6EAL #3

This EAL addresses the effect of internal flooding caused by events such as component failures, equipment misalignment, or outage activity mishaps.

The EAL is only applicable to areas in Table H1 areas that contain systems required for safe shutdown of the plant and that are not designed to be partially or fully submerged. The EAL is based on VALID indication that the area water level has reached the Maximum Safe Operating Values as identified in EOP-3. Exceeding the Maximum Safe Operating Value is interpreted as a potential degradation in the level of safety of the plant and is appropriately treated as an Unusual Event.

Escalation of this emergency classification level, if appropriate, would be via HA6, or by other plant conditions.

EAL #4

This EAL addresses main turbine rotating component failures of sufficient magnitude to cause observable damage to the turbine casing or to the seals of the turbine generator. Generator seal damage observed after generator purge does not meet the intent of this EAL because it did not impact normal operation of the plant.

Of major concern is the potential for leakage of combustible fluids (lubricating oils) and gases (hydrogen cooling) to the plant environs. Actual FIRES and flammable gas build up are appropriately classified via HU4 and HU5.

This EAL is consistent with the definition of a NOUE while maintaining the anticipatory nature desired and recognizing the risk to non-safety related equipment.

Escalation of this emergency classification level, if appropriate, would be to HA6 based on damage done by PROJECTILES generated by the failure or by the radiological releases. These latter events would be classified by the radiological (A) ICs or Fission Product Barrier (F) ICs.

EAL #5

This EAL is based on the assumption that high winds within the PROTECTED AREA may have potentially damaged plant structures, listed in Table H2, containing functions or systems required for safe shutdown of the plant. The high wind site specific value is based on the wind speed (74 mph) to classify severe weather conditions as a hurricane. FSAR design basis is that all Seismic Category I structures at RBS are designed to withstand 100 mph fastest mile of sustained wind 30 ft above ground, based upon a 100-yr period of recurrence. Methods to measure wind speed in the PROTECTED AREA are not available; therefore, a sustained indication of 74 mph on the Meteorological Tower lower elevation average wind speed indication will be used to determine that this EAL is met. The upper scale for the lower elevation average meter wind speed on the MET Tower is 100 mph. If the MET Tower lower average wind speed sensors are not operable, other tower sensors or sources may be considered for estimating wind speed at RBS such as NOAA or Baton Rouge regional Airport. If damage is confirmed visually or by other in-plant indications, the event may be escalated to Alert.

References:

EAL BASES

HA1**Initiating Condition - ALERT**

HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat

Operating Mode Applicability: All

Emergency Action Level(s): (1 or 2)

1. A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the RBS security shift supervision
2. A validated notification from NRC of an airliner attack threat within 30 minutes of the site

Basis:

NOTE: Timely and accurate communication between Security Shift Supervision and the Control Room is crucial for the implementation of effective Security EALs.

These EALs address the contingency for a very rapid progression of events, such as that experienced on September 11, 2001. They are not premised solely on the potential for a radiological release. Rather the issue includes the need for rapid assistance due to the possibility for significant and indeterminate damage from additional air, land or water attack elements.

The fact that the site is under serious attack or is an identified attack target with minimal time available for further preparation or additional assistance to arrive requires a heightened state of readiness and implementation of protective measures that can be effective (such as on-site evacuation, dispersal or sheltering).

EAL #1

This EAL addresses the potential for a very rapid progression of events due to a HOSTILE ACTION. It is not intended to address incidents that are accidental events or acts of civil disobedience, such as small aircraft impact, hunters, or physical disputes between employees within the OWNER CONTROLLED AREA. Those events are adequately addressed by other EALs.

Note that this EAL is applicable for any HOSTILE ACTION occurring, or that has occurred, in the OWNER CONTROLLED AREA. This includes Independent Spent Fuel Storage Installations that may be outside the PROTECTED AREA but still in the OWNER CONTROLLED AREA.

EAL BASES

HA1EAL #2

This EAL addresses the immediacy of an expected threat arrival or impact on the site within a relatively short time.

The intent of this EAL is to ensure that notifications for the airliner attack threat are made in a timely manner and that Offsite Response Organizations and plant personnel are at a state of heightened awareness regarding the credible threat. Airliner is meant to be a large aircraft with the potential for causing significant damage to the plant.

This EAL is met when a plant receives information regarding an airliner attack threat from NRC and the airliner is within 30 minutes of the plant. Only the plant to which the specific threat is made need declare the Alert.

The NRC Headquarters Operations Officer (HOO) will communicate to the licensee if the threat involves an airliner (airliner is meant to be a large aircraft with the potential for causing significant damage to the plant). The status and size of the plane may be provided by NORAD through the NRC.

References:

NEI 03-12

EAL BASES

HA2**Initiating Condition - ALERT**

Other conditions exist which in the judgment of the Emergency Director warrant declaration of an Alert

Operating Mode Applicability: All

Emergency Action Level(s):

1. 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:

This EAL 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 Alert emergency classification level.

References:

EAL BASES

HA3**Initiating Condition - ALERT**

Control room evacuation has been initiated

Operating Mode Applicability: All

Emergency Action Level(s):

1. AOP-0031, Shutdown from Outside the Main Control Room requires Control Room evacuation

Basis:

With the Control Room evacuated, additional support, monitoring and direction through the Technical Support Center and/or other emergency response facilities may be necessary.

Inability to establish plant control from outside the Control Room will escalate this event to a Site Area Emergency.

References:

EAL BASES

HA4**Initiating Condition - ALERT**

FIRE or EXPLOSION affecting the operability of plant safety systems required to establish or maintain safe shutdown

Operating Mode Applicability: All

Emergency Action Level(s):

1. FIRE or EXPLOSION resulting in VISIBLE DAMAGE to any of the structures or areas in Table H2 containing safety systems or components or Control Room indication of degraded performance of those safety systems

Table H2	
Structures Containing Functions or Systems Required for Safe Shutdown	
Reactor Building	Standby Cooling Tower
Auxiliary Building	Diesel Generator Building
Control Building	Tunnels (B, D, E, F, G)
Fuel Building	

Basis:

VISIBLE DAMAGE is used to identify the magnitude of the FIRE or EXPLOSION and to discriminate against minor FIRES and EXPLOSIONS.

The reference to structures containing safety systems or components is included to discriminate against FIRES or EXPLOSIONS in areas having a low probability of affecting safe operation. The significance here is not that a safety system was degraded but the fact that the FIRE or EXPLOSION was large enough to cause damage to these systems.

The use of VISIBLE DAMAGE should not be interpreted as mandating a lengthy damage assessment prior to classification. The declaration of an Alert and the activation of the Technical Support Center will provide the Emergency Director with the resources needed to perform detailed damage assessments.

The Emergency Director also needs to consider any security aspects of the EXPLOSION.

Escalation of this emergency classification level, if appropriate, will be based on System Malfunction (S), Fission Product Barrier Degradation (F) or Abnormal Radiation Levels / Radiological Effluent (A) ICs.

References:

EAL BASES

HA5**Initiating Condition - ALERT**

Access to a VITAL AREA is prohibited due to toxic, corrosive, asphyxiant or flammable gases which jeopardize operation of operable equipment required to maintain safe operations or safely shutdown the reactor

Operating Mode Applicability: All

Emergency Action Level(s):

Note: *If the equipment in the stated area was already inoperable, or out of service, before the event occurred, then this EAL should not be declared as it will have no adverse impact on the ability of the plant to safely operate or safely shutdown beyond that already allowed by Technical Specifications at the time of the event.*

1. Access to Main Control Room, Auxiliary Building, or 95' Control Building is prohibited due to toxic, corrosive, asphyxiant or flammable gases which jeopardize operation of systems required to maintain safe operations or safely shutdown the reactor

Basis:

Gases in a VITAL AREA can affect the ability to safely operate or safely shutdown the reactor. The Auxiliary Building and the 95' Control Building are included with the Main Control Room due to required operator actions per the system operating procedure to place shutdown cooling in service.

The fact that SCBAs may be worn does not eliminate the need to declare the event.

Declaration should not be delayed for confirmation from atmospheric testing if the atmosphere poses an immediate threat to life and health or an immediate threat of severe exposure to gases. This could be based upon documented analysis, indication of personal ill effects from exposure, or operating experience with the hazards.

If the equipment in the stated area was already inoperable, or out of service, before the event occurred, then this EAL should not be declared as it will have no adverse impact on the ability of the plant to safely operate or safely shutdown beyond that already allowed by Technical Specifications at the time of the event.

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.

EAL BASES

HA5

An uncontrolled release of flammable gasses within a facility structure has the potential to affect safe operation of the plant by limiting either operator or equipment operations due to the potential for ignition and resulting equipment damage/personnel injury. Flammable gasses, such as hydrogen and acetylene, are routinely used to maintain plant systems (hydrogen) or to repair equipment/components (acetylene - used in welding). This EAL assumes concentrations of flammable gasses which can ignite/support combustion.

Escalation of this emergency classification level, if appropriate, will be based on System Malfunction (S), Fission Product Barrier Degradation (F) or Abnormal Radiation Levels / Radioactive Effluent (A) ICs.

References:

EAL BASES

HA6**Initiating Condition - ALERT**

Natural or destructive phenomena affecting VITAL AREAS

Operating Mode Applicability: All**Emergency Action Level(s):** (1 or 2 or 3 or 4 or 5 or 6)

1. a. Seismic event > Operating Basis Earthquake (OBE) as indicated by:
Annunciator "Seismic Tape Recording System Start" (P680-02A-D06)
AND
Event Indicator on ERS-NBI-102 is white
AND
Receipt of EITHER 1 OR 2:
 1. Annunciator "Seismic Event High" (P680-02A-C06)
 2. Annunciator "Seismic Event High-High" (P680-02A-B06) AND amber light(s) on panel NBI-101

AND

- b. Earthquake confirmed by any of the following:
 - Earthquake felt in plant
 - National Earthquake Center
 - Control Room indication of degraded performance of systems required for the safe shutdown of the plant

OR

2. Tornado striking resulting in VISIBLE DAMAGE to any of the Table H2 structures or areas containing safety systems or components or Control Room indication of degraded performance of those safety systems

OR

3. Internal flooding in Auxiliary Building 70 ft elevation resulting in an electrical shock hazard that precludes access to operate or monitor safety equipment or Control Room indication of degraded performance of those safety systems

OR

4. Turbine failure-generated PROJECTILES resulting in VISIBLE DAMAGE to or penetration of any of the Table H2 structures or areas containing safety systems or components or Control Room indication of degraded performance of those safety systems.

OR

5. Vehicle crash resulting in VISIBLE DAMAGE to any of the Table H2 structures or areas containing safety systems or components or Control Room indication of degraded performance of those safety systems.

EAL BASES

HA6OR

6. Hurricane or high SUSTAINED wind conditions ≥ 74 mph within the PROTECTED AREA boundary and resulting in VISIBLE DAMAGE to any of the Table H2 structures or areas containing safety systems or components or Control Room indication of degraded performance of those safety systems

Table H2 Structures Containing Functions or Systems Required for Safe Shutdown	
Reactor Building	Standby Cooling Tower
Auxiliary Building	Diesel Generator Building
Control Building	Tunnels (B, D, E, F, G)
Fuel Building	

Basis:

These EALs escalate from HU6 in that the occurrence of the event has resulted in VISIBLE DAMAGE to plant structures or areas containing equipment necessary for a safe shutdown, or has caused damage to the safety systems in those structures evidenced by Control Room indications of degraded system response or performance. The occurrence of VISIBLE DAMAGE and/or degraded system response is intended to discriminate against lesser events. The initial report should not be interpreted as mandating a lengthy damage assessment prior to classification. No attempt is made in these EALs to assess the actual magnitude of the damage. The significance here is not that a particular system or structure was damaged, but rather, that the event was of sufficient magnitude to cause this degradation.

Escalation of this emergency classification level, if appropriate, would be based on System Malfunction (S) ICs.

The Emergency Director may consider the Fuel Building as necessary to address the impact of the event on the loss of spent fuel cooling or spent fuel (e.g., freshly off-loaded reactor core in pool). At RBS, the term "freshly off-loaded reactor core" refers to fuel that has been discharged from the core and stored in the spent fuel pool for a period of LESS THAN one year.

EAL #1

Seismic events of this magnitude can result in a VITAL AREA being subjected to forces beyond design limits, and thus damage may be assumed to have occurred to plant safety systems.

The National Earthquake Center can confirm if an earthquake has occurred in the area of the plant.

EAL BASES

HA6EAL #2

This EAL is based on a tornado striking (touching down) that has caused VISIBLE DAMAGE to structures or areas containing functions or systems required for safe shutdown of the plant.

EAL #3

This EAL addresses the effect of internal flooding caused by events such as component failures, equipment misalignment, or outage activity mishaps. It is based on the degraded performance of systems, or has created industrial safety hazards (e.g., electrical shock) that preclude necessary access to operate or monitor safety equipment. The inability to access, operate or monitor safety equipment represents an actual or substantial potential degradation of the level of safety of the plant.

The areas of concern are the Auxiliary Building 70 foot elevation cubicles and crescent area that contain systems required for safe shutdown of the plant that are not designed to be partially or fully submerged. Indication may be by local verification, control room indication, or in degraded performance of systems affected by the flooding.

Flooding as used in this EAL describes a condition where water is entering the room faster than installed equipment is capable of removal, resulting in a rise of water level within the room. Classification of this EAL should not be delayed while corrective actions are being taken to isolate the water source.

EAL #4

This EAL addresses the threat to safety related equipment imposed by PROJECTILES generated by main turbine rotating component failures. Therefore, this EAL is consistent with the definition of an ALERT in that the potential exists for actual or substantial potential degradation of the level of safety of the plant. Some structures on the list may not be at risk for the turbine generated missile but are included for consistency in identifying structures or areas containing systems and functions required for safe shutdown of the plant.

EAL #5

This EAL addresses vehicle crashes within the PROTECTED AREA that result in VISIBLE DAMAGE to VITAL AREAS (as shown in Table H2) or indication of damage to safety structures, systems, or components containing functions and systems required for safe shutdown of the plant.

EAL BASES

HA6EAL #6

This EAL is based on high winds within the PROTECTED AREA that have caused VISIBLE DAMAGE to structures or areas containing functions or systems required for safe shutdown of the plant. The high wind site specific value is based on the wind speed (74 mph) to classify severe weather conditions as a hurricane. FSAR design basis is that all Seismic Category I structures at RBS are designed to withstand 100 mph fastest mile of sustained wind 30 ft above ground, based upon a 100-yr period of recurrence. Methods to measure wind speed in the PROTECTED AREA are not available; therefore, a sustained indication of 74 mph on the Meteorological Tower lower elevation average wind speed indication will be used to determine that this EAL is met. The upper scale for the lower elevation average wind speed on the MET Tower is 100 mph. If the MET Tower lower average wind speed sensors are not operable, other tower sensors or sources may be considered for estimating wind speed at RBS such as NOAA or Baton Rouge regional Airport.

References:

EAL BASES

HS1**Initiating Condition - SITE AREA EMERGENCY**

HOSTILE ACTION within the PROTECTED AREA

Operating Mode Applicability: All**Emergency Action Level(s):**

1. A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the RBS security shift supervision

Basis:

This condition represents an escalated threat to plant safety above that contained in the Alert in that a HOSTILE FORCE has progressed from the OWNER CONTROLLED AREA to the PROTECTED AREA.

This EAL addresses the contingency for a very rapid progression of events, such as that experienced on September 11, 2001. It is not premised solely on the potential for a radiological release. Rather the issue includes the need for rapid assistance due to the possibility for significant and indeterminate damage from additional air, land or water attack elements.

The fact that the site is under serious attack with minimal time available for further preparation or additional assistance to arrive requires Offsite Response Organization readiness and preparation for the implementation of protective measures.

This EAL addresses the potential for a very rapid progression of events due to a HOSTILE ACTION. It is not intended to address incidents that are accidental events or acts of civil disobedience, such as small aircraft impact, hunters, or physical disputes between employees within the PROTECTED AREA. Those events are adequately addressed by other EALs.

Escalation of this emergency classification level, if appropriate, would be based on actual plant status after impact or progression of attack.

References:

NEI 03-12

EAL BASES

HS2**Initiating Condition - SITE AREA EMERGENCY**

Other conditions exist which in the judgment of the Emergency Director warrant declaration of a Site Area Emergency

Operating Mode Applicability: All

Emergency Action Level(s):

1. 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:

This EAL 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 Site Area Emergency.

References:

EAL BASES

HS3**Initiating Condition - SITE AREA EMERGENCY**

Control Room evacuation has been initiated and plant control cannot be established

Operating Mode Applicability: All

Emergency Action Level(s):

1. a. Control room evacuation has been initiated

AND

- b. Control of the plant cannot be established in accordance with AOP-0031, Shutdown from Outside the Main Control Room, within 15 minutes

Basis:

The intent of this IC is to capture those events where control of the plant cannot be reestablished in a timely manner. In this case, expeditious transfer of control of safety systems has not occurred (although fission product barrier damage may not yet be indicated).

The intent of the EAL is to establish control of important plant equipment and knowledge of important plant parameters in a timely manner. Primary emphasis should be placed on those components and instruments that supply protection for and information about safety functions such as reactivity control (ability to shutdown the reactor and maintain it shutdown), reactor water level (ability to cool the core), and decay heat removal (ability to maintain a heat sink)..

The determination of whether or not control is established at the remote shutdown panel is based on Emergency Director judgment. The Emergency Director is expected to make a reasonable, informed judgment within 15 minutes that the plant staff has control of the plant from the remote shutdown panel.

Escalation of this emergency classification level, if appropriate, would be by Fission Product Barrier Degradation (F) or Abnormal Radiation Levels/Radiological Effluent (A) EALs.

References:

EAL BASES

HG1**Initiating Condition - GENERAL EMERGENCY**

HOSTILE ACTION resulting in loss of physical control of the facility

Operating Mode Applicability: All

Emergency Action Level(s): (1 or 2)

1. A HOSTILE ACTION has occurred such that plant personnel are unable to operate equipment required to maintain safety functions

OR

2. A HOSTILE ACTION has caused failure of Spent Fuel Cooling Systems and IMMINENT fuel damage is likely for a freshly off-loaded reactor core in pool

Basis:**EAL #1**

This EAL encompasses conditions under which a HOSTILE ACTION has resulted in a loss of physical control of VITAL AREAS (containing vital equipment or controls of vital equipment) required to maintain safety functions and control of that equipment cannot be transferred to and operated from another location. These safety functions are reactivity control (ability to shut down the reactor and keep it shutdown), reactor water level (ability to cool the core), and decay heat removal (ability to maintain a heat sink).

Loss of physical control of the Control Room or remote shutdown panel capability alone may not prevent the ability to maintain safety functions per se. Design of the remote shutdown capability and the location of the transfer switches should be taken into account. Primary emphasis should be placed on those components and instruments that supply protection for and information about safety functions.

If control of the plant equipment necessary to maintain safety functions can be transferred to another location, then the threshold is not met.

EAL #2

This EAL addresses failure of spent fuel cooling systems as a result of HOSTILE ACTION if IMMINENT fuel damage is likely, such as when a freshly off-loaded reactor core is in the spent fuel pool. At RBS, the term "freshly off-loaded reactor core" refers to fuel that has been discharged from the core and stored in the spent fuel pool for a period of LESS THAN one year.

References:

NEI 03-12

EAL BASES

HG2**Initiating Condition - GENERAL EMERGENCY**

Other conditions exist which in the judgment of the Emergency Director warrant declaration of a General Emergency

Operating Mode Applicability: All

Emergency Action Level(s):

1. 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:

This EAL 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 General Emergency.

References:

EAL BASES

SU1**Initiating Condition - NOTIFICATION OF UNUSUAL EVENT**

Loss of all offsite AC power to emergency busses for ≥ 15 minutes

Operating Mode Applicability:

Mode 1.....Power Operation

Mode 2.....Startup

Mode 3.....Hot Shutdown

Emergency Action Level(s):

Note: *The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.*

1. Loss of all offsite AC power to Div I & II ENS busses for ≥ 15 minutes

Basis:

Preferred station transformers are: 1RTX-XSR1C, 1RTX-XSR1D, 1RTX-XSR1E and 1RTX-XSR1F.

Prolonged loss of offsite AC power reduces required redundancy and potentially degrades the level of safety of the plant by rendering the plant more vulnerable to a complete loss of AC power to emergency busses.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of off-site power.

References:

EAL BASES

SU6**Initiating Condition - NOTIFICATION OF UNUSUAL EVENT**

UNPLANNED loss of safety system annunciation or indication in the Control Room for ≥ 15 minutes

Operating Mode Applicability:

Mode 1.....Power Operation

Mode 2.....Startup

Mode 3.....Hot Shutdown

Emergency Action Level(s):

Note: *The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.*

1. UNPLANNED Loss of $>$ approximately 75% of the following for ≥ 15 minutes:

a. Control room safety system annunciation

OR

b. Control Room safety system indication

Basis:

This IC and its associated EAL are intended to recognize the difficulty associated with monitoring changing plant conditions without the use of a major portion of the annunciation or indication equipment.

Recognition of the availability of computer based indication equipment is considered e.g., SPDS, plant computer, etc..

"Planned" loss of annunciators or indicators includes scheduled maintenance and testing activities.

Quantification is arbitrary, however, it is estimated that if approximately 75% of the safety system annunciators or indicators are lost, there is an increased risk that a degraded plant condition could go undetected. It is not intended that plant personnel perform a detailed count of the instrumentation lost but use the value as a judgment threshold for determining the severity of the plant conditions.

It is further recognized that most plant designs provide redundant safety system indication powered from separate uninterruptible power supplies. While failure of a large portion of annunciators is more likely than a failure of a large portion of indications, the concern is included in this EAL due to difficulty associated with assessment of plant conditions. The loss of specific, or several, safety system indicators should remain a function of that specific system or component operability status. This will be addressed by the specific Technical Specification. The initiation of a Technical Specification imposed plant shutdown related to the instrument loss will be reported via 10 CFR 50.72. If the shutdown is not in compliance with the Technical Specification action, the NOUE is based on SU11 "Inability to reach required operating mode within Technical Specification limits."

EAL BASES

SU6

Annunciators or indicators for this EAL include those identified in the Abnormal Operating Procedures, in the Emergency Operating Procedures (EOPs and SAPs), and in other EALs (e.g., area process, and/or effluent rad monitors, etc.). Indicators associated with safety systems are those indicators for reactivity control, core cooling, RCS status and containment status. The panels to consider include: H13-P601, H13-P680, H13-P808 (CMS and DRMS), H13-P863 (DRMS), P870 and P877 safety related annunciators and indicators.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

This NOUE will be escalated to an Alert based on a concurrent loss of compensatory indications or if a SIGNIFICANT TRANSIENT is in progress during the loss of annunciation or indication.

References:

EAL BASES

SU7**Initiating Condition - NOTIFICATION OF UNUSUAL EVENT**

RCS leakage

Operating Mode Applicability:

Mode 1.....Power Operation

Mode 2.....Startup

Mode 3.....Hot Shutdown

Emergency Action Level(s):

(1 or 2)

Note: A relief valve that operates and fails to close per design should be considered applicable if the relief valve cannot be isolated.

1. Unidentified or pressure boundary leakage > 10 gpm

OR

2. Identified leakage > 35 gpm

Basis:

This IC is included as a NOUE because it may be a precursor of more serious conditions and, as result, is considered to be a potential degradation of the level of safety of the plant. The 10 gpm value for the unidentified or pressure boundary leakage was selected as it is observable with normal Control Room indications. Lesser values must generally be determined through time-consuming surveillance tests (e.g., mass balances).

Relief valve normal operation should be excluded from this IC. However, a relief valve that operates and fails to close per design should be considered applicable to this IC if the relief valve cannot be isolated. The 15 minute EAL assessment period begins when the relief valve should have closed. An attempt for isolation from the Control Room should be made prior to classification. If operator actions from the Control Room are successful within the 15 minute EAL assessment period, this threshold is not applicable. Credit is not given for operator actions taken outside the Control Room.

The EAL for identified leakage is set at a higher value due to the lesser significance of identified leakage in comparison to unidentified or pressure boundary leakage. In either case, escalation of this IC to the Alert level is via Fission Product Barrier Degradation (F) ICs.

References:

RBS Technical Specification 3.4.5

EAL BASES

SU8**Initiating Condition - NOTIFICATION OF UNUSUAL EVENT**

Loss of all onsite or offsite communications capabilities

Operating Mode Applicability: Mode 1.....Power Operation
Mode 2.....Startup
Mode 3.....Hot Shutdown

Emergency Action Level(s): (1 or 2)

1. Loss of all of the following onsite communications methods affecting the ability to perform routine operations:

- Plant radio system
- Plant paging system
- Sound powered phones
- In-plant telephones

OR

2. Loss of all of the following offsite communications methods affecting the ability to perform offsite notifications:

- All telephones
- NRC phones
- State of Louisiana Radio
- Offsite notification system and hotline

Basis:

The purpose of this IC and its associated EALs is to recognize a loss of communications capability that either defeats the plant operations staff ability to perform routine tasks necessary for plant operations or the ability to communicate issues with offsite authorities.

The availability of one method of ordinary offsite communications is sufficient to inform federal, state, and local authorities of plant problems. This EAL is intended to be used only when extraordinary means (e.g., relaying of information from non-routine radio transmissions, individuals being sent to off-site locations, etc.) are being used to make communications possible.

References:

EAL BASES

SU9**Initiating Condition - NOTIFICATION OF UNUSUAL EVENT**

Fuel clad degradation

Operating Mode Applicability:

Mode 1.....Power Operation

Mode 2.....Startup

Mode 3.....Hot Shutdown

Emergency Action Level(s):

(1 or 2)

3. Offgas pre-treatment radiation monitor reading > the Table S1 Dose Rate Limit for the actual indicated offgas flow indicating fuel clad degradation > T.S. allowable limits

Table S1	
FLOW (cfm)	Dose Rate Limit (mR/hr)
≤15	9000
>15-17	8000
>17-20	7000
>20-25	5000
>25-30	4000
>30-60	2000
>60-140	1000
>140-200	700

OR

2. Reactor coolant sample activity value indicating fuel clad degradation > T.S. allowable limits

- >4.0 $\mu\text{Ci/gm}$ dose equivalent I-131

OR

- >0.2 $\mu\text{Ci/gm}$ dose equivalent I-131 for > 48 hours

EAL BASES

SU9**Basis:**

This IC is included because it is a precursor of more serious conditions and, as result, is considered to be a potential degradation of the level of safety of the plant.

EAL #1

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

The Technical Specification limit of 290 mCi/sec Offgas pre-treatment release is equivalent to 11,210 mR/hr (assumes flow of 17.875 cfm without adjustment for instrument accuracy). The Table S1 values account for instrument inaccuracy and changing offgas flow rate. The dose rate in the table corresponds to the adjusted TS limit for that associated indicated flow. The dose rates are rounded down conservatively to more accurately read the values on the available scale. The table dose rate values may not reflect the H13-P601/22A/F03 alarm setpoint. To determine if EAL conditions are met when the pre-treatment high radiation alarm (H13-P601/22A/F03) is lit, the operator must read the actual indicated offgas flow rate on N64-R620 (Panel H13-P845) and indicated pre-treatment mR/hr value on D17-R604 (Panel H13-P600). Compare the indicated mR/hr value with the Table S1 dose rate mR/hr for the indicated flow value. If the indicated mR/hr is greater than the Table S1 value, the EAL condition is met.

EAL #2

This EAL addresses coolant samples exceeding coolant technical specifications for transient iodine spiking limits and coolant samples exceeding coolant Technical Specifications for nominal operating iodine limits for the time period specified in the Technical Specifications.

Escalation of this IC to the Alert level is via the Fission Product Barriers (F).

References:

- TS 3.4.8/B 3.4.8
- TS 3.7.4 / B 3.7.4
- G13.18.9.6.*012 Rev 0
- G13.18.9.5-019-3B
- G13.18.9.5-019-3C
- USAR 15.7.1
- EC-5000047036

EAL BASES

SU10**Initiating Condition - NOTIFICATION OF UNUSUAL EVENT**

Inadvertent criticality

Operating Mode Applicability:

Mode 3.....Hot Shutdown

Emergency Action Level(s):

1. UNPLANNED sustained positive period observed on nuclear instrumentation

Basis:

This IC addresses inadvertent criticality events. This IC indicates a potential degradation of the level of safety of the plant, warranting a NOUE classification. This IC excludes inadvertent criticalities that occur during planned reactivity changes associated with reactor startups (e.g., criticality earlier than estimated).

This condition can be identified using period monitors. The term "sustained" is used in order to allow exclusion of expected short term positive periods from planned fuel bundle or control rod movements during core alteration. These short term positive periods are the result of the rise in neutron population due to subcritical multiplication.

Escalation would be by the Fission Product Barrier Table (F), as appropriate to the operating mode at the time of the event.

References:

EAL BASES

SU11**Initiating Condition - NOTIFICATION OF UNUSUAL EVENT**

Inability to reach required operating mode within Technical Specification limits

Operating Mode Applicability:

Mode 1.....Power Operation

Mode 2.....Startup

Mode 3.....Hot Shutdown

Emergency Action Level(s):

1. Plant is not brought to required operating mode within Technical Specifications LCO Action Statement time

Basis:

Limiting Conditions of Operation (LCOs) require the plant to be brought to a required operating mode when the Technical Specification required configuration cannot be restored. Depending on the circumstances, this may or may not be an emergency or precursor to a more severe condition. In any case, the initiation of plant shutdown required by the site Technical Specifications requires a four hour report under 10 CFR 50.72 (b) Non-emergency events. The plant is within its safety envelope when being shut down within the allowable action statement time in the Technical Specifications. An immediate NOUE is required when the plant is not brought to the required operating mode within the allowable action statement time in the Technical Specifications. Declaration of a NOUE is based on the time at which the LCO-specified action statement time period elapses under the site Technical Specifications and is not related to how long a condition may have existed.

References:

EAL BASES

SA1**Initiating Condition - ALERT**

AC power capability to emergency busses reduced to a single power source for ≥ 15 minutes such that any additional single failure would result in station blackout

Operating Mode Applicability:

Mode 1.....Power Operation
Mode 2.....Startup
Mode 3.....Hot Shutdown

Emergency Action Level(s):

Note: *The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.*

1. a. AC power capability to Div I and II ENS busses reduced to a single power source for ≥ 15 minutes

AND

- b. Any additional single power source failure will result in station blackout

Basis:

Preferred station transformers are: 1RTX-XSR1C, 1RTX-XSR1D, 1RTX-XSR1E and 1RTX-XSR1F.

The condition indicated by this IC is the degradation of the offsite and onsite AC power systems such that any additional single failure would result in a station blackout. This condition could occur due to a loss of offsite power with a concurrent failure of all but one emergency diesel generator to supply power to its emergency busses. Another related condition could be the loss of all offsite power and loss of onsite emergency diesel generators with only one train of emergency busses being backfed from the unit main generator, or the loss of onsite emergency diesel generators with only one train of emergency busses being fed from offsite power. The subsequent loss of this single power source would escalate the event to a Site Area Emergency in accordance with SS1.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of power.

Div III D/G and bus E22-S004 are not discussed explicitly in this IC. The loss of Div I and Div II are considered a station blackout. If Div III D/G or E22-S004 is available, entry into this IC is applicable.

References:

EAL BASES

SA3**Initiating Condition - ALERT**

Automatic scram fails to shutdown the reactor and the manual actions taken from the reactor control console are successful in shutting down the reactor

Operating Mode Applicability:

Mode 1.....Power Operation
Mode 2.....Startup

Emergency Action Level(s):

1. a. An automatic scram failed to shutdown the reactor

AND

- b. Manual actions taken at the reactor control console successfully shutdown the reactor as indicated by reactor power < 5%

Basis:

Manual scram actions taken at the reactor control console are any set of actions by the Reactor Operator(s) which causes or should cause control rods to be rapidly inserted into the core and shuts down the reactor.

Taking the mode switch to shutdown is a manual scram action. When the mode switch is taken out of the run position, however, the nuclear instrumentation scram setpoint is lowered. If reactor power remains above the lowered setpoint, an automatic scram is initiated.

This condition indicates failure of the automatic protection system to scram the reactor. This condition is more than a potential degradation of a safety system in that a front line automatic protection system did not function in response to a plant transient. Thus the plant safety has been compromised because design limits of the fuel may have been exceeded. An Alert is indicated because conditions may exist that lead to potential loss of fuel clad or RCS and because of the failure of the Reactor Protection System to automatically shutdown the plant.

Reactor shutdown is considered to be when power is below 5%. The Emergency Operating Procedure (EOP) definition of shutdown is not used.

If manual actions taken at the reactor control console fail to shutdown the reactor, the event would escalate to a Site Area Emergency.

References:

EAL BASES

SA6**Initiating Condition - ALERT**

UNPLANNED loss of safety system annunciation or indication in the Control Room with either (1) a SIGNIFICANT TRANSIENT in progress, or (2) compensatory indicators unavailable

Operating Mode Applicability:

Mode 1.....Power Operation

Mode 2.....Startup

Mode 3.....Hot Shutdown

Emergency Action Level(s):

Note: *The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.*

1. a. UNPLANNED loss of > approximately 75% of the following for \geq 15 minutes:

- Control room safety system annunciation

OR

- Control Room safety system indication

AND

b. Either of the following:

- A SIGNIFICANT TRANSIENT is in progress

OR.

- Compensatory indications are unavailable

Basis:

This IC is intended to recognize the difficulty associated with monitoring changing plant conditions without the use of a major portion of the annunciation or indication equipment during a SIGNIFICANT TRANSIENT.

Recognition of the availability of computer based indication equipment is considered (e.g., SPDS, plant computer, etc.).

"Planned" loss of annunciators or indicators includes scheduled maintenance and testing activities.

EAL BASES

SA6

Quantification is arbitrary, however, it is estimated that if approximately 75% of the safety system annunciators or indicators are lost, there is an increased risk that a degraded plant condition could go undetected. It is not intended that plant personnel perform a detailed count of the instrumentation lost but use the value as a judgment threshold for determining the severity of the plant conditions. It is also not intended that the Shift Manager be tasked with making a judgment decision as to whether additional personnel are required to provide increased monitoring of system operation.

It is further recognized that most plant designs provide redundant safety system indication powered from separate uninterruptible power supplies. While failure of a large portion of annunciators is more likely than a failure of a large portion of indications, the concern is included in this EAL due to difficulty associated with assessment of plant conditions. The loss of specific, or several, safety system indicators should remain a function of that specific system or component operability status. This will be addressed by the specific Technical Specification. The initiation of a Technical Specification imposed plant shutdown related to the instrument loss will be reported via 10 CFR 50.72. If the shutdown is not in compliance with the Technical Specification action, the NOUE is based on SU11 "Inability to reach required operating mode within Technical Specification limits."

Annunciators or indicators for this EAL include those identified in the Abnormal Operating Procedures, in the Emergency Operating Procedures (EOPs and SAPs), and in other EALs (e.g., area process, and/or effluent rad monitors, etc.). Indicators associated with safety systems are those indicators for reactivity control, core cooling, RCS status and containment status. The panels to consider include: H13-P601, H13-P680; H13-P808 (CMS and DRMS), H13-P863 (DRMS), P870 and P877 safety related annunciators and indicators.

"Compensatory indications" in this context includes computer based information such as SPDS. This should include all computer systems available for this use depending on specific plant design and subsequent retrofits. If both a major portion of the annunciation system and all computer monitoring are unavailable, the Alert is required. Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

This Alert will be escalated to a Site Area Emergency if the operating crew cannot monitor the transient in progress due to a concurrent loss of compensatory indications with a SIGNIFICANT TRANSIENT in progress during the loss of annunciation or indication.

References:

EAL BASES

SS1**Initiating Condition - SITE AREA EMERGENCY**

Loss of all offsite and all onsite AC power to emergency busses for
≥ 15 minutes

Operating Mode Applicability:

Mode 1.....Power Operation
Mode 2.....Startup
Mode 3.....Hot Shutdown

Emergency Action Level(s):

Note: *The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.*

1. Loss of all offsite and all onsite AC power to Div I, II and III ENS busses for
≥ 15 minutes

Basis:

Preferred station transformers are: 1RTX-XSR1C, 1RTX-XSR1D, 1RTX-XSR1E and 1RTX-XSR1F.

Loss of all AC power to emergency busses compromises all plant safety systems requiring electric power including RHR, ECCS, Containment Heat Removal and the Ultimate Heat Sink. Prolonged loss of all AC power to emergency busses will lead to loss of Fuel Clad, RCS, and Containment, thus this event can escalate to a General Emergency.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of offsite power.

Consideration should be given to operable loads necessary to remove decay heat or provide Reactor Vessel makeup capability when evaluating loss of AC power to emergency busses. Even though an emergency bus may be energized, if necessary loads (i.e., loads that if lost would inhibit decay heat removal capability or Reactor Vessel makeup capability) are not operable on the energized bus then the bus should not be considered operable. If this bus was the only energized bus then a SAE per SS1 should be declared.

Escalation to General Emergency is via Fission Product Barrier Degradation (F) or IC SG1, "Prolonged loss of all offsite and all onsite AC power to emergency busses."

References:

EAL BASES

SS3**Initiating Condition - SITE AREA EMERGENCY**

Automatic scram fails to shutdown the reactor and manual actions taken from the reactor control console are not successful in shutting down the reactor

Operating Mode Applicability:

Mode 1.....Power Operation
Mode 2.....Startup

Emergency Action Level(s):

1. a. An automatic scram failed to shutdown the reactor

AND

- b. Manual actions taken at the reactor control console do not shutdown the reactor as indicated by reactor power $\geq 5\%$

Basis:

Automatic and manual scrams are not considered successful if action away from the reactor control console was required to scram the reactor.

Under these conditions, the reactor is producing more heat than the maximum decay heat load for which the safety systems are designed and efforts to bring the reactor subcritical are unsuccessful. A Site Area Emergency is warranted because conditions exist that lead to IMMINENT loss or potential loss of both fuel clad and RCS.

Manual scram actions taken at the reactor control console are any set of actions by the Reactor Operator(s) which causes or should cause control rods to be rapidly inserted into the core and shuts down the reactor.

Manual scram actions are not considered successful if action away from the reactor control console is required to scram the reactor. This EAL is still applicable even if actions taken away from the reactor control console are successful in shutting the reactor down because the design limits of the fuel may have been exceeded or because of the gross failure of the Reactor Protection System to shutdown the plant.

Taking the mode switch to shutdown is a manual scram action. When the mode switch is taken out of the run position, however, the nuclear instrumentation scram setpoint is lowered. If reactor power remains above the lowered setpoint, an automatic scram is initiated.

Reactor shutdown is considered to be when power is below 5%. The Emergency Operating Procedure (EOP) definition of shutdown is not used.

Escalation of this event to a General Emergency would be due to a prolonged condition leading to an extreme challenge to either core-cooling or heat removal.

References:

EAL BASES

SS4**Initiating Condition - SITE AREA EMERGENCY**

Loss of all vital DC power for ≥ 15 minutes

Operating Mode Applicability:

Mode 1.....Power Operation

Mode 2.....Startup

Mode 3.....Hot Shutdown

Emergency Action Level(s):

Note: *The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.*

1. < 105 VDC on all vital DC busses for ≥ 15 minutes

Basis:

Loss of all DC power compromises ability to monitor and control plant safety functions. Prolonged loss of all DC power will cause core uncovering and loss of containment integrity when there is significant decay heat and sensible heat in the reactor system.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

Escalation to a General Emergency would occur by Abnormal Radiation Levels/Radiological Effluent (A), Fission Product Barrier Degradation (F).

References:

EAL BASES

SS6**Initiating Condition - SITE AREA EMERGENCY**

Inability to monitor a SIGNIFICANT TRANSIENT in progress

Operating Mode Applicability:

Mode 1.....Power Operation

Mode 2.....Startup

Mode 3.....Hot Shutdown

Emergency Action Level(s):

Note: *The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition has exceeded, or will likely exceed, the applicable time.*

1. a. Loss of > approximately 75% of the following for \geq 15 minutes :

- Control Room safety system annunciation

OR

- Control Room safety system indication

AND

b. A SIGNIFICANT TRANSIENT is in progress

AND

c. Compensatory indications are unavailable

Basis:

This IC is intended to recognize the threat to plant safety associated with the complete loss of capability of the control room staff to monitor plant response to a SIGNIFICANT TRANSIENT.

"Planned" and "UNPLANNED" actions are not differentiated since the loss of instrumentation of this magnitude is of such significance during a transient that the cause of the loss is not an ameliorating factor.

Quantification is arbitrary, however, it is estimated that if approximately 75% of the safety system annunciators or indicators are lost, there is an increased risk that a degraded plant condition could go undetected. It is not intended that plant personnel perform a detailed count of the instrumentation lost but use the value as a judgment threshold for determining the severity of the plant conditions. It is also not intended that the Shift Manager be tasked with making a judgment decision as to whether additional personnel are required to provide increased monitoring of system operation.

EAL BASES

SS6

It is further recognized that most plant designs provide redundant safety system indication powered from separate uninterruptible power supplies. While failure of a large portion of annunciators is more likely than a failure of a large portion of indications, the concern is included in this EAL due to difficulty associated with assessment of plant conditions. The loss of specific, or several, safety system indicators should remain a function of that specific system or component operability status. This will be addressed by the specific Technical Specification. The initiation of a Technical Specification imposed plant shutdown related to the instrument loss will be reported via 10 CFR 50.72. If the shutdown is not in compliance with the Technical Specification action, the NOUE is based on SU11 "Inability to reach required operating mode within Technical Specification limits."

A Site Area Emergency is considered to exist if the Control Room staff cannot monitor safety functions needed for protection of the public while a significant transient is in progress.

Site specific indications needed to monitor safety functions necessary for protection of the public must include Control Room indications, computer generated indications and dedicated annunciation capability.

Annunciators or indicators for this EAL include those identified in the Abnormal Operating Procedures, in the Emergency Operating Procedures (EOPs and SAPs), and in other EALs (e.g., area process, and/or effluent rad monitors, etc.). Indicators associated with safety systems are those indicators for reactivity control, core cooling, RCS status and containment status. The panels to consider include: H13-P601, H13-P680, H13-P808 (CMS and DRMS), H13-P863 (DRMS), P870 and P877 safety related annunciators and indicators.

"Compensatory indications" in this context includes computer based information such as SPDS. This should include all computer systems available for this use depending on specific plant design and subsequent retrofits.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

References:

EAL BASES

SG1**Initiating Condition - GENERAL EMERGENCY**

Prolonged loss of all offsite and all onsite AC power to emergency busses

Operating Mode Applicability:

Mode 1.....Power Operation

Mode 2.....Startup

Mode 3.....Hot Shutdown

Emergency Action Level(s):

1. a. Loss of all offsite and all onsite AC power to Div I, II and III ENS busses.

AND

- b. Either of the following:

- Restoration of at least one emergency bus in < 4 hours is not likely

OR

- RPV level can not be maintained > -162 inches

Basis:

Preferred station transformers are: 1RTX-XSR1C, 1RTX-XSR1D, 1RTX-XSR1E and 1RTX-XSR1F.

Loss of all AC power to emergency busses compromises all plant safety systems requiring electric power including RHR, ECCS, Containment Heat Removal and the Ultimate Heat Sink. Prolonged loss of all AC power to emergency busses will lead to loss of fuel clad, RCS, and containment, thus warranting declaration of a General Emergency.

This IC is specified to assure that in the unlikely event of a prolonged station blackout, timely recognition of the seriousness of the event occurs and that declaration of a General Emergency occurs as early as is appropriate, based on a reasonable assessment of the event trajectory.

The likelihood of restoring at least one emergency bus should be based on a realistic appraisal of the situation since a delay in an upgrade decision based on only a chance of mitigating the event could result in a loss of valuable time in preparing and implementing public protective actions.

In addition, under these conditions, fission product barrier monitoring capability may be degraded.

EAL BASES

SG1

Although it may be difficult to predict when power can be restored, it is necessary to give the Emergency Director a reasonable idea of how quickly (s)he may need to declare a General Emergency based on two major considerations:

1. Are there any present indications that core cooling is already degraded to the point that loss or potential loss of Fission Product Barriers is IMMINENT?
2. If there are no present indications of such core cooling degradation, how likely is it that power can be restored in time to assure that a loss of two barriers with a potential loss of the third barrier can be prevented?

Thus, indication of continuing core cooling degradation must be based on Fission Product Barrier monitoring with particular emphasis on Emergency Director judgment as it relates to IMMINENT loss or potential loss of fission product barriers and degraded ability to monitor fission product barriers.

References:

EAL BASES

SG3**Initiating Condition - GENERAL EMERGENCY**

Automatic scram and all manual actions fail to shutdown the reactor and indication of an extreme challenge to the ability to cool the core exists

Operating Mode Applicability:

Mode 1.....Power Operation
Mode 2.....Startup

Emergency Action Level(s):

1. a. An automatic scram failed to shutdown the reactor

AND

- b. All manual actions do not shutdown the reactor as indicated by reactor power $\geq 5\%$

AND

- c. Either of the following exist or have occurred due to continued power generation:

- Core cooling is extremely challenged as indicated by RPV level cannot be restored and maintained > -187 inches

OR

- Heat removal is extremely challenged as indicated by RPV pressure and Suppression Pool temperature cannot be maintained in the EOP Heat Capacity Temperature Limit (HCTL) Safe Zone

Basis:

Under these conditions, the reactor is producing more heat than the maximum decay heat load for which the safety systems are designed and efforts to bring the reactor subcritical are unsuccessful.

In the event either of these challenges exists at a time that the reactor has not been brought below the power associated with the safety system design a core melt sequence exists. In this situation, core degradation can occur rapidly. For this reason, the General Emergency declaration is intended to be anticipatory of the fission product barrier table declaration to permit maximum offsite intervention time.

References:

EAL BASES

CU1**Initiating Condition -- NOTIFICATION OF UNUSUAL EVENT**

RCS leakage

Operating Mode Applicability:

Mode 4..... Cold Shutdown

Emergency Action Level(s):

Note: *The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.*

1. RCS leakage results in the inability to maintain or restore RPV level $> +9.7$ inches (Level 3) for ≥ 15 minutes

Basis:

This IC is considered to be a potential degradation of the level of safety of the plant. The inability to maintain or restore level is indicative of loss of RCS inventory.

Relief valve normal operation should be excluded from this IC. However, a relief valve that operates and fails to close per design should be considered applicable to this IC if the relief valve cannot be isolated.

Prolonged loss of RCS Inventory may result in escalation to the Alert emergency classification level via either CA1 or CA3.

References:

EAL BASES

CU2**Initiating Condition -- NOTIFICATION OF UNUSUAL EVENT**

UNPLANNED loss of RCS/RPV inventory

Operating Mode Applicability:

Mode 5..... Refueling

Emergency Action Level(s):

(1 or 2)

Note: *The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.*

1. UNPLANNED RCS level drop as indicated by either of the following:

- a. RCS water level drop below the RPV flange for ≥ 15 minutes when the RCS level band is established above the RPV flange

OR

- b. RCS water level drop below the RPV level band for ≥ 15 minutes when the RCS level band is established below the RPV flange

OR

2. RCS level cannot be monitored with a loss of RCS inventory as indicated by an unexplained rise in floor or equipment sump level, Suppression Pool level, vessel make-up rate or observation of leakage or inventory loss

Basis:

This IC is a precursor of more serious conditions and considered to be a potential degradation of the level of safety of the plant.

Refueling evolutions that lower RCS water level below the RPV flange are carefully planned and procedurally controlled. An UNPLANNED event that results in water level lowering below the RPV flange, or below the planned RCS water level for the given evolution (if the planned RCS water level is already below the RPV flange), warrants declaration of a NOUE due to the reduced RCS inventory that is available to keep the core covered.

The allowance of 15 minutes was chosen because it is reasonable to assume that level can be restored within this time frame using one or more of the redundant means of makeup that should be available. If level cannot be restored in this time frame then it may indicate a more serious condition exists.

Continued loss of RCS Inventory will result in escalation to the Alert emergency classification level via either CA1 or CA3.

EAL BASES

CU2EAL #1

This EAL involves a drop in RCS level below the top of the RPV flange that continues for 15 minutes due to an UNPLANNED event. This EAL is not applicable to reductions in flooded reactor cavity level, which is addressed by AU2 EAL1, until such time as the level drops to the level of the vessel flange.

If RPV level continues to drop and reaches the Low-Low ECCS Actuation Setpoint then escalation to CA1 would be appropriate.

EAL #2

This EAL addresses conditions in the refueling mode when normal means of core temperature indication and RCS level indication may not be available. Redundant means of RPV level indication will normally be installed (including the ability to monitor level visually) to assure that the ability to monitor level will not be interrupted. However, if all level indication were to be lost during a loss of RCS inventory event, the operators would need to determine that RPV inventory loss was occurring by observing sump and tank level changes. Sump and tank level rise must be evaluated against other potential sources of leakage such as cooling water sources inside the containment to ensure they are indicative of RCS leakage.

Escalation to the Alert emergency classification level would be via either CA1 or CA3.

References:

EAL BASES

CU3**Initiating Condition -- NOTIFICATION OF UNUSUAL EVENT**

UNPLANNED loss of decay heat removal capability with irradiated fuel in the RPV

Operating Mode Applicability: Mode 4..... Cold Shutdown
Mode 5..... Refueling

Emergency Action Level(s): (1 or 2)

Note: *The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.*

1. UNPLANNED event results in RCS temperature exceeding 200 °F.

OR

2. Loss of all RCS temperature and RCS/RPV level indication for ≥ 15 minutes.

Basis:

This IC is a precursor of more serious conditions and, as a result, is considered to be a potential degradation of the level of safety of the plant. In cold shutdown the ability to remove decay heat relies primarily on forced cooling flow. Operation of the systems that provide this forced cooling may be jeopardized due to the unlikely loss of electrical power or RCS inventory. Since the RCS usually remains intact in the cold shutdown mode a large inventory of water is available to keep the core covered.

During refueling the level in the RPV will normally be maintained above the RPV flange. Refueling evolutions that lower water level below the RPV flange are carefully planned and procedurally controlled. Loss of forced decay heat removal at reduced inventory may result in more rapid rises in RCS/RPV temperatures depending on the time since shutdown.

Normal means of core temperature indication and RCS level indication may not be available in the refueling mode. Redundant means of RPV level indication are therefore procedurally installed to assure that the ability to monitor level will not be interrupted. However, if all level and temperature indication were to be lost in either the cold shutdown or refueling modes, EAL 2 would result in declaration of a NOUE if both temperature and level indication cannot be restored within 15 minutes from the loss of both means of indication.

Escalation to Alert would be via CA1 based on an inventory loss or CA3 based on exceeding its temperature criteria.

References:

EAL BASES

CU5**Initiating Condition -- NOTIFICATION OF UNUSUAL EVENT**

AC power capability to emergency busses reduced to a single power source for ≥ 15 minutes such that any additional single failure would result in station blackout

Operating Mode Applicability:

Mode 4..... Cold Shutdown

Mode 5..... Refueling

Emergency Action Level(s):

Note: *The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.*

1. a. AC power capability to Div I and Div II ENS busses reduced to a single power source for ≥ 15 minutes

AND

- b. Any additional single power source failure will result in station blackout

Basis:

Preferred station transformers are: 1RTX-XSR1C, 1RTX-XSR1D, 1RTX-XSR1E and 1RTX-XSR1F.

The condition indicated by this IC is the degradation of the offsite and onsite AC power systems such that any additional single failure would result in a station blackout. This condition could occur due to a loss of offsite power with a concurrent failure of all but one emergency generator to supply power to its emergency busses. Another related condition could be the loss of onsite emergency diesel generators with only one train of emergency busses being fed from offsite power (or backfed from offsite power through the main transformer). The subsequent loss of this single power source would escalate the event to an Alert in accordance with CA5.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of power.

Div III D/G and bus E22-S004 are not discussed explicitly in this IC. The loss of Div I and Div II are considered a station blackout. If Div III D/G or E22-S004 is available, entry into this IC is applicable.

References:

EAL BASES

CU6**Initiating Condition -- NOTIFICATION OF UNUSUAL EVENT**

Loss of required DC power for ≥ 15 minutes

Operating Mode Applicability:

Mode 4..... Cold Shutdown

Mode 5..... Refueling

Emergency Action Level(s):

Note: *The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.*

1. < 105 VDC on required Vital DC busses for ≥ 15 minutes

Basis:

The purpose of this IC and its associated EAL is to recognize a loss of DC power compromising the ability to monitor and control the removal of decay heat during Cold Shutdown or Refueling operations.

It is intended that the loss of the operating (operable) train is to be considered. If this loss results in the inability to maintain cold shutdown, the escalation to an Alert will be per CA3.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

References:

EAL BASES

CU7**Initiating Condition -- NOTIFICATION OF UNUSUAL EVENT**

Inadvertent criticality

Operating Mode Applicability:

Mode 4..... Cold Shutdown

Mode 5..... Refueling

Emergency Action Level(s):

1. UNPLANNED sustained positive period observed on nuclear instrumentation

Basis:

This IC addresses criticality events that occur in Cold Shutdown or Refueling modes such as fuel mis-loading events. This IC indicates a potential degradation of the level of safety of the plant, warranting a NOUE classification.

This condition can be identified using period monitors. The term "sustained" is used in order to allow exclusion of expected short term positive periods from planned fuel bundle or control rod movements during core alteration. These short term positive periods are the result of the rise in neutron population due to subcritical multiplication.

Escalation would be by Emergency Director Judgment.

References:

EAL BASES

CU8**Initiating Condition -- NOTIFICATION OF UNUSUAL EVENT**

Loss of all onsite or offsite communications capabilities

Operating Mode Applicability:

Mode 4..... Cold Shutdown

Mode 5..... Refueling

Mode D..... Defueled

Emergency Action Level(s):

(1 or 2)

1. Loss of all of the following onsite communication methods affecting the ability to perform routine operations:

Plant radio system

Plant paging system

Sound powered phones

In-plant telephones

OR

2. Loss of all of the following offsite communication methods affecting the ability to perform offsite notifications:

All telephones

NRC phones

State of Louisiana Radio

Offsite notification system and hotline

Basis:

The purpose of this IC and its associated EALs is to recognize a loss of communications capability that either defeats the plant operations staff ability to perform routine tasks necessary for plant operations or the ability to communicate issues with offsite authorities. The loss of offsite communications ability is expected to be significantly more comprehensive than the condition addressed by 10 CFR 50.72.

The availability of one method of ordinary offsite communications is sufficient to inform federal, state, and local authorities of plant issues. This EAL is intended to be used only when extraordinary means (e.g., relaying of information from radio transmissions, individuals being sent to offsite locations, etc.) are being utilized to make communications possible.

References:

EAL BASES

CA1**Initiating Condition - ALERT**

Loss of RCS/RPV inventory

Operating Mode Applicability:

Mode 4..... Cold Shutdown

Mode 5..... Refueling

Emergency Action Level(s):

(1 or 2)

Note: *The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.*

1. UNPLANNED loss of RCS inventory as indicated by RPV level < -43 inches (Level 2)

OR

2. RCS level cannot be monitored for ≥ 15 minutes with a loss of RCS inventory as indicated by an unexplained rise in floor or equipment sump level, Suppression Pool level, vessel make-up rate or observation of leakage or inventory loss

Basis:

These EALs are not applicable when the RPV is defueled and serve as precursors to a loss of ability to adequately cool the fuel. The magnitude of this loss of water indicates that makeup systems have not been effective and may not be capable of preventing further RPV level lowering and potential core uncover. This condition will result in a minimum emergency classification level of an Alert.

EAL #1

The inability to restore and maintain level after reaching this setpoint would be indicative of a failure of the RCS barrier.

EAL #2

In the cold shutdown mode, normal RCS level and RPV level instrumentation systems will usually be available. In the refueling mode, normal means of RPV level indication may not be available. Redundant means of reactor vessel level indication will usually be installed (including the ability to monitor level visually) to assure that the ability to monitor level will not be interrupted. However, if all level indication were to be lost during a loss of RCS inventory event, the operators would need to determine that RPV inventory loss was occurring by observing sump and tank level changes. Sump and tank level rise must be evaluated against other potential sources of leakage such as cooling water sources inside the containment to ensure they are indicative of RCS leakage.

If RPV level continues to lower then escalation to Site Area Emergency will be via CS1.

References:

EAL BASES

CA3**Initiating Condition - ALERT**

Inability to maintain plant in cold shutdown

Operating Mode Applicability:

Mode 4..... Cold Shutdown

Mode 5..... Refueling

Emergency Action Level(s):

(1 or 2)

1. An UNPLANNED event results in RCS temperature > 200 °F for > the specified duration in Table C2

OR

2. An UNPLANNED event results in RCS pressure rise > 10 psig due to a loss of RCS cooling

Table C2: RCS Reheat Duration Thresholds		
RCS	Containment Closure	Duration
Intact	N/A	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 the EAL is not applicable.		

Basis:EAL #1

The RCS Reheat Duration Threshold table addresses complete loss of functions required for core cooling for greater than 60 minutes during refueling and cold shutdown modes when RCS integrity is established. RCS integrity should be considered to be in place when the RCS pressure boundary is in its normal condition for the cold shutdown mode of operation (e.g., no freeze seals or nozzle dams). The 60 minute time frame should allow sufficient time to restore cooling without there being a substantial degradation in plant safety.

The RCS Reheat Duration Threshold table also addresses the complete loss of functions required for core cooling for greater than 20 minutes during refueling and cold shutdown modes when CONTAINMENT CLOSURE is established but RCS integrity is not established.) As discussed above, RCS integrity should be assumed to be in place when the RCS pressure boundary is in its normal condition for the cold shutdown mode of operation (e.g., no freeze seals or nozzle dams) The allowed 20 minute time frame was included to allow operator action to restore the heat removal function, if possible

Finally, the EAL addresses complete loss of functions required for core cooling during refueling and cold shutdown modes when neither CONTAINMENT CLOSURE nor RCS integrity are established.

The (*) indicates that this EAL is not applicable if actions are successful in restoring an RCS heat removal system to operation and RCS temperature is being reduced within the specified time frame.

EAL BASES

CA3EAL #2

The 10 psig pressure rise addresses situations where, due to high decay heat loads, the time provided to restore temperature control, should be less than 60 minutes. The RCS pressure setpoint chosen should be 10 psig or the lowest pressure that the site can read on installed Control Board instrumentation that is equal to or greater than 10 psig.

Escalation to Site Area Emergency would be via CS1 should boiling result in significant RPV level loss leading to core uncover.

A loss of Technical Specification components alone is not intended to constitute an Alert. The same is true of a momentary UNPLANNED excursion above the Technical Specification cold shutdown temperature limit when the heat removal function is available.

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 threshold has been exceeded.

.References:

EAL BASES

CA5**Initiating Condition - ALERT**

Loss of all offsite and all onsite AC power to emergency busses for \geq 15 minutes

Operating Mode Applicability:

Mode 4..... Cold Shutdown

Mode 5..... Refueling

Mode D..... Defueled

Emergency Action Level(s):

Note: *The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.*

1. Loss of all offsite and all on-site AC power to Div I & Div II ENS busses for \geq 15 minutes

Basis:

Preferred station transformers are: 1RTX-XSR1C, 1RTX-XSR1D, 1RTX-XSR1E and 1RTX-XSR1F.

Loss of all AC power to Div I & Div II compromises all plant safety systems requiring electric power including RHR, ECCS, Containment Heat Removal, Spent Fuel Heat Removal and the Ultimate Heat Sink.

The event can be classified as an Alert when in cold shutdown, refueling, or defueled mode because of the significantly reduced decay heat and lower temperature and pressure, raising the time to restore one of the emergency busses, relative to that specified for the Site Area Emergency EAL.

Consideration should be given to operable loads necessary to remove decay heat or provide Reactor Vessel makeup capability when evaluating loss of AC power to emergency busses. Even though an emergency bus may be re-energized, if necessary loads (i.e., loads that if lost would inhibit decay heat removal capability or Reactor Vessel makeup capability) are not functional on the energized bus, then the bus should not be considered restored for this EAL.

Escalating to Site Area Emergency, if appropriate, is by Abnormal Rad Levels / Radiological Effluent ICs.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

References:

EAL BASES

CS1**Initiating Condition - SITE AREA EMERGENCY**

Loss of RCS/RPV inventory affecting core decay heat removal capability

Operating Mode Applicability: Mode 4..... Cold Shutdown
Mode 5..... Refueling

Emergency Action Level(s): (1 or 2 or 3)

Note: *The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.*

1. With CONTAINMENT CLOSURE not established, UNPLANNED RPV level < -49 inches

OR

2. With CONTAINMENT CLOSURE established, RPV level < -162 inches (TAF)

OR

3. RCS level cannot be monitored for ≥ 30 minutes with a loss of RCS inventory as indicated by any of the following:
 - RMS-RE16 reading > 100 R/hr
 - Erratic Source Range Monitor indication
 - Unexplained rise in floor or equipment sump level, Suppression Pool level, vessel make-up rate or observation of leakage or inventory loss

Basis:

These EALs are not applicable when the RPV is defueled.

Under the conditions specified by this IC, continued reduction in RCS level is indicative of a loss of inventory control. Inventory loss may be due to an RCS breach, pressure boundary leakage, or continued boiling in the RPV. Thus, declaration of a Site Area Emergency is warranted.

Escalation to a General Emergency is via CG1 or AG1.

EAL #3

In the cold shutdown mode, normal RCS level and RPV level instrumentation systems will usually be available. In the refueling mode, normal means of RPV level indication may not be available. Redundant means of RPV level indication will usually be installed (including the ability to monitor level visually) to assure that the ability to monitor level will not be interrupted. However, if all level indication were to be lost during a loss of RCS inventory event, the operators would need to determine that RPV inventory loss was occurring by observing sump and tank level changes. Sump and tank level rise must be evaluated against other potential sources of leakage such as cooling water sources inside the containment to ensure they are indicative of RCS leakage.

EAL BASES**CS1**

The 30-minute duration allows sufficient time for actions to be performed to recover inventory control equipment.

As water level in the RPV lowers, the dose rate above the core will rise. The dose rate due to this core shine should result in site specific monitor indication and possible alarm.

References:

COP-1050 NEDC-33045P
Calculation G13.18.9.4-047 Rev. 0

EAL BASES

CG1**Initiating Condition - GENERAL EMERGENCY**

Loss of RCS/RPV inventory affecting fuel clad integrity with containment challenged

Operating Mode Applicability:

Mode 4..... Cold Shutdown

Mode 5..... Refueling

Emergency Action Level(s):

(1 or 2)

Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.

1. a. RPV level < - 162 inches (TAF) for ≥ 30 minutes

AND

- b. Any containment challenge indication in Table C1

OR

2. a. RCS level cannot be monitored with core uncover indicated by any of the following for ≥ 30 minutes:

- RMS-RE16 reading > 100 R/hr
- Erratic Source Range Monitor indication
- Unexplained rise in floor or equipment sump level, Suppression Pool level, vessel make-up rate or observation of leakage or inventory loss

AND

- b. Any containment challenge indication in Table C1

Table C1 Containment Challenge Indications		
<ul style="list-style-type: none"> • CONTAINMENT CLOSURE <u>not</u> established • Explosive mixture inside containment • UNPLANNED rise in containment pressure • Secondary containment area radiation monitor above EOP Max Safe Operating Value below: 		
Area	DRMS Grid 2	Max Safe Operating Value
RHR Equip Rm A	1213	9.5E+03 mR/hr
RHR Equip Rm B	1214	9.5E+03 mR/hr
RHR Equip Rm C	1215	9.5E+03 mR/hr

EAL BASES

CG1**Basis:**

These EALs are not applicable when the RPV is defueled.

This IC represents the inability to restore and maintain RPV level to above the top of active fuel with containment challenged. Fuel damage is probable if RPV level cannot be restored, as available decay heat will cause boiling, further reducing the RPV level. With the CONTAINMENT breached or challenged then the potential for unmonitored fission product release to the environment is high. This represents a direct path for radioactive inventory to be released to the environment. This is consistent with the definition of a GE. The GE is declared on the occurrence of the loss or IMMINENT loss of function of all three barriers.

A number of variables can have a significant impact on heat removal capability challenging the Fuel Clad barrier. Examples include initial vessel level and shutdown heat removal system design.

Analysis indicates that core damage may occur within an hour following continued core uncovering therefore, 30 minutes was conservatively chosen. If CONTAINMENT CLOSURE is re-established prior to exceeding the 30 minute core uncovering time limit then escalation to GE would not occur.

In the early stages of a core uncovering event, it is unlikely that hydrogen buildup due to a core uncovering could result in an explosive mixture of dissolved gases in Containment. However, Containment monitoring and/or sampling should be performed to verify this assumption and a General Emergency declared if it is determined that an explosive mixture exists.

EAL #2

Sump and tank level rise must be evaluated against other potential sources of leakage such as cooling water sources inside the containment to ensure they are indicative of RCS leakage.

In the cold shutdown mode, normal RCS level and RPV level instrumentation systems will usually be available. In the refueling mode, normal means of RPV level indication may not be available. Redundant means of RPV level indication will usually be installed (including the ability to monitor level visually) to assure that the ability to monitor level will not be interrupted. However, if all level indication were to be lost during a loss of RCS inventory event, the operators would need to determine that RPV inventory loss was occurring by observing sump and tank level changes. Sump and tank level rise must be evaluated against other potential sources of leakage such as cooling water sources inside the containment to ensure they are indicative of RCS leakage.

As water level in the RPV lowers, the dose rate above the core will rise. The dose rate due to this core shine should result in site specific monitor indication and possible alarm.

References:

COP-1050
NEDC-33045P

EAL BASES

E-HU1**Initiating Condition - NOTIFICATION OF UNUSUAL EVENT**

Damage to a loaded cask CONFINEMENT BOUNDARY

Operating Mode Applicability: All**Emergency Action Level(s):**

1. Damage to a loaded cask CONFINEMENT BOUNDARY.

Basis:

A NOUE in this IC is categorized on the basis of the occurrence of an event of sufficient magnitude that a loaded cask CONFINEMENT BOUNDARY is damaged or violated. This includes classification based on a loaded fuel storage cask CONFINEMENT BOUNDARY loss leading to the degradation of the fuel during storage or posing an operational safety problem with respect to its removal from storage.

This EAL addresses a dropped cask, a tipped over cask, EXPLOSION, PROJECTILE damage, FIRE damage or natural phenomena affecting a cask (e.g., seismic event, tornado, etc.).

References:

EIP-2-001 ATT 9 USER AID 2 Revision F

Sheet 1 of 7

I. OVERVIEWPAD Rev. #: 0Facility: River Bend Station

Proposed Activity / Document: Procedure revision / EIP-2-001, Classification of Emergencies Change/Rev. #:27

Description of Proposed Activity:

1. Attachment 8 – Added enhancement in the form of a Note in the bases section of RC4 regarding the thermally induced current phenomena. The Note reads as follows:

"Under post-LOCA conditions coaxial cables used on the drywell post accident monitors (RMS-RE20A/B) are susceptible to Thermally Induced Currents (TIC). These currents may cause the drywell PAMs to read falsely high (~469 R/hr) on a rapid temperature increase and read falsely low on a rapid temperature decrease. When accident temperature conditions stabilize indicated radiation dose rates would be more accurate. The duration of the spurious signal would last approximately 15 minutes. During the period of false readings operators should rely on other indications of RCS leakage including a rise in drywell temperature and pressure."

2. Attachment 8 – Added clarifying statements to the bases section of SA3. The statements are as follows:

"Taking the mode switch to shutdown is a manual scram action. When the mode switch is taken out of the run position, however, the nuclear instrumentation scram setpoint is lowered. If reactor power remains above the lowered setpoint, an automatic scram is initiated." and "Reactor shutdown is considered to be when power is below 5%. The Emergency Operating Procedure (EOP) definition of shutdown is not used."

3. Attachment 8 – Added clarifying statements to the bases section of SS3. The statements are as follows:

"Taking the mode switch to shutdown is a manual scram action. When the mode switch is taken out of the run position, however, the nuclear instrumentation scram setpoint is lowered. If reactor power remains above the lowered setpoint, an automatic scram is initiated." and "Reactor shutdown is considered to be when power is below 5%. The Emergency Operating Procedure (EOP) definition of shutdown is not used."

II. DOCUMENT REVIEW METHOD

Provide the requested information for each item below.

1. For documents available electronically:

- a. List search engine or documents searched, and keywords used:

Performed Autonomy 50.59 search of the Emergency Plan, Technical Requirements Manual, Tech Spec Bases, NRC Bulletins, Safety Evaluation Reports, Inspection Reports, ODCM, and USAR Controlled Copy.

Keywords used: "Emergency Action Level", "Emergency Action Level Threshold", "Emergency Action Level Initiating Condition", "thermally induced current", "shutdown"

Sheet 2 of 7

- b. List relevant sections of controlled electronic documents reviewed:
 Emergency Plan Section 13.3.3 Emergency Conditions
 Emergency Plan Table 13.3-1 Emergency Action Level Initiating Conditions
2. Documents reviewed manually (hardcopy):
 The entire Emergency Plan was reviewed manually.
3. For those documents that are not reviewed either electronically or manually, use the specific questions provided in Sections III and IV of Attachment 9.2 of EN-LI-100 as needed. Document, below, the extent to which the Attachment 9.2 questions were used.

Attachment 9.2 questions were used in their entirety, including for those documents reviewed electronically.

III. PROCESS REVIEW

Does the proposed activity affect, invalidate, or render incorrect, OR have the potential to affect, invalidate, or render incorrect, information contained in any of the following processes? Contact Program Owner if needed. Associated regulations and procedures are identified with each process below.

PROCESS (Regulations / Procedures)	YES	NO	REVIEW RESULTS
Chemistry / Effluents	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Radwaste / Process Control Program (PCP) (EN-RW-105 or contact the Radiation Protection Dept.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Radiation Protection / ALARA (10 CFR 20 / EN-RP-110 or contact the Radiation Protection Dept.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Inservice Inspection Program (10 CFR 50.55a / EN-DC-120, -333, -342, -351, -352)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Inservice Testing Program (10 CFR 50.55a / EN-DC-332)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Maintenance Rule Program (10 CFR 50.65 / EN-DC-203, -204, -205, -206, -207)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Containment Leakage Rate Testing (Appendix J) Program (10 CFR 50 Appendix J / EN-DC-334)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

PROCESS (Regulations/Procedures)	YES	NO	N/A	REVIEW RESULTS
FLEX Program (NRC Order EA-12-49/FLEX Program) (10 CFR 50.59 / Contact Design Engineering) NOTE: The date for individual site implementation of the FLEX Program is not the same for all sites. All sites are required to implement a FLEX program per NRC Order EA-12-49. N/A may be used for this process by sites that have not completed implementation of a FLEX program. Contact Design Engineering if further assistance is needed.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

IF any box is checked "Yes," **THEN** contact the appropriate department to ensure that the proposed change is acceptable and document the results in the REVIEW RESULTS column.

Sheet 3 of 7

IV. LICENSING BASIS DOCUMENT REVIEW

Does the proposed activity affect, invalidate, or render incorrect, OR have the potential to affect, invalidate, or render incorrect, information contained in any of the following Licensing Basis Document(s)? Contact LBD Owner if needed. Associated regulations and procedures are identified with each Licensing Basis Document below.

LICENSING BASIS DOCUMENTS (Regulations / Procedures)	YES	NO	REVIEW RESULTS OR SECTIONS AFFECTED OR LBD CR #
Quality Assurance Program Manual (QAPM) (10 CFR 50.54(a), 10 CFR 50 Appendix B / EN-QV-104)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Fire Protection Program (FPP) [includes the Fire Safety Analysis/Fire Hazards Analysis (FSA/FHA)] OL Condition, 10 CFR 50.48 / EN-DC-128)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Emergency Plan (includes the On-Shift Staffing Analysis) (10 CFR 50.54(q) / 10 CFR 50.47 / EN-EP-305)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Environmental Protection Plan (Appendix B of the OL, Environmental Evaluation / EN-EV-115, EN-EV-117, EN-LI-103)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Security Plan (10 CFR 50.54(p) / EN-NS-210 or contact site Security Dept.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cyber Security Plan (10 CFR 50.54 (p) / 10 CFR 73.54 / EN-IT-103 or EN-IT-103-01)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Operating License (OL) / Technical Specifications (TS) (10 CFR 50.90 / EN-LI-103)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
TS Bases (10 CFR 50.59 / EN-LI-100 / EN-LI-101)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Technical Requirements Manual (TRM) (including TRM Bases) (10 CFR 50.59 / EN-LI-100 / EN-LI-101)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Core Operating Limits Report (COLR), and Pressure and Temperature Limits Report (PTLR) (TS Administrative Controls, EN-LI-113, EN-LI-100, EN-LI-101)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Offsite Dose Calculation Manual (ODCM) (TS Administrative Controls or 10 CFR 50.59 / EN-LI-113 or EN-LI-100 / EN-LI-101)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Updated Final Safety Analysis Report (UFSAR) (10 CFR 50.71(e) / EN-LI-113, EN-LI-100, EN-LI-101)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Storage Cask Certificate of Compliance (10 CFR 72.244 / EN-LI-113)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Cask FSAR (CFSAR) (including the CTS Bases) (10 CFR 72.70 or 72.248 / EN-LI-113, EN-LI-100, EN-LI-112)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
10 CFR 72.212 Evaluation Report (212 Report) (10 CFR 72.48 / EN-LI-100, EN-LI-112)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Orders (10 CFR 50.90 / EN-LI-103 or as directed by the Order)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NRC Commitments and Obligations (EN-LI-110)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Site-Specific CFR Exemption (10 CFR 50.12, 10 CFR 55.11, 10 CFR 55.13, 10 CFR 72.7)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

*Contact the site Regulatory Assurance Department if needed.

IF any box is checked "Yes," THEN ensure that any required regulatory reviews are performed in accordance with the referenced procedures. Prepare an LBD CR per procedure EN-LI-113, as required, if a LBD is to be changed, and document any affected sections or the LBD CR #. Briefly discuss how the LBD is affected in Section VII.A.

Sheet 4 of 7

V. 10 CFR 50.59 / 10 CFR 72.48 APPLICABILITY

Can the proposed activity be dispositioned by one or more of the following criteria? Check the appropriate box (if any).

<input type="checkbox"/>	An approved, valid 50.59/72.48 Evaluation covering associated aspects of the proposed activity already exists. Reference 50.59/72.48 Evaluation # _____ (if applicable) or attach documentation. Verify the previous 50.59/72.48 Evaluation remains valid.
<input type="checkbox"/>	The NRC has approved the proposed activity or portions thereof in a license amendment or a safety evaluation, or is being reviewed by the NRC in a submittal that addresses the proposed activity. Implementation of change requires NRC approval. Reference the approval document or the amendment in review.: _____
<input checked="" type="checkbox"/>	<p>The proposed activity is controlled by one or more applicable regulations.</p> <p>Examples of programs controlled by regulations that establish specific criteria are:</p> <ul style="list-style-type: none"> • Maintenance Rule (50.65) (EN-DC-203) • Quality Assurance Program (10 CFR 50 Appendix B) • Security Plan [50.54(p)] (EN-NS-210) • Cyber Security Plan [73.54] (EN-IT-103) • Emergency Plan [50.54(q)] (EN-EP-305) • Fire Protection Program (operating license condition) • Inservice Inspection Program (50.55a) (EN-DC-351, -352) • Inservice Testing Program (50.55a) (EN-DC-332) <p>See NEI 96-07 Section 4.1 for additional guidance on specific regulations.</p> <p>Reference the controlling specific regulation(s): <u>10CFR50.54(q)</u></p>

IF the entire proposed activity can be dispositioned by one of the criteria in Section V, **THEN** 50.59 and 72.48 Screenings are not required. Proceed to Section VII and provide basis for conclusion in Section VII.A.

Otherwise, continue to Section VI to perform a 50.59 and a 72.48 Screening, or perform a 50.59 and/or 72.48 Evaluation in accordance with EN-LI-101 and/or EN-LI-112.

Changes to the IPEC Unit 1 Decommissioning Plan are to be evaluated in accordance with the 50.59 process, as allowed by the NRC in a letter to IPEC dated January 31, 1996. [Merlin Document ID: RA-96-014]

Sheet 5 of 7

VI. **50.59 / 72.48 SCREENING REVIEW** (All proposed activities must be evaluated to determine if 50.59, 72.48 or both apply. Check the applicable boxes)

VI.A 50.59 SCREENING

<input type="checkbox"/>	<p>50.59 applies to the proposed activity, and all of the following 10 CFR 50.59 screening criteria are met; therefore, the proposed activity requires no further 50.59 review.</p> <p>The proposed activity:</p> <ul style="list-style-type: none">• Does not <u>adversely affect</u> the design function of an SSC as described in the UFSAR; <u>AND</u>• Does not <u>adversely affect</u> a method of performing or controlling a design function of an SSC as described in the UFSAR; <u>AND</u>• Does not <u>adversely affect</u> a method of evaluation that demonstrates intended design function(s) of an SSC will be accomplished as described in the UFSAR; <u>AND</u>• Does not involve a test or experiment not described in the UFSAR. <p>Document the basis for meeting the screening criteria in Section VI.C, then proceed to Section VII. [10 CFR 50.59(c)(1)]</p>
<input type="checkbox"/>	<p>The proposed activity does not meet the above criteria. Perform a 50.59 Evaluation in accordance with EN-LI-101. Attach a copy of the Evaluation to this form and proceed to Section VII.</p>

VI.B 72.48 SCREENING

<input type="checkbox"/>	<p>72.48 applies to the proposed activity, and all of the following 10 CFR 72.48 screening criteria are met; therefore, the proposed activity requires no further 72.48 review.</p> <p>The proposed activity:</p> <ul style="list-style-type: none">• Does not <u>adversely affect</u> the design function of an SSC as described in the CFSAR; <u>AND</u>• Does not <u>adversely affect</u> a method of performing or controlling a design function of an SSC as described in the CFSAR; <u>AND</u>• Does not <u>adversely affect</u> a method of evaluation that demonstrates intended design function(s) of an SSC will be accomplished as described in the CFSAR; <u>AND</u>• Does not involve a test or experiment not described in the CFSAR. <p>Document the basis for meeting the screening criteria in Section VI.C, then proceed to Section VII. [10 CFR 72.48(c)(1)]</p>
<input type="checkbox"/>	<p>The proposed activity does not meet the above criteria. Perform a 72.48 Evaluation in accordance with EN-LI-112. Attach a copy of the Evaluation to this form and proceed to Section VII.</p>

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VI.C BASIS

Provide a clear, concise basis for determining the proposed activity may be screened out such that a third-party reviewer can reach the same conclusions. Identify the relevant design function, as appropriate. Refer to NEI 96-07 Section 4.2 for guidance. Refer to NEI 12-06 Section 11.4 for guidance regarding FLEX. Provide supporting documentation or references as appropriate.

VII. REGULATORY REVIEW SUMMARY**VII.A GENERAL REVIEW COMMENTS** (Provide pertinent review details and basis for conclusions if not addressed elsewhere in form.)

These changes are governed by the Emergency Plan and have been reviewed under the 10CFR50.54(q) process per EN-EP-305 and have been found to have no adverse impact and no reduction in effectiveness of the Emergency Plan. The changes being implemented affect EIP-2-001, Classification of Emergencies only.

VII.B CONCLUSIONS

1. Is a change to an LBD being initiated? ☐ Yes
IF "Yes," THEN enter the appropriate change control process and include this form with the change package. ☒ No
2. Is a 10 CFR 50.59 Evaluation required? ☐ Yes
IF "Yes," THEN complete a 50.59 Evaluation in accordance with EN-LI-101 and attach a copy to the change activity. ☒ No
3. Is a 10 CFR 72.48 Evaluation required? ☐ Yes
IF "Yes," THEN complete a 72.48 Evaluation in accordance with EN-LI-112 and attach a copy to the change activity. ☒ No

Sheet 7 of 7

VIII. SIGNATURES¹

Preparer: Norman E Tison / *Norman E Tison* / RBS-EP / 10/23/2017
Name (print) / Signature / Company / Department / Date

Reviewer: A. JAN WILSON / *A. Jan Wilson* / RBS-TRSG / 10-23-17
Name (print) / Signature / Company / Department / Date

Process Applicability Exclusion

Site Procedure N/A
Champion or Owner: Name (print) / Signature / Company / Department / Date

Upon completion, forward this PAD form to the appropriate organization for record storage. If the PAD form is part of a process that requires transmittal of documentation, including PAD forms, for record storage, then the PAD form need not be forwarded separately.

¹ The printed name, company, department, and date must be included on the form. Signatures may be obtained via electronic processes (e.g., PCRS, ER processes, Asset Suite signature), manual methods (e.g., ink signature), e-mail, or telecommunication. If using an e-mail, attach it to this form.

Procedure/Document Number: EIP-2-001	Revision: 27
Equipment/Facility/Other: River Bend Station	
Title: Classification of Emergencies	

Part I. Description of Activity Being Reviewed (This is generally changes to the emergency plan, EALs, EAL bases, etc. – refer to step 3.0[6]):

Revised EAL Bases statement

1. Attachment 8 – Added enhancement in the form of a Note in the bases section of RC4 regarding the thermally induced current phenomena. The Note reads as follows:

"Under post-LOCA conditions coaxial cables used on the drywell post accident monitors (RMS-RE20A/B) are susceptible to Thermally Induced Currents (TIC). These currents may cause the drywell PAMs to read falsely high (~469 R/hr) on a rapid temperature increase and read falsely low on a rapid temperature decrease. When accident temperature conditions stabilize indicated radiation dose rates would be more accurate. The duration of the spurious signal would last approximately 15 minutes. During the period of false readings operators should rely on other indications of RCS leakage including a rise in drywell temperature and pressure."

2. Attachment 8 – Added clarifying statements to the bases section of SA3. The statements are as follows:

"Taking the mode switch to shutdown is a manual scram action. When the mode switch is taken out of the run position, however, the nuclear instrumentation scram setpoint is lowered. If reactor power remains above the lowered setpoint, an automatic scram is initiated." and "Reactor shutdown is considered to be when power is below 5%. The Emergency Operating Procedure (EOP) definition of shutdown is not used."

3. Attachment 8 – Added clarifying statements to the bases section of SS3. The statements are as follows:

"Taking the mode switch to shutdown is a manual scram action. When the mode switch is taken out of the run position, however, the nuclear instrumentation scram setpoint is lowered. If reactor power remains above the lowered setpoint, an automatic scram is initiated." and "Reactor shutdown is considered to be when power is below 5%. The Emergency Operating Procedure (EOP) definition of shutdown is not used."

Part II. Activity Previously Reviewed?

Is this activity fully bounded by an NRC approved 10 CFR 50.90 submittal or Alert and Notification System Design Report?

If YES, identify bounding source document number/approval reference and ensure the basis for concluding the source document fully bounds the proposed change is documented below:

Justification:

☐ Bounding document attached (optional)

☐ YES
50.54(q)(3)
Evaluation is
NOT required.
Enter
justification
below and
complete Part
VI.

☒ NO
Continue to
next part

Part III. Applicability of Other Regulatory Change Control Processes

Check if any other regulatory change processes control the proposed activity.(Refer to EN-LI-100)

SHEET 2 OF 4

Procedure/Document Number: EIP-2-001	Revision: 27
Equipment/Facility/Other: River Bend Station	
Title: Classification of Emergencies	

APPLICABILITY CONCLUSION

- ☒ If there are no other controlling change processes, continue the 50.54(q)(3) Screening.
- ☐ One or more controlling change processes are selected, however, some portion of the activity involves the emergency plan or affects the implementation of the emergency plan; continue the 50.54(q)(3) Screening for that portion of the activity. Identify the applicable controlling change processes below.
- ☐ One or more controlling change processes are selected and fully bounds all aspects of the activity. 50.54(q)(3) Evaluation is NOT required. Identify controlling change processes below and complete Part VI.

CONTROLLING CHANGE PROCESSES

10CFR50.54(q)

Part IV. Editorial Change

Is this activity an editorial or typographical change such as formatting, paragraph numbering, spelling, or punctuation that does not change intent?

Justification:

☐ YES
50.54(q)(3)
Evaluation is
NOT required.
Enter
justification and
continue to next
part or
complete Part
VI as
applicable.

☒ NO
Continue to next
part

SHEET 3 OF 4

Procedure/Document Number: EIP-2-001	Revision: 27
Equipment/Facility/Other: River Bend Station	
Title: Classification of Emergencies	

Part V. Emergency Planning Element/Function Screen (Associated 10 CFR 50.47(b) planning standard function identified in brackets) Does this activity affect any of the following, including program elements from NUREG-0654/FEMA REP-1 Section II?	
1. Responsibility for emergency response is assigned. [1]	<input type="checkbox"/>
2. The response organization has the staff to respond and to augment staff on a continuing basis (24/7 staffing) in accordance with the emergency plan. [1]	<input type="checkbox"/>
3. The process ensures that on shift emergency response responsibilities are staffed and assigned. [2]	<input type="checkbox"/>
4. The process for timely augmentation of onshift staff is established and maintained. [2]	<input type="checkbox"/>
5. Arrangements for requesting and using off site assistance have been made. [3]	<input type="checkbox"/>
6. State and local staff can be accommodated at the EOF in accordance with the emergency plan. [3]	<input type="checkbox"/>
7. A standard scheme of emergency classification and action levels is in use. [4]	<input checked="" type="checkbox"/>
8. Procedures for notification of State and local governmental agencies are capable of alerting them of the declared emergency within 15 minutes after declaration of an emergency and providing follow-up notifications. [5]	<input type="checkbox"/>
9. Administrative and physical means have been established for alerting and providing prompt instructions to the public within the plume exposure pathway. [5]	<input type="checkbox"/>
10. The public ANS meets the design requirements of FEMA-REP-10, Guide for Evaluation of Alert and Notification Systems for Nuclear Power Plants, or complies with the licensee's FEMA-approved ANS design report and supporting FEMA approval letter. [5]	<input type="checkbox"/>
11. Systems are established for prompt communication among principal emergency response organizations. [6]	<input type="checkbox"/>
12. Systems are established for prompt communication to emergency response personnel. [6]	<input type="checkbox"/>
13. Emergency preparedness information is made available to the public on a periodic basis within the plume exposure pathway emergency planning zone (EPZ). [7]	<input type="checkbox"/>
14. Coordinated dissemination of public information during emergencies is established. [7]	<input type="checkbox"/>
15. Adequate facilities are maintained to support emergency response. [8]	<input type="checkbox"/>
16. Adequate equipment is maintained to support emergency response. [8]	<input type="checkbox"/>
17. Methods, systems, and equipment for assessment of radioactive releases are in use. [9]	<input type="checkbox"/>
18. A range of public PARs is available for implementation during emergencies. [10]	<input type="checkbox"/>
19. Evacuation time estimates for the population located in the plume exposure pathway EPZ are available to support the formulation of PARs and have been provided to State and local governmental authorities. [10]	<input type="checkbox"/>
20. A range of protective actions is available for plant emergency workers during emergencies, including those for hostile action events.[10]	<input type="checkbox"/>

Procedure/Document Number: EIP-2-001	Revision: 27
Equipment/Facility/Other: River Bend Station	
Title: Classification of Emergencies	

21. The resources for controlling radiological exposures for emergency workers are established. [11]	<input type="checkbox"/>
22. Arrangements are made for medical services for contaminated, injured individuals. [12]	<input type="checkbox"/>
23. Plans for recovery and reentry are developed. [13]	<input type="checkbox"/>
24. A drill and exercise program (including radiological, medical, health physics and other program areas) is established. [14]	<input type="checkbox"/>
25. Drills, exercises, and training evolutions that provide performance opportunities to develop, maintain, and demonstrate key skills are assessed via a formal critique process in order to identify weaknesses. [14]	<input type="checkbox"/>
26. Identified weaknesses are corrected. [14]	<input type="checkbox"/>
27. Training is provided to emergency responders. [15]	<input type="checkbox"/>
28. Responsibility for emergency plan development and review is established. [16]	<input type="checkbox"/>
29. Planners responsible for emergency plan development and maintenance are properly trained. [16]	<input type="checkbox"/>

APPLICABILITY CONCLUSION




☐ If no Part V criteria are checked, a 50.54(q)(3) Evaluation is NOT required; document the basis for conclusion below and complete Part VI.

☒ If any Part V criteria are checked, complete Part VI and perform a 50.54(q)(3) Evaluation.

BASIS FOR CONCLUSIONChange Items #1-3

Emergency Planning element 7 in Part V of this form is affected by these changes because there is a potential to affect emergency action levels and classifications.
A 10CFR50.54(q) Evaluation is attached.

Part VI. Signatures:

Preparer Name (Print) Norman E Tison	Preparer Signature 	Date: 10/23/2017
(Optional) Reviewer Name (Print) NA	Reviewer Signature N/A	Date: N/A
Reviewer Name (Print) John Hurst Nuclear EP Project Manager	Reviewer Signature 	Date: 10/23/2017
Approver Name (Print) Rick Leasure 359 Manager, Emergency Planning or designee	Approver Signature 	Date: 10/24/17

Procedure/Document Number: EIP-2-001	Revision: 27
Equipment/Facility/Other: River Bend Station	
Title: Classification of Emergencies	

Part I. Description of Proposed Change:**Revised EAL Bases statement**

1. Attachment 8 – Added enhancement in the form of a Note in the bases section of RC4 regarding the thermally induced current phenomena. The Note reads as follows:

"Under post-LOCA conditions coaxial cables used on the drywell post accident monitors (RMS-RE20A/B) are susceptible to Thermally Induced Currents (TIC). These currents may cause the drywell PAMs to read falsely high (~469 F/hr) on a rapid temperature increase and read falsely low on a rapid temperature decrease. When accident temperature conditions stabilize indicated radiation dose rates would be more accurate. The duration of the spurious signal would last approximately 15 minutes. During the period of false readings operators should rely on other indications of RCS leakage including a rise in drywell temperature and pressure."
2. Attachment 8 – Added clarifying statements to the bases section of SA3. The statements are as follows:

"Taking the mode switch to shutdown is a manual scram action. When the mode switch is taken out of the run position, however, the nuclear instrumentation scram setpoint is lowered. If reactor power remains above the lowered setpoint, an automatic scram is initiated." and "Reactor shutdown is considered to be when power is below 5%. The Emergency Operating Procedure (EOP) definition of shutdown is not used."
3. Attachment 8 – Added clarifying statements to the bases section of SS3. The statements are as follows:

"Taking the mode switch to shutdown is a manual scram action. When the mode switch is taken out of the run position, however, the nuclear instrumentation scram setpoint is lowered. If reactor power remains above the lowered setpoint, an automatic scram is initiated." and "Reactor shutdown is considered to be when power is below 5%. The Emergency Operating Procedure (EOP) definition of shutdown is not used."

Part II. Description and Review of Licensing Basis Affected by the Proposed Change:

In accordance with EN-LI-100, a Process Applicability Determination (PAD) was performed to review the proposed changes against the Licensing Basis Documents (LBDs). As part of the PAD an Autonomy 50.59 search of the Emergency Plan, Technical Requirements Manual, Tech Spec Bases, NRC Bulletins, Safety Evaluation Reports, Inspection Reports, ODCM, and USAR Controlled Copy was performed using keywords "Emergency Action Level", "Emergency Action Level Threshold", "Emergency Action Level Initiating Condition", "thermally induced current", "shutdown".

Additionally, a manual review of the entire RBS Emergency Plan was performed. The search of potentially affected Emergency Plan sections specifically focused on Emergency Plan Section 13.3.3 Emergency Conditions and Emergency Plan Table 13.3-1 Emergency Action Level Initiating Conditions. The proposed changes (1, 2, and 3) do not change an Initiating Condition described in the Emergency Plan.

Procedure/Document Number: EIP-2-001	Revision: 27
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Part III. Describe How the Proposed Change Complies with Relevant Emergency Preparedness Regulation(s) and Previous Commitment(s) Made to the NRC:

10 CFR 50.47(b)(4) – A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures

– A standard emergency classification and action level scheme based on NEI 99-01 Revision 5 remains in effect with this change. Proposed changes (1, 2, and 3) address the potential for misinterpretation of basis information that may result in the failure to classify an event in accordance with the standard emergency classification and action level scheme.

NRC Commitments – The Licensing Research System and NRC commitment sections of Emergency Implementing Procedure EIP-2-001 were reviewed for potential NRC commitment changes as a result of this procedure revision. There were no identified conflicts with this procedure revision and the current listing of NRC commitments associated with the EIPs or Emergency Plan. All current NRC commitments that relate to emergency action levels continue to be maintained and fulfilled under this procedure revision.

Part IV. Description of Emergency Plan Planning Standards, Functions and Program Elements Affected by the Proposed Change:

10 CFR 50.47(b)(4) - Emergency Classification System

- A standard scheme of emergency classification and action levels is in use.

Sections IV.B and IV.C of Appendix E to 10 CFR 50 provide supporting requirements. Informing criteria appear in Section II.D of NUREG-0654 and the licensee's emergency plan.

Procedure/Document Number: EIP-2-001	Revision: 27
Equipment/Facility/Other: River Bend Station	
Title: Classification of Emergencies	

Part V. Description of Impact of the Proposed Change on the Effectiveness of Emergency Plan Functions:

Revised EAL Bases statement

1. Attachment 8 – Added enhancement in the form of a Note in the bases section of RC4 regarding the thermally induced current phenomena. The Note reads as follows:

"Under post-LOCA conditions coaxial cables used on the drywell post accident monitors (RMS-RE20A/B) are susceptible to Thermally Induced Currents (TIC). These currents may cause the drywell PAMs to read falsely high (~469 R/hr) on a rapid temperature increase and read falsely low on a rapid temperature decrease. When accident temperature conditions stabilize indicated radiation dose rates would be more accurate. The duration of the spurious signal would last approximately 15 minutes. During the period of false readings operators should rely on other indications of RCS leakage including a rise in drywell temperature and pressure."

2. Attachment 8 – Added clarifying statements to the bases section of SA3. The statements are as follows:

"Taking the mode switch to shutdown is a manual scram action. When the mode switch is taken out of the run position, however, the nuclear instrumentation scram setpoint is lowered. If reactor power remains above the lowered setpoint, an automatic scram is initiated." and "Reactor shutdown is considered to be when power is below 5%. The Emergency Operating Procedure (EOP) definition of shutdown is not used."

3. Attachment 8 – Added clarifying statements to the bases section of SS3. The statements are as follows:

"Taking the mode switch to shutdown is a manual scram action. When the mode switch is taken out of the run position, however, the nuclear instrumentation scram setpoint is lowered. If reactor power remains above the lowered setpoint, an automatic scram is initiated." and "Reactor shutdown is considered to be when power is below 5%. The Emergency Operating Procedure (EOP) definition of shutdown is not used."

This proposed changes do not reduce the effectiveness of the emergency plan because:

1. The changes do not modify the meaning of or intent of the EAL.
2. The changes do not result in any additional emergency classifications or any less emergency classifications than those that should be made using the EAL.
3. The changes do prevent the potential for a misinterpretation of the basis document information that could lead to the failure to accurately classify.

In addition, the proposed changes (Evaluation items 1, 2, and 3) do not result in a change to the underlying NEI 99-01 Revision 5 scheme for the site-specific EALs.

Part VI. Evaluation Conclusion

Answer the following questions about the proposed change.


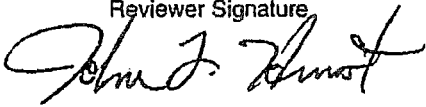

1. Does the proposed change comply with 10 CFR 50.47(b) and 10 CFR 50 Appendix E?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
2. Does the proposed change maintain the effectiveness of the emergency plan (i.e., no reduction in effectiveness)?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
3. Does the proposed change constitute an emergency action level scheme change?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

If questions 1 or 2 are answered NO, or question 3 answered YES, reject the proposed change, modify the proposed change and perform a new evaluation or obtain prior NRC approval under provisions of 10 CFR

Procedure/Document Number: EIP-2-001	Revision: 27
Equipment/Facility/Other: River Bend Station	
Title: Classification of Emergencies	

50.90. If questions 1 and 2 are answered YES, and question 3 answered NO, implement applicable change process(es). Refer to step 5.8[8].

Part VII. Signatures

Preparer Name (Print) Norman E Tison	Preparer Signature 	Date: 10/23/2017
(Optional) Reviewer Name (Print) N/A	Reviewer Signature N/A	Date: N/A
Reviewer Name (Print) John F Hurst Nuclear EP Project Manager	Reviewer Signature 	Date: 10/23/2017
Approver Name (Print) Rick Leasure 359 Manager, Emergency Preparedness or designee	Approver Signature 	Date: 10/24/17

PROCEDURE ACTION REQUEST FORM

(Typical)



PAR

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Procedure Action Request

PROCEDURE NO.

EIP-2-001

CURRENT REV.

26

PROCEDURE TITLE

Classification of Emergencies

TYPE OF ACTION:☒ PROCEDURE REVISION (PR)☐ NEW PROCEDURE (NP)☐ CANCEL PROCEDURE (CX)DESCRIBE ACTION:Revised EAL Bases statement

1. Attachment 8 – Added enhancement in the form of a Note in the bases section of RC4 regarding the thermally induced current phenomena. The Note reads as follows:

"Under post-LOCA conditions coaxial cables used on the drywell post accident monitors (RMS-RE20A/B) are susceptible to Thermally Induced Currents (TIC). These currents may cause the drywell PAMs to read falsely high (~469 R/hr) on a rapid temperature increase and read falsely low on a rapid temperature decrease. When accident temperature conditions stabilize indicated radiation dose rates would be more accurate. The duration of the spurious signal would last approximately 15 minutes. During the period of false readings operators should rely on other indications of RCS leakage including a rise in drywell temperature and pressure."

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PROCEDURE ACTION REQUEST FORM



ENTERGY

PAR

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Procedure Action Request

<u>PROCEDURE NO.</u> EIP-2-001	<u>CURRENT REV.</u> 26	<u>PROCEDURE TITLE</u> Classification of Emergencies
<u>TYPE OF ACTION:</u>		
<input checked="" type="checkbox"/> PROCEDURE REVISION (PR) <input type="checkbox"/> NEW PROCEDURE (NP) <input type="checkbox"/> CANCEL PROCEDURE (CX)		
<input checked="" type="checkbox"/> PAD COMPLETED (EN-LI-100-ATT-9.1) <input checked="" type="checkbox"/> 50.54Q REVIEW COMPLETED, (EN-EP-305)		
<input checked="" type="checkbox"/> LICENSING COMMITMENTS VERIFIED <input type="checkbox"/> CROSS DISCIPLINE REVIEW (if applicable)		
<u>REVIEW AND APPROVAL:</u>		
SIGNATURE / KCN / DATE		
PREPARER	<u>NORMAN E. TILSON / NORMAN E. TILSON / 1482 / 10-23-17</u>	
TECHNICAL REVIEWER	<u>JOHN HURST / JOHN HURST / 0628 / 10-23-17</u>	
EP MANAGER	<u>RIK LEASURE / RIK LEASURE / 359 / 10-24-17</u>	
EFFECTIVE DATE: 10/31/2017		

RBG-47811

Emergency Plan Revision 43

EMERGENCY PLAN REVISION SUBMITTAL FORM (TYPICAL)

Date 11/06/2017

Reason for Revision:

- 1) Revision of the On Shift Staffing Analysis for use of a dual role OSM/STA in lieu of a separate STA and OSM as allowed by the RBS Technical Requirements Manual.
- 2) Reassigning the responsibility for completion of the State/Local notification form and NRC event notification form from the STA to the dual role OSM/STA in the On Shift Staffing Analysis.
- 3) The RBS Emergency Plan table 13.3-17 requires two personnel on-shift to provide first aid support activities. The On Shift Staffing Analysis has been revised to reflect the use of two on-shift personnel instead of specifically assigning it to security.
- 4) Update Tables 13.3-7 and 13.3-9 of the Emergency Plan to reflect change in the On Shift Staffing analysis in change 3 above.
- 5) EOF Communicator in EOF removed from Core/Thermal Hydraulics emergency tasks in Table 13.3-17 of the Emergency Plan
- 6) EOF Technical Advisor added to Technical Support emergency tasks in Table 13.3-17 of the Emergency Plan
- 7) Note (c) in Table 13.3-17 of the Emergency Plan changed from "... River Bend Station Technical Specification" to "...River Bend Station Technical Requirements Manual".
- 8) Updates procedure references in Tables F1 and F2 of the Emergency Plan to replace procedure EIP-2-028 Recovery with EN-EP-613 Recovery From a Declared Emergency.
- 9) Updates procedure references in Tables F1 and F2 of the Emergency Plan to replace procedure EIP-2-012 Radiation Exposure Controls with EN-EP-4ALL - Exposure Authorization and EN-EP-8ALL - KI Instructions and Briefing

Prepared by:

Norman E Tison / Norman E Tison / 1482 / 11/06/2017

Preparer / KCN / Date

Approval:

Rick Leasure / Norman E Tison 1482 11/6/17
Approved per Tison 359 11/6/17

*Manager - Emergency Preparedness/

KCN

Date:

Review:

OSRC:

William L. Pinner / William L. Pinner / 609 / 11/13/17

OSRC Chairman

/ KCN

/ Date

OSRC Meeting No: 2017-0015

IMPLEMENTATION (EFFECTIVE) DATE: 11/14/2017

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13.3 EMERGENCY PLANNING

13.3.1 Scope and Applicability

The following plan has been developed for the River Bend Station (RBS) near St. Francisville, Louisiana, and its environs in accordance with the regulations stipulated in 10CFR50.33, 50.34, 50.47, 50.54, 10CFR50, Appendix E, 10CFR70.32 and 10CFR72.32 (c). The plan follows the guidelines established in NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," and Supplement 1 to NUREG-0737. The emergency classification initiating conditions and emergency action levels are based on the methodology of NEI-99-01, Methodology for Development of Emergency Action Levels.

The River Bend Station is situated on approximately 3,300 acres on the east bank of the Mississippi River in West Feliciana Parish, Louisiana (Fig. 13.3-1). It is approximately 24 miles (38.6 km) northwest of Baton Rouge, Louisiana. US Highway 61 runs in a northwest-southeast direction, approximately 1 mile (1.6 km) northeast of the reactor. West Feliciana Parish 7 (Powell Station Road/State Highway 965) runs in a north-south direction into the center of the property and passes within 2,700 ft. (825 m) of the reactor. The area within a 10-mile (16.1 km) radius is composed of parts of five parishes: West Feliciana, East Feliciana, East Baton Rouge, West Baton Rouge, and Pointe Coupee (Fig. 13.3-2). There are three population groups within this 10-mile area: St. Francisville (1,712), Jackson (4,130), and New Roads (4,966) (2000 population figures). The area within 50 miles of the site encompasses all or part of 24 parishes or counties in Louisiana and Mississippi. Fig. 13.3-3 shows the population within a 10-mile (16.1 km) radius of RBS. Fig. 13.3-4 shows the population within a 50-mile (80 km) radius of RBS.

The independent spent fuel storage installation (ISFSI) is located within the protected area boundary for interim dry storage of spent fuel. The HOLTEC spent fuel storage casks are designed to ensure protection of public health and safety through the use of physical barriers to guard against the uncontrolled release of radioactivity and through the use of shielding to minimize radiation dose to the public from both normal and off-normal conditions of operation. The analyses summarized in the HOLTEC Cask UFSAR demonstrate that under assumed accident conditions, the consequences of accidents challenging the integrity of the barriers will not exceed limits established in 10 CFR 72.106.

Entergy Operations, Incorporated (EOI) will maintain the Emergency Plan and Emergency Implementing Procedures (EIPs) as two separate documents. While separate copies of this plan are available, this plan is incorporated by reference in the USAR and is subject to established methods for updating. The EIPs contain detailed information extracted from the Emergency Plan and other pertinent documents. These EIPs allow the station personnel to implement this plan and the proper actions, coincident with normal operating procedures, without referral to numerous documents. A listing of the EIPs is provided in Appendix F.

The objective in emergency planning is to develop a plan and corresponding emergency implementing procedures that will ensure emergency preparedness and provide means for mitigating the consequences of emergencies, including very low probability events, in order to protect the health and safety of the general public and site personnel.

The plan, as presented herein and the EIPs provide direction for emergency response to emergencies. These emergencies vary in severity from minor events to situations involving real or potential offsite radiological hazards. Details of the onsite emergency response are contained in this plan and the EIPs. The interrelationships between the various elements of onsite emergency response and the elements of offsite emergency response are described in this plan, the EIPs, the Louisiana Peacetime Radiological Response Plan and its River Bend Station Attachment and the Mississippi Radiological Emergency Plan.

13.3.1.1 Definitions

The following is a list of terms and their definitions that will be used, as appropriate, in this plan and the Emergency Implementing Procedures:

Accident - An unforeseen and unintentional event and its consequences that may result in an emergency.

Activation - The process of assembling personnel, verifying equipment operability, and making a facility ready to support the emergency response.

Alternate Evacuation Point - An alternate egress point that may be used, if necessary, during an Owner Controlled Area Evacuation. The Alternate Evacuation Point from the Protected Area is the South Train Gate.

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.

Augmentation - Actions taken to support onshift personnel or the Emergency Response Organization.

Building Evacuation - The withdrawal of all personnel from one building.

Controlled Area - Synonymous with the Radiologically Controlled Area (RCA) in the plant.

Corporate Office - EOI corporate headquarters, located in Jackson, Mississippi.

Corrective Actions - Those emergency measures taken to ameliorate 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 the emergency situation, e.g., shutting down equipment, firefighting, repair, and damage control.

Departmental Procedures - A detailed, pre-established set of instructions that define the steps involved in performing a specific activity.

Drill - A supervised instruction period aimed at testing, developing, and maintaining skills in a particular operation.

Emergency - That situation or condition which may result in damage to property and/or lead to undue risk to the health and safety of the general public and/or site personnel.

Emergency Action Levels (EAL) - Predetermined conditions or values that, when exceeded, require the initiation of certain emergency actions.

Emergency Actions - Those steps taken, as a result of exceeding an emergency action level, to ensure that the situation is assessed and that proper corrective and/or protective actions are taken.

Emergency Classification - A classification that arranges accidents in order of increasing severity and outlines an effective course of action and protective measures to safeguard the public and plant personnel. The four emergency classifications as detailed in Section 13.3.3.1 are as follows, listed in order of increasing severity:

1. Notification of Unusual Event
2. Alert
3. Site Area Emergency
4. General Emergency

Emergency Director - A designated individual responsible for the overall coordination of onsite and offsite emergency response.

Emergency Plant Manager - A designated individual responsible for the supervision and direction of onsite emergency response operations.

Emergency Implementing Procedures (EIPs) - Specific procedures that provide step-by-step actions to implement this plan in order to ameliorate or terminate an emergency event. These procedures are listed in Appendix F.

Emergency Operating Procedures - A pre-established set of instructions that define the actions to be taken by operators in response to abnormal conditions at the station.

Emergency Operations Facility (EOF) - A near site facility from which onsite/offsite emergency response and recovery operations are coordinated.

Emergency Operations Facility Manager - The individual at the near site EOF who coordinates the activities of the EOF staff during the emergency response.

Emergency Plan - The EOI plan for coping with emergencies at the River Bend Station.

Emergency Planning Zone (EPZ) - Offsite area surrounding RBS for which planning is conducted to assure that prompt and effective actions can be taken to protect the public in the event of an accident. For the plume exposure pathway, the EPZ has a corresponding radius of approximately 10 miles; for the ingestion exposure pathway, the EPZ has a corresponding radius of approximately 50 miles.

Emergency Response - Those actions taken after an EAL is reached to ensure the safety of onsite personnel and the general public, and to return the plant to a safe status.

Exclusion Area (EA) or Exclusion Zone (EZ) - That area as defined in 10CFR100.3(a) which has a boundary of approximately 3,000 ft from the RBS reactor.

Exercise - An event that tests a major portion or all of the basic elements within the Emergency Plan. This event demonstrates the capability of the emergency organization to cope with an emergency that could result in offsite consequences.

Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) - The Louisiana State agency responsible for the coordination of general state-level emergency plans and programs. It coordinates all phases of disaster operations including the emergency response of designated State agencies, the Federal Emergency Management Agency and other States, when appropriate.

Ingestion Exposure Pathway - The EPZ within an approximate 50 mile radius from the station in which the principal exposure is from the ingestion of contaminated water or food such as milk, livestock feed, or vegetables. Depending on the nature and magnitude of the radiological emergency, the duration of potential exposure may range from hours to months.

Joint Information Center (JIC) - A designated area located at the Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) in Baton Rouge, LA where public information is disseminated and press briefings are conducted.

Joint Information Center Manager - A designated individual responsible for directing activities at the Joint Information Center (JIC).

Limited Evacuation - The withdrawal of personnel from a single area within a building.

Louisiana Department of Environmental Quality (LDEQ) - The division of the Louisiana Department of Environmental Quality that coordinates the State's technical response to a nuclear facility accident and develops state level recommendations for protective actions. LDEQ is responsible for the development and implementation of the State radiological emergency plan.

Louisiana Peacetime Radiological Response Plan - State of Louisiana Emergency Response Plan for all radiological emergencies other than nuclear attack in the State and near its borders.

Louisiana Peacetime Radiological Response Plan, River Bend Station

Attachment - One of three attachments to the Louisiana Radiological Response Plan containing information site-specific to the five parishes in the 10 mile plume exposure pathway of the River Bend Station.

Low-Population Zone - That area as defined in 10CFR100.3 (b) which has a boundary 2.5 miles from the River Bend Station reactor.

Main Control Room - The primary area for plant instrumentation and control under the direction of the Operations Shift Manager.

Mississippi Emergency Management Agency (MEMA) - The Mississippi State agency responsible for the development of State emergency plans and procedures. MEMA coordinates State and Federal agency response to emergencies and provides for the continuity of technical, administrative and material resources.

Mississippi Highway Patrol (MHP) - In coordination with MEMA, provides notification and warning to the public in the event of an emergency. Assists local officials with evacuation. Provides backup communications, traffic control, access/egress control and radiological monitoring assistance.

Mississippi Radiological Emergency Preparedness Plan (MREPP) - Volume III to the Mississippi Comprehensive Emergency Management Plan which describes the response organization and capabilities of the State of Mississippi for responding to a radiological emergency.

Mississippi State Department of Health, Division of Radiological Health (MSDH/DRH) - The lead Mississippi State agency for technical response and accident assessment. Provides personnel and equipment for the Radiological Emergency Response Team. Advises State and local officials on the implementation of Protective Actions. Establishes radiological exposure controls.

Non-essential Personnel - Non-essential personnel include employees not having emergency assignments, visitors, contractor personnel and members of the public within the Owner Controlled Area.

Offsite - That area outside the property boundary area. For plume tracking survey purposes, it is all areas beyond the property boundary.

Onsite - That area within the property boundary area. For plume tracking survey purposes, it is all areas external to the power block out to and including the property boundary.

Operational - Status of an emergency facility declared by the appropriate facility manager upon determining that the facility is adequately staffed and equipment is set up and available to assume/perform the emergency functions assigned to that facility.

Operations Support Center (OSC) - A designated area located in the Services Building from which response personnel are dispatched to mitigate an abnormal situation.

Operations Support Center Manager - The individual responsible for coordinating all emergency response activities at the OSC.

Owner Controlled Area - The area within the EOI property boundary.

Owner Controlled Area Evacuation - The withdrawal of nonessential personnel, from the owner-controlled area, which includes the Protected Area, whenever extensive unexpected and uncontrolled hazards exist.

Plume Exposure Pathway - The EPZ within an approximate 10 mile radius from the station in which a radioactive cloud (plume) can expose the population at risk and/or plant personnel to radiation. The duration of potential exposure could range from hours to days. The principal exposure source for this pathway is:

1. Whole body external exposure to gamma radiation from the plume and deposited material, and
2. Inhalation exposure from the passing plume.

Plume Tracking Survey - Onsite or offsite surveys performed to support offsite dose assessments that are ultimately used to provide state and local agencies with Protective Action Recommendations.

Population-at-Risk - Populations within the 10 and 50 mile Emergency Planning Zones.

Primary Access Point (PAP) - The primary point used to control ingress/egress to and from the Protected Area. Personnel accountability is performed at this point during Owner Controlled Area Evacuations.

Projected Dose - The estimated dose that would be received by individuals if no protective actions were taken following a release of radioactive materials.

Protected Area - That area within the perimeter of the RBS security fence.

Protective Action Guide (PAG) - The projected dose level for individuals in the population that warrants taking protective action.

Protective Actions - Those emergency measures taken to prevent or minimize radiological exposures to onsite personnel and the general public.

Radiation Protection Personnel - Personnel who are members of the site Radiation Protection Department and have received extensive training in radiation protection.

Radiological Emergency - An event that results in the loss of control of radioactive materials and that involves a hazard or potential hazard to the health and safety of people or to property.

Radiologically Controlled Area (RCA) - The controlled area for River Bend Station will include all areas of the fuel handling building, the reactor building, the reactor auxiliary building, the turbine building, and other areas where access is controlled for the purpose of radiation protection.

RBS - EP

Recovery Operations - Those operations taken after the emergency has been terminated to restore the plant as nearly as possible to its pre-emergency condition.

River Bend Parishes - The collective name of the five parishes within the 10 mile EPZ of RBS. These parishes are West Feliciana, East Feliciana, East Baton Rouge, West Baton Rouge and Pointe Coupee.

Severe Accident Procedures – Procedures that implement the degraded core accident management actions of the Plant Specific Technical Guidelines.

State and Local Hotline - The dedicated telephone system which connects the key emergency response facilities at RBS with GOHSEP, LDEQ, the 24 hour notification points, and the local emergency operations centers in the five local parishes, MHP, and MEMA.

Technical Support Center (TSC) - An onsite facility in close proximity to the Main Control Room from which the onsite emergency response is coordinated.

Technical Support Guidelines – Guideline to provide a method for support and optimization of the accident management strategies implemented through Severe Accident Procedures.

13.3.2 Summary of Emergency Plan

This plan describes the actions and responsibilities of River Bend Station personnel in the event of an emergency and delineates the support required from offsite groups during certain specific emergency situations. Emergency classifications of increasing severity are incorporated in this plan. The basic objectives of the plan are to provide guidance and instruction regarding the:

1. Identification and evaluation of various types of emergencies which could potentially occur at the station and which could affect members of the public and/or plant personnel and equipment.
2. Organization and direction of plant personnel actions to limit the consequences of an accident.
3. Organization and control of RBS activities to assess the extent and significance of any uncontrolled release of radioactive material, notification of offsite authorities as required, and coordination of response activities with offsite support groups.
4. Delineation of protective actions and measures, which are based upon and are consistent with the EALs specified in NEI-99-01, Methodology for Development of Emergency Action Levels

13.3.3 Emergency Conditions

13.3.3.1 Classification System

The Emergency Plan is based on consideration of conceivable consequences of potential situations, ranging from events where effects on the plant are negligible, to highly unlikely major releases of radioactivity which could affect members of the public. Each more severe emergency classification represents an increasing level of actual or potential risk to offsite areas and requires the initiation of predetermined emergency actions by the utility and offsite agencies. The specific designation gives an immediate indication of the severity of the situation when an emergency is declared.

River Bend Station 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 has been exceeded and promptly declares the emergency condition as soon as possible following identification of the appropriate emergency classification level.

The emergency classification is initially assigned when plant conditions reach the specified EAL initiating conditions given in Table 13.3-1. When an initiating condition is met, the emergency is classified using the implementing procedure EIP-2-001, Classification of Emergencies. Further analysis of the actual or potential degree of safety degradation may result in reclassification.

There will be prompt notification to the Louisiana Department of Environmental Quality (LDEQ), the Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP), the Mississippi Emergency Management Agency (MEMA), the Mississippi Highway Patrol (MHP), and the five local parishes of any declared emergency status. State and local Emergency Operation Centers (EOCs) will be activated in accordance with the Louisiana Peacetime Radiological Response Plan (LPRRP), its RBS Attachment, and the Mississippi Radiological Emergency Preparedness Plan (MREPP).

13.3.3.1.1 Notification of Unusual Event

The Notification of Unusual Event emergency classification is declared when 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. The off-normal plant conditions could reasonably have the potential to escalate in significance if proper action is not taken or if circumstances beyond the control of the operating staff render the situation more serious. The emergency response may be handled by shift personnel without additional support or activation of emergency response facilities.

13.3.3.1.2 Alert

An Alert emergency classification is declared when 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 fraction of the EPA Protective Action Guideline exposure levels. Although the potential for limited radiological releases in excess of technical specification limits may exist, the initial assessment leading to this classification indicates that it is unlikely that an offsite hazard will be created. Substantial modification of plant operating status is a highly probable corrective action, if it has not already taken place by the automatic protective systems. A limited evacuation of affected station areas may be necessary as well as alerting appropriate offsite emergency organizations that assistance may be required, should the situation become more serious. The station will activate all emergency response facilities and the JIC.

13.3.3.1.3 Site Area Emergency

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

In these events, there is a potential for radiological releases that may require the initiation of protective actions, including plant evacuation. If not already accomplished, the station will activate all the emergency response facilities including the JIC. The Emergency Director will provide status updates to offsite authorities. Appropriate offsite authorities will be given radiological and meteorological information and projected dose estimates based on actual and/or projected releases. RBS will notify the State of Louisiana, the local parishes, and the State of Mississippi in accordance with the Louisiana Peacetime Radiological Response Plan (LPRRP), its River Bend Station Attachment, and the Mississippi Radiological Emergency Preparedness Plan (MREPP). Upon notification, the states may activate their emergency operation centers and dispatch their key emergency personnel, such as the Louisiana Field Monitoring Teams and the Mississippi Radiological Emergency Response Teams (RERT) to assess offsite consequences. The State plans provide guidance to State and local authorities regarding the appropriate responses for the initiation of public protection (i.e., notification of the public to take shelter, evacuate or institute food, water, and milk controls) in the event the Louisiana and Mississippi Protective Action Guides are exceeded. The Site Area Emergency status will be maintained until an escalation in emergency class occurs or the status is terminated. Offsite authorities will be informed of the change in the emergency status and the necessary documentation will be completed.

13.3.3.1.4 General Emergency

A General Emergency class indicates that 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.

If the following items have not been initiated, they will be instituted during a General Emergency:

1. All emergency response facilities and the JIC will be activated, if not already activated at a lower level emergency classification.
2. The offsite radiological monitoring teams will be dispatched.
3. The Emergency Director will update Federal, State, and local officials periodically on the station status, radiological releases, meteorological information, radiological dose projections, and affected downwind areas.

13.3.3.2 Spectrum of Postulated Accidents

This section of the RBS Emergency Plan reflects how the postulated accidents investigated in the USAR are included in one of the four emergency classifications described in Section 13.3.3.1. Table 13.3-1 indicates the appropriate emergency classification which is declared upon reaching an EAL. Table 13.3-2 lists example accidents, the associated emergency classification into which each would likely fall, and the resultant doses at the exclusion area boundary. Table 13.3-3 lists the same accidents and presents the maximum concentrations expected to occur on the applicable radiation monitors.

A complete discussion of any of these accidents may be found in USAR Chapter 15. Methods of detecting and evaluating accidents include the use of installed systems, instrumentation, alarms, approved procedures and specialized training. The principal methods are summarized in the following subsections.

13.3.3.2.1 Instrumentation Capability for Detection

Abnormal conditions and situations as well as accidents can be detected in a number of ways, some of which are the monitoring of instrumentation, annunciators, and alarm systems by trained operations personnel who can recognize and respond to abnormal and/or emergency situations; the actuation and operation of engineered safety features; the actuation of fire detection and protection systems; and the performance of routine practices, such as sampling and analyzing process systems, performing radiation surveys, and monitoring trends and recording data on significant system parameters.

The plant systems available to identify abnormal radiological conditions include the Process and Effluent Radioactivity Monitoring Systems (discussed in detail in USAR Section 11.5) and the Area Radiation and Airborne Radioactivity Monitoring Instrumentation (discussed in detail in USAR Section 12.3.4). Both of these systems will provide information necessary to initiate the appropriate emergency procedures, as well as continuing accident assessment during an accident. The magnitude of the source term with release potential will be determined based on plant system monitors. EIPs include the methodology for determining the release rate and projected doses.

EOI has the capability to monitor both inplant and offsite iodine, gas and particulate activity. In addition, four portable particulate iodine and gas (PIG) monitors are provided to measure inplant radioactivity concentrations. Junction boxes located near vital areas allow information from these PIG monitors to be reported to the digital radiation monitor system display CRTs.

EOI has the capability to estimate airborne iodine concentrations to less than 10^{-7} $\mu\text{Ci/cc}$ by the offsite monitoring team using equipment provided in the emergency kit.

13.3.3.2.2 Evaluation

The Shift Manager is responsible for the initial evaluation of any abnormal or emergency situation, as well as being responsible for the safe and proper operation of the plant. He will make use of all means at his disposal, including instrumentation, equipment, instructions, and personnel, to determine the magnitude of an accident and whether or not a potential hazard to the health and safety of onsite personnel or the public exists.

If it is determined that an emergency condition or situation does exist, the Shift Manager shall assume the responsibilities and authority of the Emergency Director until relieved of those responsibilities by a member of the RBS Emergency Response Organization assigned that duty.

The evaluation of Notification of Unusual Event emergencies can usually be accomplished by the normal operating shift under the direction of the Shift Manager. However, for higher level emergencies other members of the RBS staff, including emergency teams, will be called upon as required. Technical services and support will be obtained as necessary from RBS staff personnel.

The emergency response personnel will utilize the detection methods previously described in evaluating the emergency. The equipment necessary for assessment or initiation of safety systems is designed to operate following an accident. (Refer to USAR Chapters 6, 7, 8, and 9 for details associated with such instrumentation and equipment.)

In evaluating an accidental release of radioactive materials, the first item that must be determined is the amount of activity released or, if the release is still in progress, the release rate. Normally this information is provided by installed radiation monitoring systems.

In addition, these systems are routinely sampled and analyzed. Radiation and contamination surveys are performed and air samples are taken as necessary to

provide supporting data. If actual data is not immediately available, the magnitude and duration of the release may be estimated by RBS personnel from plant conditions or from knowledge of the type of incident.

An estimate will be made of the radiation dose which affected population groups may potentially receive as a result of an accidental release of radioactive materials to the environment. This projected dose will be determined from the type of release and the amount of dilution when known. All liquid releases offsite will occur through the cooling tower blowdown line or liquid radwaste effluent line, which have radiation monitors associated with the Digital Radiation Monitor System (DRMS) that continuously detect radiation in the blowdown to the Mississippi River. The radiation monitor will alarm via the DRMS operator's console in the control room for any radiation levels above pre-established setpoints.

The setpoints are established to ensure that any planned or unplanned releases from the plant via the liquid pathway are detected if concentrations approach the 10CFR20 limit. EIPs direct the use of the methodology described in the Offsite Dose Calculation Manual to determine if the projected dose commitment exceeds the EPA Protective Action Guidelines for ingestion. Sampling and analysis of drinking water and industrial water downstream in the Mississippi River can be implemented if radiation monitor levels and onsite investigation determine a potential radiological hazard.

The travel and dispersion of an accidental gaseous release is a unique function of meteorological conditions. A meteorological monitoring system provides the data necessary for determining the dispersion factor. This dispersion factor will be used in conjunction with the activity known or estimated to have been released in order to determine the projected dose.

Detection and evaluation of accidental releases that are classified as either a Site Area Emergency or a General Emergency will normally be confirmed by field methods. Such methods will be specified in the EIPs and will usually require the dispatching of emergency teams to obtain and analyze samples and perform surveys. The results will be reported to the Emergency Director.

13.3.3.3 Review of Emergency Action Levels (EAL)

The State of Louisiana and the five local parishes have identified Protective Action Sections within the 10-mile EPZ. The EPA Protective Action Guides, the Protective Action Sections, the EAL Tables, and Evacuation Time Estimates (Appendix D) were utilized in developing the specific Protective Action decision making process. The state and local authorities annually review the EALs in Table 13.3-1 and their interface with RBS with regard to offsite response necessary under the four emergency classifications discussed in Section 13.3.3.

13.3.4 Organizational Control of Emergencies

Using the normal operating organization as a base, this section of the plan describes the activation of the emergency organization and the assignment of authority and responsibility for functional areas of the emergency response. The latter part of this section describes the functions of offsite organizations and their emergency roles.

13.3.4.1 Normal Operating Organization

The normal operating organization is discussed in Section 13.1.2, Operations Organization, of the USAR. Table 13.3-17 of this plan indicates the minimum staff available during normal operation to perform emergency response functions. An operating shift crew consists normally of the Shift Manager who holds a Senior Reactor Operator (SRO) license, a Control Room Supervisor (CRS) who also holds an SRO license, three Nuclear Control Operators (NCO) possessing Reactor Operator (RO) licenses, and five Nuclear Equipment Operators (SNEO), one of which is a Radwaste Operator. The Shift Manager is in direct charge of all plant operations during his assigned shift and is directly responsible for the actions of his crew. Technical support assigned to each operating shift and optional staffing is discussed in Section 13.1.2 of the USAR. Individual responsibilities for normal operation are defined in administrative procedures.

When initiating conditions exist that result in one of the EALs being reached, the Shift Manager has the responsibility and authority to declare that an emergency situation exists and to take immediate action in accordance with written operating procedures to mitigate the consequences of the emergency. He will assign the appropriate emergency classification and initiate the necessary EIPs.

13.3.4.2 Onsite Emergency Organization

This section of the plan describes the responsibilities of onsite personnel during an event assessed to be a Notification of Unusual Event, Alert, Site Area Emergency, or General Emergency.

13.3.4.2.1 Direction/Coordination

The Emergency Director is responsible for overall direction and control of the entire activated emergency response organization at River Bend Station and for coordinating the Emergency response with offsite agencies.

The Emergency Director is a member of Senior RBS Management, designated by the Vice President with assigned alternates. The Emergency Director operates from the EOF and maintains overall responsibility for the emergency response and subsequent recovery operations. He ensures that the emergency response is well organized and that the various elements of the emergency organization are working as a coordinated group. The Emergency Director has the authority to immediately and unilaterally initiate all emergency actions.

The Emergency Director has the unique responsibility, which may not be delegated, to direct notification of and make protective action recommendations to authorities responsible for implementing offsite emergency measures. The Emergency Director assesses emergency conditions and classifies the emergency condition in accordance with the EIPs. The Emergency Director is empowered to authorize major expenditures of funds and commit the resources of EOI as required to meet the demands of the emergency situation. The Emergency Director will review information released to the press and offsite authorities concerning the emergency.

The Emergency Plant Manager is responsible for coordinating the onsite emergency response under the direction and control of the Emergency Director.

The Emergency Plant Manager is designated by the General Manager, along with alternates, and is responsible for coordinating all onsite activities and personnel. He operates from the TSC and coordinates all procedures involving the Main Control Room, TSC, OSC, and the Primary Access Point.

The Shift Manager, when initially classifying an emergency condition, will assume the responsibilities of the Emergency Director until properly relieved. The Shift Manager will be in the Main Control Room and will have the responsibility for the manipulation of plant equipment and controls during the declared emergency. The Shift Manager will assess emergency conditions until relieved of this responsibility by the designated Emergency Director, who will assume the responsibility of the Emergency Director.

The Shift Manager will be primarily responsible for emergency direction and control. The Shift Manager or the Control Room Supervisor will be in the control room at all times.

13.3.4.2.2 Plant Staff Emergency Assignments

In order to minimize confusion and assist in the control of the emergency response, the emergency organization has been designed so that only one person, or alternate, is responsible for the implementation of specific emergency actions. Responsibilities of key members of the emergency response organization are described in Appendix A.

In order to ensure the continuity of the response, provisions have been made which will provide 24-hr coverage of emergency positions. In addition, the functional areas of responsibility will remain flexible enough to accommodate the needs of the emergency and the availability of personnel. The Administration and Logistics Coordinator will be responsible for assuring continuity of resources while emergency conditions exist.

13.3.4.2.2.1 Plant Operations and Assessment of Operational Aspects

Upon declaration of an emergency, the Shift Manager will assume the responsibilities of Emergency Director. Normally two Nuclear Control Operators and one Nuclear Equipment Operator on each shift will have no other duties except to assist in plant operational control from the Main Control Room. A third Nuclear Control Operator may be available and four additional Nuclear Equipment Operators will be available at all times, but collateral responsibilities may require that they assist in repair and/or protective actions. A Nuclear Control Operator may perform the duties of a Nuclear Equipment Operator. The onshift oversight function provides independent verification of emergency classifications.

Assessment of the plant status and degree of safety degradation will be initially evaluated by the Shift Manager. He will base his evaluation on plant instrumentation and reports from technical personnel making actual examination of equipment.

Shift personnel are considered to be immediately available to respond to the emergency situation and initiate emergency response actions. Other station personnel assigned to the emergency response organization may be offsite at the time of initiating events. Table 13.3-17 reflects anticipated reporting times for key personnel.

The TSC, OSC, and the EOF are manned by designated personnel. The EOF is also manned by federal and state officials, as necessary.

A range of protective actions to protect onsite personnel during hostile action is provided to ensure the continued ability to safely shut down the reactor and perform the functions of the emergency plan.

An alternative facility, with communication capabilities for contacting the Control Room, plant security, and the EOF, is available to serve as a staging area for augmented emergency response staff if the site is not accessible.

13.3.4.2.2.2 Notification/Communication

Notification of responsible federal, state, and local agencies will be initiated upon the declaration of an emergency by the Shift Manager. Initially, a Nuclear Equipment Operator will normally be designated as a Communicator to conduct the notification from the Main Control Room using the Notification Procedure.

The responsibility for notification/communications will shift from the Control Room to the EOF with the Emergency Director responsibilities. Personnel that are assigned to Communicator positions will have technical backgrounds so that they may effectively transmit information.

13.3.4.2.2.3 Radiological Accident Assessment

Upon the occurrence of an off-normal event, the Shift Manager will assess the amount of radiation released and the potential for further releases based upon readouts from installed monitors, in-plant surveys, and samples. A Radiation Protection Technician and a Chemistry Technician will be assigned to each shift to support the Shift Manager in performing radiation surveys and obtaining samples as directed.

The emergency response organization divides radiological accident assessment into onsite and offsite groups. The onsite group is stationed in the OSC and is under the supervision of the Radiological Coordinator. Chemistry Technicians under the coordination of the OSC Manager will be available in the OSC to assist in accident assessment. Radiation Protection Technicians can use portable equipment to determine radiation levels and contamination levels from liquid and gaseous releases. Chemistry Technicians can provide samples of reactor coolant and containment atmosphere or suppression pool water to analyze for radioisotopic concentrations when conditions allow the use of the Reactor Sample System. Offsite radiation surveys will be directed and the results analyzed by the Radiological Assessment Coordinator at the EOF or the Radiological Coordinator at the TSC if the EOF is not operational. Each offsite team includes two individuals of which at least one is a Radiation Protection Technician. The team is dispatched using appropriate EIPs. Radiological monitoring equipment for use by offsite dose assessment teams is stored in the EOF. The team will obtain samples in the local area as directed for analysis. The particulate filter and iodine cartridge can be evaluated in the field using portable radiation instruments, or may be returned to the site and analyzed using a multichannel analyzer, at the discretion of the Radiological Assessment Coordinator. The offsite teams have dedicated vehicles that are radio equipped for communications with the EOF. In addition, portable radios are available for use by the offsite emergency response teams. Readiness for deployment is expected to be as soon as possible but no later than 90 minutes following notification.

13.3.4.2.2.4 Plant Systems Engineering, Repair, and Corrective Actions

A Nuclear Equipment Operator, trained in the operation of the plant radioactive waste system, and two maintenance (electrical, I&C or mechanical) personnel are immediately available to perform repair and corrective actions as directed by the Shift Manager.

Depending upon the type and severity of the emergency, a minimum of eight additional support personnel are available onsite within about 90 minutes. The maintenance and repair personnel will operate out of the OSC.

Technical support will be provided by available RBS personnel. The TSC Manager will coordinate the technical support group which will develop plans and procedures to return the plant to a safe status.

13.3.4.2.2.5 Radiation Protection Coverage

Radiation protection coverage will be provided by the Radiation Protection staff. Additional Radiation Protection Technicians are available after notification of a radiological emergency as shown on Table 13.3-17. The Radiation Protection Technicians, working out of the OSC, will perform monitoring, provide radiation protection support, and limit access to radiologically controlled areas. In addition to the radiation protection coverage provided by the Radiation Protection staff, Chemistry and Operations personnel are trained in the use of portable survey instruments. Decontamination of personnel and equipment is under the direction of Radiation Protection personnel in accordance with RBS procedures.

13.3.4.2.2.6 Firefighting

The site Fire Brigade will consist of five people on each shift trained in firefighting procedures. A Nuclear Control Operator or Nuclear Equipment Operator will act as the Fire Brigade Leader and keep the Shift Manager informed from the scene of the fire. Additional firefighters may be dispatched to the fire scene as needed and the Fire Brigade will be assisted by the local fire department, as necessary. Firefighting operations will be directed by the Fire Brigade Leader.

13.3.4.2.2.7 First Aid

Sufficient numbers of RBS personnel are trained in first aid, so that at least two qualified individuals will be present onsite during each shift. In situations involving radioactive contamination, a Radiation Protection Technician will provide radiation protection coverage for both injured and emergency response personnel. Coordination of first aid operations with offsite support organizations is the responsibility of the Shift Manager.

13.3.4.2.2.8 Search and Rescue

Sufficient numbers of RBS personnel receive training in search and rescue techniques such that trained personnel are continuously available to support the emergency response organization. Search and rescue operations in radiation areas or contaminated areas are supported by Radiation Protection Technicians, or an individual trained in the use of portable radiation survey instruments.

13.3.4.2.2.9 Repair and Damage Control

Repair and damage control activities during a declared emergency are the responsibility of assigned Operations Support Center personnel. These individuals are familiar with plant equipment and layout such that any required emergency actions can be efficiently and effectively implemented.

13.3.4.2.2.10 Site Access Control and Personnel Accountability

RBS security personnel will control both personnel and vehicular access to the site during a declared emergency. These procedures are addressed in the Security Plan and Safeguards Contingency Plan.

The security computer has the capability of tracking persons within the Protected Area and on command can provide the necessary data for personnel accountability.

In the event that the computer system is inoperative, an alternate method of accountability is available. Following an evacuation, security personnel will verify that all in-plant personnel are accounted for, or will ascertain the names of missing individuals within about 30 minutes of the start of an emergency, and will maintain protected area accountability continuously thereafter. Security personnel will keep the Emergency Plant Manager informed of accountability status.

13.3.4.3 Augmentation of Site Emergency Organization

Assistance from other Entergy facilities and outside companies, agencies or organizations may be needed to cope with the emergency. This assistance may be requested by the Emergency Plant Manager or the Emergency Director, or by the EOF Manager when authorized by the Emergency Director. Requests for outside assistance may be coordinated through the Corporate Emergency Center. The EOF Manager will act as liaison for outside agencies providing onsite emergency response support.

13.3.4.3.1 EOI Headquarters Support

At an Alert emergency classification RBS notifies the Corporate Duty Manager who is responsible for activating the Corporate Emergency Center (CEC).

The CEC performs all corporate support functions during the period of the emergency, including notifications and communications with other organizations not directly involved in the emergency response, such as INPO, Pine Bluff Center, American Nuclear Insurers (ANI), Nuclear Network and other interested organizations. The CEC may coordinate support from other Entergy facilities.

The CEC receives information concerning the emergency from the RBS JIC and keeps Entergy upper management and other Entergy locations informed of emergency activities. A corporate hotline provides a means of direct communications between the CEC and the RBS emergency response organization.

13.3.4.3.2 Local Support Services

During the operation of RBS, it may become necessary to request and utilize assistance provided by local organizations. Local support service arrangements have been made with offsite groups to provide on-site aid in the event of an emergency situation, including those resulting from hostile actions, at RBS. Letters of Agreement have been effected with each local support organization that may be called upon to provide direct support to RBS. These letters are reviewed annually to reaffirm each organization's commitment. Current original signed Letters of Agreement are maintained by Emergency Planning. Appendix B lists the local Letter of Agreement support organizations. The following organizations have agreed to provide direct assistance when requested:

1. West Feliciana Parish Fire Protection District One / St. Francisville Volunteer Fire Department

When requested, the West Feliciana Parish Fire Protection District One and the St. Francisville Volunteer Fire Department will provide firefighting assistance.

2. West Feliciana Parish Sheriff's Office

When requested, the West Feliciana Parish Sheriff's Office will:

- a. Provide protective action to the public as directed by the West Feliciana Office of Homeland Security and Emergency Preparedness upon recommendation by the Louisiana Department of Environmental Quality (LDEQ), or their designated representatives. This may require evacuation of residents in the affected area.
- b. Provide a 24 hour notification point.
- c. Assist in notifying residents within the affected area.
- d. Assist in traffic control.
- e. Coordinate the evacuation of people within the parish as necessary.
- f. Provide or request additional resources to address communications interoperability issues as necessary during an event.
- g. Act as single point of contact for Local Law Enforcement Agency support as identified in the Integrated Response Plan using the Incident Command System (ICS).
- h. Coordinate additional emergency actions as necessary.

3. West Feliciana Parish Hospital

The West Feliciana Parish Hospital, located in St. Francisville approximately 3 miles from RBS, provides medical assistance to RBS personnel. This hospital has the necessary equipment and trained staff to assure proper medical treatment for personnel who become ill or are victims of industrial accidents, whether or not the ill or injured individual is radiologically contaminated. Individuals may be transferred to Our Lady of the Lake Regional Medical Center in Baton Rouge should the treatment required extend beyond the capabilities of West Feliciana Parish Hospital. The West Feliciana Parish Hospital is to be used for immediate life-threatening situations or injuries of a minor nature requiring only diagnostic evaluation. A copy of the Emergency Medical Assistance Plan (EMAP) as discussed in Appendix C is located in the EOF and provides information regarding the capabilities of West Feliciana Parish Hospital.

4. Our Lady of the Lake Regional Medical Center

Our Lady of the Lake Regional Medical Center in Baton Rouge will accept personnel with illness or injuries resulting from either radiologically or non-radiologically related accidents requiring treatment beyond the capabilities of the West Feliciana Parish Hospital. Our Lady of the Lake Regional Medical Center has the necessary equipment and trained staff to assure the proper evaluation of radiation exposure and up-take to assure proper medical handling. As a minimum, Our Lady of the Lake Regional Medical Center will maintain the capability and facilities to provide decontamination, first aid, and emergency stabilization medical treatment for injured or ill personnel from RBS. These services and facilities are available 24 hours per day. A copy of the Emergency Medical Assistance Plan (EMAP) as discussed in Appendix C is located in the EOF and provides information regarding the capabilities of Our Lady of the Lake Regional Medical Center.

5. West Feliciana Parish Ambulance Service/ Acadian Ambulance Service Inc.

Both West Feliciana Ambulance Service and the Acadian Ambulance Service Inc. have agreed to provide response to RBS to provide ambulance service for radiologically contaminated or non-contaminated injuries or illnesses requiring emergency transport to either West Feliciana Parish Hospital or Our Lady of the Lake Regional Medical Center.

13.3.4.3.3 Contractor and Other Support Organizations

Various contractor and private organizations may provide direct support to RBS during a declared emergency. Letters of agreement are not required for these organizations as their assistance is provided based on contractual arrangements.

1. Institute of Nuclear Power Operations

As a signatory of the Nuclear Power Plant Emergency Response Voluntary Assistance Agreement, EOI can request personnel or equipment resources to assist in the mitigation of an emergency condition at RBS. Such requests are coordinated by the Institute of Nuclear Power Operations (INPO) in accordance with the INPO Emergency Resource Manual. Copies of the INPO Emergency Resource Manual are available in the TSC and EOF.

2. General Electric

When requested, General Electric will implement its BWR Emergency Support Program in accordance with the terms of GE Service Information Letter (SIL) No. 324.

13.3.4.3.4 Federal Governmental Agencies

Should an emergency occur at RBS, notifications and reports are required to be provided to several governmental agencies. In addition, support and assistance is provided during a declared emergency by some Federal Agencies. Generally, such support is requested and coordinated by the State of Louisiana; however, in some cases direct support to RBS is provided. LDEQ will coordinate local, state and federal technical resources and GOHSEP will coordinate local, state and federal non-technical resources.

1. National Weather Service

In the event that the RBS meteorological system becomes inoperable during an emergency event, the National Weather Service (NWS) provides meteorological data which can be used to characterize the meteorological conditions in the RBS 10 mile EPZ. The NWS has provided a 24 hour per day telephone number which may be used to obtain this information.

2. Federal Aviation Administration

When requested, the Federal Aviation Administration (FAA) will implement airspace control over the RBS 10 mile EPZ.

3. Department of Energy

When requested, the Department of Energy (DOE) will provide offsite radiological assistance during a severe emergency at RBS. Generally this assistance is requested and coordinated by LDEQ.

In addition, DOE operates the Radiation Emergency Assistance Center/Training Site (REACTS) in Oak Ridge, Tennessee. In conjunction with the Oak Ridge Institute for Science and Education (ORISE), REACTS maintains equipment and a trained staff to evaluate and treat individuals who have excessive radioactive materials ingestion or significant overexposures to external radiation in conjunction with severe trauma. This assistance is usually only available to commercial nuclear facilities when the magnitude or uniqueness of the radiological emergency exceeds commercially available resources.

4. United States Coast Guard

When requested, the United States Coast Guard (USCG) will control marine traffic and vessel movements within the RBS 10 mile EPZ.

5. U. S. Nuclear Regulatory Commission

The Nuclear Regulatory Commission (USNRC) provides assistance and regulatory oversight during declared emergencies both to RBS and to the State and Local governmental agencies in accordance with their Incident Response Plan (NUREG - 0728). USNRC personnel from the Region IV Office in Texas can arrive at the RBS Site within about 2.5 hours following notification of a radiological emergency. Notifications and continuing communications between RBS and the USNRC are described in other sections of this Plan.

13.3.4.4 State and Local Governmental Agencies

The 10 mile plume exposure pathway EPZ surrounding RBS encompasses five Parishes within the State of Louisiana and the 50 mile ingestion pathway EPZ includes areas of the State of Mississippi. Planning for radiological emergencies has been coordinated with the States of Louisiana and Mississippi, and with the five local Parishes within the 10 mile EPZ.

13.3.4.4.1 State of Louisiana

La. R.S. 30:2104 delegates to the Secretary of the Louisiana Department of Environmental Quality the overall responsibility as the State's lead radiological agency to develop, implement and coordinate specific radiological emergency plans and to respond to any emergency that involves possible or actual release of radioactive materials where it might be necessary to protect public welfare and safety, and the environment, in accordance with the Louisiana Emergency Operations Plan.

The Louisiana Emergency Assistance and Disaster Act of 1993 has delegated to the Director of the Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) the overall authority to activate and deactivate the State Emergency Operations Center (EOC) and to exercise overall direction and control of emergency or disaster operations. The Director will provide a disaster management system embodying all aspects of pre-disaster preparedness and post-disaster response, and will continue disaster prevention and recovery.

The State of Louisiana conducts emergency response activities in accordance with the Louisiana Peacetime Radiological Response Plan (LPRRP) which has been developed by LDEQ. In implementing this plan, the State of Louisiana has entered into a Memorandum of Understanding (MOU) with RBS in order to identify authorities, responsibilities, arrangements for the exchange of information during an accident, coordination of emergency public information dissemination and cooperation in plan development, revision and exercises.

The current signed MOU is maintained in the Emergency Planning file. In order to facilitate coordination between State and RBS emergency response activities, at an Alert or higher emergency classification, EOI will dispatch a representative to the State EOC.

13.3.4.4.2 River Bend Parishes

The five Parishes that make up the 10 mile EPZ surrounding RBS are referred to in the LPRRP as the River Bend Parishes. West Feliciana Parish, East Feliciana Parish, West Baton Rouge Parish, East Baton Rouge Parish and Pointe Coupee Parish make up the 10 mile plume exposure EPZ. These Parishes activate their emergency organization and facilities in accordance with each Parish's Emergency Plan, which is an Enclosure to the LPRRP. Parish emergency response is implemented under the direction and guidance of LDEQ. Notifications and information exchange between RBS and the five Parishes are conducted in accordance with the LPRRP, MOU between RBS and the State of Louisiana, Parish Enclosures to the LPRRP and the RBS emergency plan and procedures. In order to facilitate coordination of emergency response activities, EOI will dispatch a representative to each Parish EOC at an Alert or higher emergency classification.

13.3.4.4.3 State of Mississippi

The Mississippi Emergency Management Agency (MEMA), under the Mississippi Emergency Management Law of 1980, has the authority to develop, maintain, and implement the Mississippi Radiological Emergency Preparedness Plan (MREPP) and procedures for Fixed Nuclear Facilities in and around the State of Mississippi. It is the responsibility of MEMA to ensure that these plans include planned protective actions for the general population of Mississippi within the 50-mile radius ingestion exposure pathway EPZ of RBS. The RBS Communicator will provide initial notification of an emergency situation to MEMA, the official State Warning Point (SWP). Upon notification of an emergency situation at RBS, MEMA will be responsible for the notification and coordination of the various Mississippi State Response Agencies, as well as the coordination of information to the public of Mississippi. A letter of commitment from the State of Mississippi is on file in Emergency Planning.

13.3.5 Emergency Measures

EOI utilizes a method for classifying emergencies which results in four distinct classes. Definitions for each class are described in Section 13.3.3. Criteria for classifying emergency situations in each class are described in Table 13.3-1.

An emergency implementing procedure will be initiated on the basis of measured variables and at specified conditions, or at other times specified by either the Shift Manager or the Emergency Director. These implementing requirements are referred to as Emergency Action Levels (EALs). EALs, as discussed in Section 13.3.3.1, are provided in the EIP used in classifying emergencies.

The initial evaluation by the Shift Manager of abnormal conditions and situations, as well as accidents, will result in the initial classification of the emergency and the implementation of the appropriate procedures. The emergency actions will, as appropriate, require notification of the Emergency Director, other emergency organizations and personnel, and reassessment of the conditions and/or situations. A list of implementing procedures and a summary of the procedures' purpose may be found in Appendix F.

Reassessment of the emergency may result in carrying out additional emergency actions, further notification of emergency organizations and personnel, or reclassification.

13.3.5.1 Activation of the Emergency Organization

Notification of the onsite emergency response organization and offsite agencies of an emergency declaration is accomplished in accordance with the EIPs. The EIPs also provide for notification message verification, as appropriate.

The shift staffing and augmentation capabilities in the event of an emergency are shown in Table 13.3-17. The expectation is that emergency response personnel will respond as quickly as possible but no later than the maximum times indicated in the Table.

The emergency response facilities may be activated at any time, and shall be activated at an Alert, Site Area Emergency, or General Emergency declaration. Once activated, the facility shall become operational as soon as possible after declaration of any of these emergency classifications. When facility minimum staffing can be accomplished with onsite personnel, it is the goal to become operational within 45 minutes. Otherwise, it is the goal to be operational in 90 minutes.

At RBS, individuals for each key position will be alerted of an emergency by an automated notification system. If an individual does not respond to the notification system, alternates for the position will be contacted.

To supplement the on-shift staff for emergency situations, the shift staff has been increased beyond the minimum recommended in NUREG-0654. Operations personnel are trained in the use of portable radiation survey instruments so that functions such as search and rescue can be performed without the assistance of radiation protection technicians. These actions provide additional on-shift emergency response capability and ensure that emergencies can be adequately controlled when severe weather or traffic conditions could delay augmentation of the emergency response organization.

13.3.5.2 Assessment Actions

The Emergency Director is responsible for the detection, evaluation, and continual assessment of emergency conditions.

The initial assessment of emergencies will be accomplished by the normal operating shift under the direction of the Shift Manager. Other members of the station staff, including emergency teams, will be called upon as required. Technical services and support will be obtained from the combination of River Bend station personnel, and outside support organizations as necessary and appropriate.

Accidents involving releases of radioactive materials to the environment require special methods of assessment to ensure that responses are appropriate for the protection of the population-at-risk as well as site personnel. Periodic reassessment of the emergency, as described in Table 13.3-7, may result in the reclassification of the emergency and a modification of the type, quantity, and direction of the projected offsite dose estimate. In such cases, appropriate offsite authorities will be notified of any changes in the recommended protective actions.

The DRMS provides information that can be used to determine the gross activity levels of plant effluent paths. The radioactivity levels from DRMS can be automatically or manually input into the offsite dose assessment software.

The DRMS data available on the ERIS computers provides radiological and meteorological data for the offsite dose assessment program. Emergency dose assessments can be made on this system in the MCR, TSC, EOF, and Alternate EOF. Calculations of atmospheric transport and diffusion of radioactive effluents conform to the class A model described in Appendix 2 of NUREG-0654, Rev. 1. The model uses equations, assumptions and dose factors from NUREG-1228 and EPA 400-R-92-001.

Should there be an accidental liquid release via the cooling tower blowdown line; sampling may be performed for comparison against the EPA protective action guide of 0.5 rem per ingestion.

If this comparison indicates that offsite doses exceed the EPA Protective Action Levels for ingestion, the State will be promptly notified. Follow-up sampling and analysis of river water will be instituted to determine actual radioisotopic concentrations in the river. LDEQ and GOHSEP will be updated on the more specific values as soon as the information is available.

Subsequently, LDEQ/ GOHSEP will notify appropriate downstream water users, and provide instructions with respect to potential liquid activity arrival time and, if appropriate, water intake shutdown recommendations.

Emergency equipment and supplies are maintained at various locations to expedite assessment of radiological hazards, both onsite and offsite. Emergency kits are described in Appendix E.

The computer-based radiation monitoring system (DRMS) provides the following outputs to the Main Control Room, Radiation Protection Technicians Clean Work Area, TSC, and EOF:

1. Readout displays for current status of all radiation monitors
2. Trend displays for each monitor channel for the following averages
 - a. 4 hours of 10-minute increments
 - b. 24 hours of 1-hour increments
 - c. 28 days of daily increments
3. List of all pertinent data base parameters for each channel
4. List of all pertinent data base parameters for each monitor
5. Listing of group displays
6. Group displays of an operator-defined group of channels
7. Alarm group display of channels in alarm
8. Printer capable of printing CRT screens and data

Meteorological information is accessed via computer in the TSC, EOF, and Main Control Room. A Communication link to the NRC (ERDS) is available to relay information to the NRC from the above sources.

The outputs previously listed, along with confirmatory information obtained from offsite assessment equipment, will enable emergency response personnel to continuously assess any risks to the public due to actual or potential radioactive releases and recommend appropriate actions based on the protective action guidelines, as established by the Environmental Protection Agency Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (EPA-400-R-92-001). The criteria and guidance provided in the EIPs may be used to determine the appropriate Protective Actions.

Accident condition radiation levels in containment will be indicated by high range containment area radiation monitors. Radioactive material, which may be released from the containment, can be estimated using the readout from these monitors in conjunction with the graphs in Figures 13.3-25 and 13.3-26, relating area monitor reading in containment versus time for various accident situations.

If the situation warrants, additional information on meteorology, radiation levels, and the environment will be gathered and evaluated to determine exposure rates as well as to confirm and update previous assessments.

In the unlikely event that the primary computerized dose analysis is not available in an accident situation, backup computers with the offsite dose assessment program are available to project offsite doses.

Manual input for the secondary method of offsite dose calculations consists of effluent monitoring, containment monitoring, and meteorological information. DRMS radiological monitoring information is readily available to the TSC and the EOF. If DRMS information is not available, a secondary system consisting of a hotline link between the Main Control Room, TSC, and EOF is provided, as well as status boards in each of these facilities so that radiological monitoring information can be relayed and recorded directly in each Emergency Response Facility.

Secondary sources for meteorological information to the TSC and/or EOF consist of either direct relay of data from the Main Control Room via the hotline or an individual can be dispatched to read the information at the meteorological tower base station. If the Main Control Room instrumentation is inoperable, additional meteorological information sources are available from the National Weather Service.

Secondary systems provide adequate information for assessment to ensure Emergency Response Facility operation should the primary systems be unavailable.

13.3.5.3 Corrective Actions

Normal operating procedures contain steps to take preventative and/or corrective actions in order to avoid or mitigate serious consequences. Plant personnel training is a vital factor in assuring that corrective actions are taken in an expeditious manner.

The instrumentation and control system monitors provide indication/recording and automatically regulate systems necessary for the safe and orderly operation of the unit. These systems provide the operator with all information and controls needed to start up, operate at power, and shut down the unit. They also provide means to cope with abnormal operating conditions should they occur. Control and display of information from these various systems are centralized in the Main Control Room at locations convenient to the operator. This instrumentation and sampling capability provides the basis for initiation of protective actions. Initial actions during radiological incidents will follow the guidance of the RBS EIPs.

13.3.5.4 Protective Actions

The EIP used in classifying emergencies has predetermined EALs that, when met or exceeded, will require the implementation of the EIPs. The EIPs contain specific actions to be taken in response to the emergency. In addition, the Shift Manager/Emergency Director/Emergency Plant Manager may implement other procedures as necessary. Each implemented procedure has emergency actions that are required. These emergency actions include assessment actions, corrective actions, and protective actions. Protective actions will ensure that individuals, both onsite and offsite, will be notified and actions will be initiated for their protection in the event of an onsite radiological emergency.

Protective actions taken onsite are the responsibility of the Emergency Plant Manager. Recommended protective actions for offsite are the responsibility of the Emergency Director. Actions taken offsite fall under the jurisdiction of the local parishes, LDEQ and Mississippi State Department of Health-Division of Radiological Health (MSDH-DRH).

13.3.5.4.1 Onsite/Offsite Protective Actions

13.3.5.4.1.1 Onsite Protective Actions

Protective action for individuals onsite will be taken when a radiological emergency has occurred, or may occur, which will result in concentrations of airborne activity or radiation levels that exceed EALs for a specific area or areas and cannot be readily controlled. In addition, protective actions will be taken for situations such as fires, floods, etc., where individual safety is threatened.

13.3.5.4.1.1.1 Notification

Notification of onsite personnel will be accomplished immediately upon classification, escalation and termination of an accident via the plant gaitronics system. The actuation of fire alarms, radiation alarms, telephone calls, and gaitronics announcements, as applicable, will alert onsite personnel to hazardous conditions and to actions they must take. In high noise areas, flashing beacons have been installed to alert personnel in these areas that an evacuation alarm has sounded. Personnel are instructed to exit the area immediately upon activation of the beacon and contact their Supervisor for instructions on the appropriate actions to be taken.

Such actions may be to assemble in emergency teams, to report to emergency response stations, to evacuate specific areas within the site, and/or to evacuate the site. Immediately upon notification by the Emergency Director or Emergency Plant Manager, Security will patrol the owner-controlled area to advise individuals of necessary protective measures to be taken.

13.3.5.4.1.1.2 Protected Area Access Control

At the announcement of an Alert, Site Area Emergency, or General Emergency, escorts shall return escorted visitors to the Primary Access Point for exit processing. Unescorted visitors or contractor/construction personnel are trained in their required actions prior to being granted unescorted access.

Provisions have been included to limit protected area access to EOI personnel and others specifically supporting the emergency response. Access to the protected area is controlled by security officers.

13.3.5.4.1.1.3 Onsite Evacuation and Relocation

Onsite evacuations, depending on the nature of the emergency and the extent of the area affected, have been defined as Limited, Building, and Owner Controlled Area Evacuations.

The Emergency Director or Emergency Plant Manager will be responsible for ordering evacuations. These evacuations will be made after careful consideration of the benefits and risks involved. The Emergency Director or Emergency Plant Manager will evacuate all nonessential personnel during a Site Area or General Emergency. Accountability of all individuals inside the Protected Area will be accomplished within approximately 30 minutes of the start of such emergency and be maintained continuously thereafter. Action levels for evacuation described below are intended as guidelines and are not to be considered inflexible limits, nor are they to be considered safe levels below which no protective action is indicated.

1. Limited Evacuation - A limited evacuation is defined as the withdrawal of personnel from a single area within a building. A limited evacuation will be implemented when any of the following conditions exists:
 - a. Activation of an area radiation monitor high-level alarm.
 - b. When airborne radioactive concentrations potentially exceed the derived air concentration specified in Appendix B to 10CFR20 as identified by the activation of a continuous air monitor alarm or as deemed necessary by a radiation protection technician's field analysis of a routine or task-oriented air sample.

- c. An unexpected increase of radioactive surface contamination (1) in an area previously designated clean, or (2) in excess of expected levels as identified on a Radiation Work Permit (RWP).
- d. Upon discovery of a radioactive (or suspected radioactive) liquid spill.
- e. Other emergency conditions such as fire that may endanger human life or health as determined by the Shift Manager.

The criteria for these radiation levels and alarms do not apply to anticipated increases or alarms resulting from planned operations. When the need for a Limited Evacuation is identified, personnel in the affected area will proceed in accordance with the EIPs or as directed over the public address system. Personnel involved in a Limited Evacuation will proceed to the nearest unaffected area and will await further instructions regarding accountability and radiation monitoring. Personnel evacuating the area in response to a continuous air monitoring alarm or due to adverse conditions in the affected area will immediately contact the control room once they have reached the unaffected area.

2. Building Evacuation - A building evacuation will be declared when either of the following occurs:

- a. Criteria for a Limited Evacuation are exceeded in two or more large operating areas within one building; or
- b. An unexpected or uncontrolled exposure rate in excess of the expected dose rate as indicated by area radiation alarms within a single building.

When a building evacuation is ordered, personnel in the affected area will proceed in accordance with the EIPs or as directed over the public address system. Personnel evacuated during a building evacuation will proceed to the Second Floor Hallway of the Services Building for accountability and radiation monitoring, or as otherwise directed.

3. Owner Controlled Area Evacuation - An owner controlled area evacuation is declared whenever significant hazards exist substantially beyond the protected area and extend into the owner controlled area.

An owner controlled area evacuation will be ordered anytime a Site Area Emergency or General Emergency is declared. All nonessential personnel inside the Protected Area will be directed to the PAP or Alternate Evacuation Point where they will be accounted for.

Accountability process is part of the Security Program and will account for all individuals evacuating the protected area to ascertain the names of missing persons within approximately 30 minutes of the emergency declaration.

If a radiological release above federally approved operating limits has occurred, is occurring, or is imminent, all nonessential personnel from the Protected Area will be directed to proceed via private automobile, where possible, to the appropriate reception center. Personnel will be monitored for contamination upon arrival at the reception center.

The Station Security Force will take action to ensure that an orderly, safe withdrawal of all nonessential personnel within the Owner Controlled Area takes place. They will be responsible for notification in areas not covered by the public address system. If a radiological release has occurred, is occurring, or is imminent, nonessential personnel will be directed to proceed via private automobile to the appropriate reception center. Personnel will be monitored for contamination upon arrival at the reception center.

Guidance for evacuation is provided in the EIPs.

During an onsite emergency that involves the release of radioactive material, the Emergency Director or Emergency Plant Manager will, as appropriate, request assistance from offsite agencies in controlling access to the owner controlled area. In addition, he will keep the LDEQ and MSDH-DRH informed of projected offsite doses when the EOF is not operational.

13.3.5.4.1.1.4 Evacuation Times

The estimated elapsed times, measured from the time of the event declaration to the initial warning of and evacuation of persons in identified areas of the site, are as follows:

1. Limited Evacuation (1 to 10 min.) - This is considered a realistic time to warn and evacuate personnel from a single area within a building.
2. Building Evacuation (10 to 20 min.) - This is considered a realistic time for all nonessential personnel from two or more large operating areas within one building to assemble on the second floor hallway of the Services Building.
3. Owner Controlled Area Evacuation (30 to 60 min.) - This is considered a realistic time to warn and evacuate nonessential personnel within the protected area and the owner controlled area.

13.3.5.4.1.1.5 Monitoring Evacuees

All individuals entering the controlled area are required to have in their possession personnel monitoring devices as specified by Radiation Protection Procedures or Radiation Protection personnel. A combination of checking dosimetry devices and questioning evacuees will be used to determine if any high external exposures have been involved in the emergency. For any known or suspected high exposures the permanent badge, if available, will be read as soon as possible and further investigation will be conducted to determine the amount of exposure and the necessary action to be taken.

Monitoring for contamination at the reception centers will be accomplished by using portable instrumentation and questioning. Priority for decontamination will be given to persons found with the highest levels of contamination. Any persons suspected or known to have ingested radioactivity will be referred to Louisiana Department of Environmental Quality for further evaluation and treatment.

Facilities are available at the reception centers for decontaminating evacuated, non-essential personnel. Decontamination rooms located in the reception centers contain the supplies and equipment needed for decontaminating personnel. Personnel monitoring equipment and extra clothing are maintained at these facilities.

13.3.5.4.1.1.6 Search and Rescue

Search and Rescue procedures will be implemented during an emergency when either the personnel accountability check shows a person(s) missing or a known individual(s) requires rescue assistance. Activities requiring excessive exposure will be conducted according to Section 13.3.5.5.1 of this plan.

Any emergency actions that allow exposures above established limits must have real trade-off benefits. In all situations, the general practice of keeping radiation exposures to a minimum are followed, and all persons subject to exposures must be equipped with adequate dosimetry devices to allow accurate evaluation of their exposures.

13.3.5.4.1.1.7 Re-entry into Evacuated Areas

When an evacuation is conducted as a result of excessive radioactive material release outside normally controlled areas a contamination survey shall be conducted of that area. The area is not returned to normal use until radioactive contamination levels are below the established limit for uncontrolled areas as defined in the Radiation Protection Procedures.

13.3.5.4.1.2 Offsite Protective Actions

LDEQ has been charged with the obligation, authority, and overall responsibility for the administration, implementation, application, and coordination of offsite radiological emergency procedures in the event of a radiological incident in the State of Louisiana. The Louisiana Peacetime Radiological Response Plan and its RBS Attachment detail LDEQ's role and delineate responsibilities of planned participants. The Memorandum of Understanding, included in the Louisiana plan, presents the notification and reporting requirements endorsed by LDEQ and EOI.

For the State of Mississippi, the MSDH/DRH is responsible for advising State and local officials on the implementation of protective actions. The Mississippi Radiological Emergency Preparedness Plan defines MSDH/DRH responsibilities and functions during a radiological emergency.

A dedicated radio system or Computer Based System provide means for RBS to notify, 24 hours per day, the five parishes in the 10-mile EPZ, LDEQ, GOHSEP, MEMA, and MHP simultaneously of any emergency classification and any recommended protective responses in a protective action section for the public within 15 minutes of declaration and/or decision. Upon reaching a decision to implement a protective response, each Parish Police Jury President or Mayor - President, through the Directors of Emergency Management, will first ensure that an Emergency Alert System (EAS) message coordinated with other parishes is ready to be broadcast by the EAS radio stations. Control consoles in each of the five parish EOCs allow activation of sirens in each respective parish, signaling the public to listen to the EAS stations for instructions. In addition, each household within the 10-mile EPZ is sent a Public Information Brochure describing steps to be taken in the event of an accident alert at RBS. Each of the five parishes has an offsite plan compatible with the State of Louisiana that will be exercised periodically, and training will be provided on the offsite emergency plan. This will ensure that the parish plans and the State Plan can be implemented adequately in an orderly fashion with the proper administrative communications to alert the public within a 24-hour period and provide protective action recommendations under the appropriate emergency class.

13.3.5.4.1.2.1 EOI Responsibilities During an Onsite Emergency Event with Offsite Radiological Consequences

The responsibilities of EOI during an onsite emergency event with offsite radiological consequences include:

1. Providing the best possible effort to resolve the emergency onsite, and thus alleviate offsite conditions.
2. Ensuring that if an accident occurs, the States of Louisiana and Mississippi are notified.

The Emergency Director, or his designee, will notify, via the state/local hotline or Computer Based System, the duty officers of the LDEQ, GOHSEP, the sheriff dispatchers of East Feliciana, Pointe Coupee, West Baton Rouge, and West Feliciana Parishes, and the Emergency Medical Services (EMS) in East Baton Rouge Parish. The Computer Based System and the State and Local Emergency Hotline are the primary and secondary means of communications with offsite officials and are dedicated systems. Since they can be activated only from the RBS Main Control Room, TSC, EOF, or Alternate EOF, they are self-verifying systems and can be used to identify persons initiating and receiving the notification. The commercial telephone and radio are backup systems to the Computer Based System and State and Local Emergency hotline. If there is concern about the authenticity of the notification, GOHSEP will contact RBS through a confidential telephone number to verify the initial notification call and will then authenticate the notification to local parishes and other offsite agencies.

If an accident occurs after normal working hours, it is the responsibility of the GOHSEP Duty Officer to ensure that the Secretary of the Louisiana Department of Environmental Quality and the LDEQ receive the initial notification message. In addition, GOHSEP will notify the U.S. Coast Guard, Eighth District, and the FAA, if warranted. GOHSEP will notify the National Warning Center that an emergency condition is in progress at the RBS site.

For Mississippi, the Emergency Director, or his designee, will notify the Mississippi Emergency Management Agency (MEMA). MEMA is the State Warning Point (SWP) for the state of Mississippi and will receive the initial notification at the State Emergency Operations Center. MEMA will coordinate with all appropriate local, state, and federal agencies. The alternate SWP will be the Department of Public Safety (DPS).

Initial information will be conveyed using the short Notification Message Form contained in the EIPs.

3. Coordinating EOI actions with those of Federal, State and local agencies involved in offsite aspects of the emergency.
4. Ensuring that all required agencies are advised of the emergency situation.
5. Periodically assessing conditions throughout the emergency and providing current information to those concerned, as it becomes available. Follow-up messages will be disseminated to the appropriate agencies using the long Notification Message Form. RBS, State and Local agencies have agreed upon the content and format of both the short Notification Message Form and the long Notification Message Form.

13.3.5.4.1.2.2 Public Notification and Information

RBS shall ensure that means exist to notify and provide prompt emergency instructions to the population within the plume exposure pathway EPZ. Essential elements of the notification system involve installation of notification hardware and regular instruction of the community in emergency preparedness.

The permanent adult population will be provided emergency information on an annual basis. EOI, GOHSEP, LDEQ, and the five local parishes shall prepare the information provided. This information will be updated annually and may include, but will not necessarily be limited to educational information on radiation, contacts for additional information, information on respiratory protection, sheltering, evacuation routes and relocation centers and special needs of the handicapped and aged. Dissemination of this information will be accomplished by publications distributed on an annual basis.

Signs will be used to disseminate information to the transient population in the plume exposure pathway EPZ. Additional measures will be used (e.g., decals, brochures) which provide information that would be helpful if an emergency occurs. These transient notices will guide the visitor to appropriate EAS frequencies. Transient population notification information will be maintained and updated periodically.

Members of the public who may be located in the Owner Controlled Area will be provided emergency information which will include, but not be limited to, information on actions to take during an evacuation and evacuation routes. Dissemination of the information will be accomplished by postings at areas where the public may be located and signs at roads entering the Owner Controlled Area.

In addition, EOI will conduct programs annually to acquaint news media personnel with the emergency plan, information concerning radiation, and points of contact for release of public information during an emergency.

During an emergency, the RBS Emergency Director will recommend protective actions to the five local parishes, LDEQ, and GOHSEP. LDEQ and MSDH/DRH will advise appropriate parish and county agencies of the state of the emergency and recommended protective actions.

The Prompt Notification System for the 10-mile EPZ of the RBS meets the design objectives of Reg. Guide 1.101, Rev. 2, (Appendix 3 of NUREG-0654). This system consists of high-powered electronic sirens and alert monitoring radios which provide comprehensive coverage of the local residential and transient population. The sounding of the sirens indicates that local radio stations are broadcasting further instructions, giving details of the event and the recommended protective action.

Alert monitoring radios provide supplemental coverage of local special facilities. The persons in the special facilities are advised of an emergency situation by the activation of alert monitor radios which can be activated by each Parish's communicator in the respective parish emergency operations centers or from the RBS EOF. These radios can provide voice transmission of emergency information to the administrators of special facilities located in four of the five local parishes. There are no special facilities located in West Baton Rouge Parish. Active locations of Alert Monitor receivers in the other four Parishes are kept on file in River Bend Station's Emergency Planning Department.

In the event of a General Emergency, the Presidents of the Police Juries and the Mayor President of East Baton Rouge Parish have the authority to order an evacuation of their respective parishes. The Governor of Louisiana has the authority to order evacuations as necessary. The Director of Emergency Management of the parish will coordinate the evacuation. The RBS Emergency Director will authorize periodic updates of the emergency situation.

13.3.5.4.1.2.3 Timing Requirements for Implementation of Offsite Protective Actions

EOI has the responsibility to recommend protective actions to the five local parishes within 15 minutes of a decision to make a protective action recommendation. EOI will keep the States of Louisiana and Mississippi informed on the protective actions recommended to the parishes. When possible, EOI will consult with the State of Louisiana prior to making protective action recommendations. Section 13.3.5.2 discusses the accident assessment the utility will perform in order to obtain the information necessary to determine appropriate recommended protective actions.

EPA Protective Action Guides serve as the basis for recommending protective actions to the public. Projected Total Effective Dose Equivalent (TEDE) and thyroid Committed Dose Equivalent (CDE) are the basis for the RBS protective action recommendations to the public. Protective action recommendations for members of the public include sheltering, evacuating or a combination of sheltering and evacuating. Members of the public in unaffected areas will be recommended to monitor Emergency Alert System broadcasts and prepare to take protective measures as directed by state and local officials.

Protective action recommendations are based on projected radiation exposure. The State of Louisiana and local authorities may take into consideration ambient meteorology, projected duration of the release, evacuation times and degree of protection afforded by local residential units when considering sheltering in lieu of evacuation. Details of the Evacuation Plan within the 10-mile EPZ are contained in the RBS Attachment to the State of Louisiana Plan.

13.3.5.4.2 Use of Protective Equipment and Supplies

Protective equipment and supplies listed in an implementing procedure will be utilized to minimize radiological exposure and contamination to individuals onsite.

13.3.5.4.3 Contamination Control Measures

The details of contamination control measures for onsite areas are contained in the RBS Radiation Protection Program procedures. The following is a brief outline of this program:

1. Radioactive Contamination of Personnel

- a. The limit for personnel contamination is specified in Radiation Protection procedures. Personnel who have become contaminated above these limits will be decontaminated.

If an individual cannot be decontaminated below these limits without damaging the skin, the Radiological Coordinator shall determine what action is to be taken.

- b. During a radiological emergency, Radiation Work Permits (RWPs) will not be required.
- c. Protective clothing is available to be worn by all individuals entering a controlled area. Individuals leaving the controlled area are monitored for contamination before entering the clean area of the station.
- d. Exposure to concentrations of radionuclides in air, which could result in exceeding occupational dose limits, as indicated in 10CFR20.1201, shall be limited to the extent possible, consistent with mitigation of the emergency.

In general, exposure to airborne concentrations of radionuclides higher than the derived air concentrations (DACs) listed in 10CFR20, Appendix B, should be avoided or prevented, but if exposures are necessary, the wearing of appropriate, properly fitted respiratory protection equipment shall be required as determined by the Radiological Coordinator or Radiological Assessment Coordinator, and Potassium-Iodide (KI) may be ordered by the Emergency Director or Emergency Plant Manager upon the recommendation of the Radiological Coordinator or Radiological Assessment Coordinator. Periodic portable air samples are taken in selected areas of operation or work activity areas.

2. Area Contamination Control

Controls have been established at the station to ensure that levels of fixed and removable contamination outside of the controlled areas are maintained at acceptable levels. Limits for fixed and removable contamination are specified in Radiation Protection procedures.

3. Equipment Contamination Control

- a. All tools and items of equipment used in the controlled area must be checked for contamination before being taken from the controlled area. If the item is found to be contaminated and decontamination is not practical, the item must remain controlled.
- b. Equipment and tools will not be released for use outside the controlled areas in the plant unless removable contamination is less than the criteria specified in Radiation Protection procedures.
- c. Removal of material from the controlled area with radiation and contamination levels in excess of these limits must be approved for conditional release as specified in the Radiation Protection procedures. Any item approved for conditional release shall meet the requirements of the applicable procedure for radioactive material control.
- d. More detailed guidance is available in the Radiation Protection procedures.

4. Radioactive Contamination of Food and Drinking Water

- a. Food and drinking water are not taken into any controlled areas, therefore, contamination of food and drinking water is not a normal occurrence. Should abnormal situations at the station occur which could cause contamination of the food and drinking water supply and actual contamination is suspected, radiological surveys of the food will be performed and samples of the drinking water will be taken and analyzed.
- b. Should any radioactive contamination at or above the minimum detectable activity be found on or in food, the food will be treated as radioactive waste and processed accordingly.
- c. Should radioactive contamination at or above the minimum detectable activity be found in drinking water, the drinking water will then be treated as radioactive liquid waste and treated accordingly. All liquids that are meant to be ingested (i.e., milk, colas, coffee, etc.) are considered drinking water.
- d. Detailed procedures for surveys, samples, and disposal are contained in plant and corporate procedures.

For RBS property outside the protected area fence, radiation monitoring teams are used to determine radiological conditions. For those areas where public access normally occurs, the criteria and measures for contamination control are detailed in the State Plan.

The offsite monitoring teams have the capability to provide an assessment of contamination levels.

13.3.5.5 Aid to Affected Personnel

Provisions have been made to assist personnel who are injured or are radioactively contaminated. First aid and decontamination facilities are available onsite in the Services Building or the injured or contaminated person may be transported to a hospital offsite. Individuals who may have received excessive radiation exposures are transported to Our Lady of the Lake Regional Medical Center for evaluation.

13.3.5.5.1 Emergency Personnel Exposure Criteria

Exposure records are maintained for all station personnel who may enter the controlled access area, including temporary and contract workers. This information is used in determining emergency team assignments. Responding emergency teams obtain the personnel monitoring devices required for the area which are available in the emergency equipment storage areas and at the access control point to the controlled access area. Dosimeters of legal record (DLR) are processed at intervals determined by the Manager, Radiation Protection. KI is available to emergency workers and it will be issued as authorized by the Emergency Director or Emergency Plant Manager based on the recommendation of the Radiological Assessment Coordinator or Radiological Coordinator. The Emergency Director or Emergency Plant Manager must authorize individuals to receive radiation exposures in excess of 10CFR20 limits. The individual must volunteer for exposures in excess of 25 Rem.

The exposure guidelines described in Table 13.3-10 are used to expedite decision-making in an accident situation. The EIPs assure that the individual is informed of the relative risk involved with excessive radiation exposure.

13.3.5.5.2 Decontamination and First Aid

Facilities for decontaminating personnel are available at RBS in the Radiation Protection Work Area of the Services Building. The personnel decontamination facility consists of a change area, monitoring area, sinks, eyewash supplies, and a shower large enough to allow decontamination of accident victims on stretchers. Specialized equipment is located in this area as is the normal inventory of radiation protection equipment. A first aid room and storage area for emergency equipment and supplies are also located in this area.

Personnel leaving the controlled access area will be evaluated for contamination by use of portable whole body monitors, which also monitor the hands and feet, and/or friskers for self monitoring. During emergencies, personnel onsite will be checked, as necessary, for contamination. Facilities for decontaminating personnel evacuated from the plant site area are located at the EOF. An inventory of decontamination supplies and equipment, personnel monitoring equipment, and extra clothing is maintained at these facilities.

Personnel found to be contaminated will undergo decontamination under the direction of Radiation Protection personnel. Measures will be taken to prevent the spread of contamination. Such measures may include isolating affected areas, placing contaminated personnel in clean protective clothing before moving, and decontaminating affected personnel, their clothing, and equipment prior to release. Since most decontamination will occur during recovery or away from high radiation areas, the dose for these personnel should not exceed established exposure guidelines. Detailed guidance for personnel decontamination is contained in RBS Radiation Protection procedures.

Radwaste will be handled in the Radwaste Building by following normal procedures. If decontamination is done at the EOF or the River Bend Activity Center, the waste will be contained for later disposal in the plant's liquid radwaste facility. Solid radwaste will be bagged and handled under the Radiation Protection procedures.

Emergency first aid and medical treatment will be given to injured or ill personnel whether the injury or illness is radiation or non-radiation related. Shift personnel trained in first aid will be available onsite on a 24-hr-per-day basis and will assist injured or ill personnel either at the scene of the accident or in the first aid room. If affected personnel must be transported to medical facilities, measures will be taken to prevent the spread of contamination. Exposure limits for ambulance personnel are controlled by the Louisiana State Plan and State regulations.

13.3.6 Emergency Facilities

This section of the Emergency Plan identifies, describes, and gives locations of emergency response facilities, support centers, communication systems, assessment facilities, protective facilities, and first aid and medical facilities. Interface among the Onsite and Offsite Emergency Response Facilities is shown in Figure 13.3-18.

13.3.6.1 Emergency Response Facilities

The emergency response facilities are a coordinated group of facilities, separated physically to minimize interference and confusion, and connected by dedicated communication lines to ensure an uninterrupted flow of data and instructions. The emergency response facilities are staffed at the designated level of emergency classification as shown in Figures 13.3-7 and 13.3-9.

The emergency response facilities assure that EOI has the capability to perform the required functions of direction and control, accident assessment (ERIS), communications and notification, onsite and offsite dose assessment (DRMS), interface with state, local, and federal authorities, and recovery and reentry actions. If automated diagnostic functions are not functional in the TSC and EOF adequate secondary measures are provided so that the Emergency Response Facilities can effectively support an emergency.

13.3.6.1.1 Technical Support Center (TSC)

The TSC is the onsite emergency response facility located near the reactor on the third floor of the RBS Services Building inside the Protected Area. The TSC is within close proximity of the Main Control Room to facilitate the interaction between emergency response personnel in both locations. The primary functions of the TSC are as follows:

1. To assist operations personnel in the Main Control Room in mitigating an accident and in returning the reactor to a safe condition by providing engineering, technical, and management support.
2. To coordinate all onsite emergency response activities and exchange information on plant parameters with the Emergency Director in the EOF. Plant systems data are available to accomplish these functions.

The overall management of the TSC and onsite emergency response activities is under the direction of the Emergency Plant Manager. In addition to the above primary functions, the TSC is activated at the declaration of an Alert

The TSC, as part of the RBS Services Building, has been built in accordance with the Uniform Building Code and provides habitability comparable to the Main Control Room. Portable area radiation monitoring equipment is available to the TSC to provide emergency personnel an indication of the levels of radiation present. The TSC ventilation system contains both HEPA and charcoal filters. The TSC has been designed to have approximately 4500 square feet of working area to accommodate EOI personnel with specific TSC responsibilities. In addition, space is provided for pre-designated NRC response personnel. A general layout of the TSC is shown in Figure 13.3-20:

Communications in the TSC with the Main Control Room, the EOF, the NRC, and other federal, state, and local officials is the same as identified in Section 13.3.6.1.5.4. The ERIS and the DRMS are available in the TSC to provide reliable collection, storage, analysis, display, and communication of information on containment conditions, radiological releases, and meteorology sufficient to determine site and the 10-mile EPZ status, determine changes in status, forecast status, and take appropriate actions. A description of the ERIS is provided in USAR Section 7.7.1.7.

The following documents are accessible from the TSC:

1. Technical Specifications
2. Station Operations Manual/Emergency Operating Procedures
3. RBS Emergency Plan
4. RBS Emergency Implementing Procedures
5. State/Local Emergency Plans
6. INPO Resource Manual
7. Electronic Updated Safety Analysis Report on CD
8. Environmental Report - Operating License Stage
9. As built drawings from the electronic document retrieval system
10. 10- and 50-Mile EPZ Maps for RBS

These documents, drawings, and maps provide information to be used in assessing plant conditions as well as determining possible offsite consequences.

13.3.6.1.2 Operations Support Center (OSC)

The OSC, under the coordination of the OSC Manager, serves as a staging area for site personnel during emergency response and recovery operations. The OSC serves as a:

1. Coordination area for onsite Radiation Protection personnel. From this point, they will be directed to assist in radiological surveys, personnel monitoring, decontamination, reentry, and search and rescue procedures.
2. Coordination area for personnel to conduct plant procedures, (i.e. firefighting, search and rescue, first aid, etc.)
3. Coordination area for Chemistry and Maintenance technicians to be dispatched to areas requiring their support.

The OSC is located in the Services Building. A general layout of the OSC is shown in Figure 13.3-21. There are direct communications between the OSC, Main Control Room and TSC. If the OSC is evacuated, the Control Room will serve as a backup until the OSC is determined to be habitable.

13.3.6.1.3 Main Control Room

The Main Control Room is the primary operations center during events classified as Notification of Unusual Event level emergencies and prior to the activation of the other emergency response facilities for more serious emergencies. The necessary resources are available so that the Shift Manager can initiate and coordinate all EIPs from the Main Control Room until additional assistance is available. All plant control manipulations are conducted from this area under the Shift Manager's direction.

13.3.6.1.4 Primary Access Point and Alternate Evacuation Point

The Primary Access Point, supervised by the Superintendent-Plant Security:

1. Controls the personnel and vehicular ingress and egress to and from the protected area.
2. Serves as the focal point for personnel accountability during a Protected Area Evacuation.

Under the supervision of the Manager Security, security personnel will assist, as required, with emergency response and recovery operations. The PAP is equipped with telephone and page-party communications with the Main Control Room, TSC, and the OSC as well as telephone communications with the EOF.

13.3.6.1.5 Emergency Operations Facility (EOF)

The EOF is the emergency response facility located near the reactor site to provide continuous coordination and evaluation of EOI's activities during an emergency at RBS having or potentially having environmental consequences. The EOF has been designed to meet the requirements as specified in Supplement 1 to NUREG-0737. The EOF is activated at an Alert or higher level emergency.

The initial function of the EOF is to evaluate the magnitude and effects of actual or potential radioactive releases from the plant and to recommend appropriate offsite protective measures and to evaluate emergency conditions for potential emergency classification changes. To accomplish these functions, facilities are provided in the EOF for the evaluation of pertinent radiological, meteorological, and plant system data. The Radiological Assessment Coordinator coordinates the offsite radiological monitoring and analyzes results during emergency and recovery operations.

The overall management of EOI emergency resources is based in the EOF under the direction of the Emergency Director. The EOF Manager reports to the Emergency Director and is responsible for operations within the EOF. The EOF functions are performed in the Main Control Room prior to the activation and staffing of the EOF. The EOF is utilized to coordinate the EOI emergency response activities with those of local, state and federal emergency response organizations, including the NRC and FEMA. The EOF is the location where EOI provides current information on conditions potentially affecting the public to the NRC and to state and local emergency response agencies. The EOF also functions as the post-accident recovery management center.

At an Alert, EOI will dispatch a technical representative to each of the five parish EOCs within the 10-mile EPZ and the State EOC, to ensure continuity and coordination among EOI, LDEQ, and the affected parishes.

13.3.6.1.5.1 Location

The EOF is located within the RBS Training Center outside the plant security boundary but on EOI property near the intersection of U.S. Highway 61 and the River Bend Power Station Road. The RBS Training Center, in which the EOF is located, is outside the exclusion area and approximately 1.1 miles from the reactor building. The Alternate EOF is in the Entergy Customer Service Center located at 5564 Essen Lane in Baton Rouge, approximately 28 miles southeast of RBS. This facility has adequate accommodations to ensure continuous emergency response operations and recovery management should the primary EOF become uninhabitable.

The justification for site location is based upon assuring accurate and timely interface and communications between EOF management personnel and onsite personnel, habitability of the EOF, and meteorology (predominant wind direction).

To ensure its habitability during an emergency, the EOF has been designed to provide protection against radiological hazards as follows:

1. Exterior Wall Shielding - 8 inches (2.35 gm/cm^3) of concrete to provide a Protection Factor of greater than 5.7 for a 0.7 MeV gamma. This figure does not include the 4 inches of brick veneer on the outside walls and is, therefore, lower than the actual value.
2. Ventilation - The EOF Ventilation System contains both HEPA and charcoal filters. The ventilation system is isolated from the external environment, and the HEPA filter is inserted by remote or manual operation.
3. Radiological Monitoring - Instrumentation is provided to allow for determination of radiation levels within the EOF.

13.3.6.1.5.2 Layout

The EOF has been designed to have a total area of 6,300 square feet, with approximately 5,700 square feet provided for different functional/staffing areas as indicated. The configuration of the EOF facilitates the flow of information during the decision-making process and provides adequate space to accommodate all personnel involved in the recovery effort. This facility also allows drills and exercises to be staged while not significantly degrading normal activities throughout the remainder of the RBS Training Center. A general layout of the EOF is shown in Figure 13.3-22.

13.3.6.1.5.3 Structure

The EOF has been designed to meet the following building codes:

1. Seismic Criteria - Standard Building Code (Zone 1) and ANSI A58.1 Code
2. National Fire Protection Life Safety Code

13.3.6.1.5.4 Communications

The communications system within the EOF includes a dedicated telephone system and/or a two-way radio communication system with the following offsite agencies and the other RBS Emergency Response Facilities:

1. Main Control Room
2. Technical Support Center
3. Louisiana Department of Environmental Quality
4. Governor's Office of Homeland Security and Emergency Preparedness
5. Five Local Parishes Office of Homeland Security and Emergency Preparedness and 24 hour notification points

6. Mississippi Emergency Management Agency
7. Mississippi Highway Patrol

A hotline telephone system also provides communication among the RBS Emergency Response Facilities.

The NRC Emergency Notification System (ENS), part of the Federal Telephone System network, is used to provide emergency response information and plant data during a declared emergency to the NRC Operations Center in Maryland and the Region IV NRC Office in Texas. In addition, the Health Physics Network (HPN), on the same telephone system, is available to provide radiological information to the same locations. During the initial stages of an accident, the ENS is used for the transmittal of radiological information until the HPN is operational. The ENS serves as the primary notification system used to meet requirements of 10CFR50.72. The ENS is located in the Main Control Room, TSC, and EOF while the HPN is located only in the TSC and EOF. Both the ENS and HPN are tested on a monthly basis by EOI.

13.3.6.1.5.5 Technical Data and Data Systems

The safety parameter display system is available in the EOF as an integral part of the ERIS. Other technical information in the EOF is provided by DRMS displayed on ERIS CRTs. These systems are capable of reliable collection, storage, analysis, display, and communication of information on containment conditions, radiological releases, and meteorology sufficient to determine site and regional status, determine changes in status, forecast status, and take appropriate actions.

13.3.6.1.5.6 Records

The following documents are accessible from the EOF:

1. Technical Specifications
2. Station Operations Manual
3. RBS Emergency Plan
4. RBS Emergency Implementing Procedures
5. State/Local Emergency Plans
6. INPO Resource Manual
7. Electronic Updated Safety Analysis Report on CD

8. Environmental Report - Operating License Stage
9. As-Built Drawings from the electronic document retrieval system
10. 10 and 50-Mile EPZ Maps for River Bend Station

13.3.6.1.5.7 Staffing

The EOF is staffed with designated EOI personnel with specific responsibilities during a declared emergency. In addition to accommodating EOI personnel, space is provided in the EOF for representatives from the states of Louisiana and Mississippi and the NRC.

13.3.6.1.5.8 Security

When the EOF is activated, access is controlled.

13.3.6.1.6 Joint Information Center (JIC)

The JIC is located at Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) in Baton Rouge, LA.. A general layout of the JIC is shown on Figure 13.3-23.

The JIC provides all official information from all sources about the emergency in a timely and accurate manner. GOHSEP hosts spokespersons from Entergy, the five parishes in the ten-mile Emergency Planning Zone, Louisiana and Mississippi state officials and spokespersons, NRC and Federal Emergency Management Agency spokespersons, and other federal agencies if and as they respond.

Public inquiry will be coordinated by GOHSEP personnel.. The general public and the media will be provided a telephone number to call to receive the latest information regarding emergency conditions. JIC inquiry response provides official information from all sources to callers and report rumors so they can be clarified or dispelled by response officials.

The JIC is activated at the Alert declaration and is supervised by GOHSEP personnel who ensure the necessary logistics support for all agencies present. The Company Spokesperson presents EOI updates in news conferences. Entergy's JIC Manager supervises Entergy's operations at the JIC.

13.3.6.1.7 Corporate Emergency Center

The Corporate Emergency Center (CEC) is located on the first floor of the Echelon 1 Building in Jackson, Mississippi. At an Alert emergency declaration at RBS, the CEC duty manager is notified and the CEC will respond in accordance with the CEC guidelines.

13.3.6.2 Communications Systems

Reliable communications links exist between various areas of the plant, emergency response facilities, and offsite organizations. These systems have sufficient redundancy and diversity to ensure availability of communications during emergencies. A matrix of onsite/offsite communications is shown in Figure 13.3-19.

13.3.6.2.1 Site Communications

1. Page-Party/Gaitronics System - The Page- Party/Gaitronics System may be accessed from numerous handset stations throughout the plant. It is possible to select the use of Page- Party/Gaitronics loudspeakers or any of five channels for communication with any of the other handset stations. The system is also used as an emergency tone signal for fire, evacuation, emergency announcement, and test. The emergency signal takes automatic priority over any other signal on the paging channel while the party channel remains unaffected.
2. Central Branch Exchange System - The Central Branch Exchange System is an extension of the EOI telephone system, having communications with one another, as well as, direct offsite access. Phones have been placed throughout the plant including the Main Control Room, TSC, Radiation Protection Area, OSC, EOF, and other areas as necessary. A set of phones will be available in the TSC and EOF for use by NRC personnel during emergency response operations.
3. Hand-Held Portable Radio System - There is a UHF radio system for plant operations and another, completely independent system for security operations. These hand-held portable radios are available for emergency use. These radio systems are capable of communicating with hand-held portable radios around the plant. Portable radios are available in the EOF for use by offsite radiation survey teams.
4. Paging System - A paging system is used for notifying the RBS emergency organization personnel. This system uses regular dial telephone service to access the system and activate paging sequences. Paging can be accomplished by calling an individual or groups using the telephone.
5. Main Control Room to TSC Hotline - This is a dedicated circuit to facilitate communications between these two locations. It only serves these two locations and does not rely on any Central Branch Exchange (CBX) or leased or public telephone facilities.

6. Status Phone - This system provides dedicated communications between the following locations: Control Room, TSC, and the EOF to enhance the communications of current plant parameters and ongoing corrective actions among these facilities.
7. Emergency Shutdown Hotline - This system provides dedicated communications between the following locations: Control Room, OSC, TSC, Radiation Work Permit Office, and Hot Chemical Laboratory. It also does not rely on any CBX or leased or public telephone facilities.
8. Onsite Hotline - This is a dedicated onsite hotline which serves the following locations: Main Control Room, TSC, OSC, and EOF. This system does not rely on any CBX or leased or public telephone facilities. It does utilize EOI pilotwire cable and fiber optic communication facilities. If DRMS computers are inoperable, this hotline is used so that radiological monitoring information can be relayed to each Emergency Response Facility.
9. NRC Onsite Hotline - This system is installed to provide a dedicated means of communications for the NRC personnel onsite located between the EOF and the TSC. It only covers these two points and does not employ any CBX or leased or public telephone services.
10. EOI Telephone Network - The EOI Telephone Network utilizes microwave, fiber optic, and pilotwire cable systems to interconnect a number of CBXs located in the EOI offices. The network allows calls between extensions at each location, and with other extensions throughout the EOI service area. Additionally, these systems allow dial access to the local public telephone locations. These systems can also allow public telephone calls to be directed to desired onsite EOI telephone locations.

13.3.6.2.2 Plant-to-Offsite Communications

1. Public Switched Telephone Network (PSTN) - A number of dedicated public telephone lines are installed at RBS to provide dial access to other areas outside the plant site. These circuits are designed and installed to provide alternate routes into the PSTN and avoid problems caused by the loss of any one telephone company central office or exchange. They provide direct dial access through the local CBX facilities with a trunk bypass unit in the event of CBX failure to the following telephone exchanges: St. Francisville, Baton Rouge, and Echelon (Jackson). The Echelon and Baton Rouge circuits are routed from the local telephone company central offices to RBS via the EOI microwave system.

RBS – EP

2. Plant-to-Offsite Radio System - A separate radio base station provides communications with EOI facilities and offsite agencies. The radio system is a backup means of communication to offsite authorities should the RBS Emergency Hotline and telephone systems become inoperative. This radio system may also be referred to as the Civil Defense radios.
3. EOI Microwave System - An onsite microwave terminal, tower, and equipment will provide a communications link for:
 - a. Voice communications
 - b. EOI CBX tie lines
 - c. System dispatcher
 - d. High speed data
 - e. Telemetry signals

This system can also be used to transmit onsite data to designated offsite authorities for radiation emergency evaluation.
4. State and Local Hotline - The State and Local Hotline, a dedicated radio system, provides the River Bend Station Main Control Room, the TSC, EOF, and Alternate EOF direct communications links with the Governor's Office of Homeland Security and Emergency Preparedness, the Louisiana Department of Environmental Quality, the initial points of contact and EOCs in the River Bend Parishes, the Mississippi Highway Patrol, and the Mississippi Emergency Management Agency. This system serves as an alternate means of communications between RBS and offsite authorities.
5. NRC Health Physics Network (HPN) - This system is provided by the NRC and is used during an emergency condition to transmit technical data to the NRC incident response center and the Region IV office. The HPN is located in the TSC and EOF.
6. NRC Emergency Notification System (ENS) - This circuit is also provided by the NRC and is used to coordinate emergency activities and notifications to the NRC incident response center. The ENS is located in the MCR, TSC, and EOF.

7. Hospital Hotline - This system provides a dedicated means of communication with the two hospitals designated to work with RBS during an emergency. Locations covered by this system include: Main Control Room, TSC, EOF, Our Lady of the Lake Hospital, and West Feliciana Hospital. This system does not utilize any CBX or public telephone services, but does utilize dedicated leased telephone circuits, EOI pilotwire cable, and fiber optic facilities.
8. Security Hotline - This system provides a dedicated means of communication between the West Feliciana Sheriff and the RBS Security Groups located in the Security Alarm Stations.
9. Corporate Hotline - This is a dedicated system that serves the TSC, EOF and Alternate EOF at Essen Lane (Baton Rouge). This system does not utilize any CBX or public telephone services, but does use dedicated EOI pilotwire cables, fiber optic communications, and microwave facilities.
10. Facsimile Service - A network of facsimile machines has been installed to provide a means of sending and receiving copies of documents. These machines are capable of communicating with other facsimile machines around the country.
11. The Emergency Response Data System (ERDS) consists of a computer terminal located in the Technical Support Center (TSC) Computer Room. It receives information from the Emergency Response Information System (ERIS) and Digital Radiation Monitoring System (DRMS) and transmits information from these systems to the NRC Operations Center in Maryland. The ERDS is activated as soon as possible within one hour (1) of the declaration of an Alert or higher emergency classification level.
12. Inform - The rapid offsite notification system consisting of a network of computers, a server and associated software established for the purpose of rapidly distributing Emergency Notification Messages and recording message delivery and acknowledgement. This system serves as the Primary means of communications between RBS and offsite authorities.

13.3.6.3 Assessment Facilities

The monitoring instruments and laboratory facilities needed to initiate emergency measures, as well as those to be used for continuing assessment, are available for both onsite and offsite use.

13.3.6.3.1 Onsite Assessment Facilities

Equipment is available to monitor geophysical phenomena, radiological conditions, plant process information and fires.

Geophysical phenomena monitors include meteorological and seismic instrumentation. The meteorological tower instrumentation consists of the following: redundant wind speed and wind direction sensors at the 30- and 150-ft levels, a redundant 30-ft ambient temperature sensor, and a redundant vertical temperature difference system.

Meteorological data from the tower are recorded by primary and secondary digital and analog methods. Display equipment is provided in the Main Control Room for observations of wind speed and wind direction at heights of 30 and 150 ft, temperature at 30 ft and temperature difference between 30 and 150 ft. Read outs are available in the EOF and TSC.

The seismic instrumentation at the station is utilized to monitor and record input motion and behavior of the station in the event of an earthquake. This instrumentation program complies with the requirement of Regulatory Guide 1.12. The seismic instrumentation consists of strong motion triaxial accelerographs: peak recording accelerographs, the associated recording instrumentation and a triaxial response spectrum recorder.

The Digital Radiation Monitoring System (DRMS) consists of process, effluent, and area monitors. The function of the DRMS is to measure, evaluate, and report radioactivity in process streams, liquid, gaseous, and particulate effluents, and in selected plant areas and to annunciate abnormal system conditions. In addition, airborne radioactivity can be monitored using four portable particulate iodine and gas monitors which can operate as stand alone monitors or as part of the DRMS by plugging into one of 25 fixed junction boxes.

The fire detection system is a proprietary signaling system consisting of alarm initiating, indicating and sounding devices, and remote data acquisition control panels.

EOI Radiological Environmental Monitoring Locations are shown on Fig. 13.3-24

13.3.6.3.2 Offsite Assessment Facilities and Equipment

Seismic and hydrological data are available to EOI through the offices of the U.S. Army Corps of Engineers in New Orleans, Louisiana, and the U.S. Geological Survey (USGS) in Baton Rouge, Louisiana. Meteorological data are available from the National Weather Service.

13.3.6.4 Protective Facilities and Equipment

The Main Control Room and TSC have adequate radiation protection to ensure that personnel will be able to occupy these areas and not receive exposures in excess of 5 rem Total Effective Dose Equivalent (TEDE), for the duration of the accident. The River Bend Station Training Center parking lot provides space for the monitoring of individuals, if necessary, in the event of an Owner Controlled Evacuation. These emergency response facilities can accommodate the required emergency response organization and support personnel.

Protective equipment and supplies are available within these facilities to assist in the emergency response. Protective clothing and respiratory equipment is used in accordance with the River Bend Station Radiation Protection procedures.

13.3.6.5 First Aid and Medical Facilities

The Decontamination Room, on the second floor of the Services Building, provides supplies necessary for basic first-aid treatment in the event of minor injuries. A supply of potassium iodide is maintained in the Decontamination Room. These drugs will not be used unless authorized by the Emergency Plant Manager upon the recommendation of the Radiological Coordinator. Additional supplies and equipment are available to ensure that medical assistance is provided to contaminated, injured personnel.

13.3.6.6 Damage Control Equipment and Supplies

Damage control equipment consisting of fire hose stations, fire extinguishers, fire hydrants, and portable lanterns are located throughout the plant to be used by the fire brigade teams in the event of fire. The RBS Fire Protection Procedures give specific locations of fire protection equipment. Other equipment, such as tools and supplies, is available in the OSC or from the tool rooms.

13.3.6.7 Radiological Laboratories

The onsite Chemistry Laboratory is designated to analyze all samples collected during an emergency. Offsite field samples may be evaluated at a vendor laboratory. Should the Chemistry Laboratory be unavailable, elevated activity samples may be transported to another nearby EOI facility for analysis. Alternate laboratory facilities are shown in Table 13.3-9.

13.3.7 Maintaining Emergency Preparedness

EOI maintains, as two separate documents, this Plan and its EIPs. This Plan is a part of Chapter 13 in the USAR and is subject to an established method for updating. The EIPs contain detailed information extracted from this Plan and other pertinent documents. These procedures will enable station personnel to implement this plan and take proper action without referral to numerous documents. The EIPs are reviewed and revised in accordance with EPP-2-100.

The Vice President River Bend Station has overall responsibility for emergency planning for RBS, including the corporate policy and the USAR, and the agreements and understandings with Federal and State organizations. The Vice President may designate personnel to assist him in meeting his responsibility.

The Emergency Preparedness Manager is responsible for the emergency planning program at RBS, including review and updates of the Emergency Plan and EIPs, coordination of onsite and offsite activities related to training, drills and exercises, and for developing and maintaining agreements and understandings with state and local offsite organizations. The Emergency Preparedness Manager has access to and reporting relationships with Corporate Emergency Preparedness senior management and RBS site senior management with oversight responsibility for Emergency Preparedness. These relationships assure site emergency preparedness and fleet emergency preparedness resources, priorities and performance standards are balanced for best performance.

The Emergency Preparedness Manager title is used in lieu of the Emergency Planning Coordinator title as specified in Section II.P.3 of NUREG-0654/FEMA-REP-1, Rev. 1.

All reviews and updating of the Emergency Plan and EIPs will be governed by appropriate procedures as described in Section 13.3.7.2.

The Emergency Planning Staff has the authority and responsibility for interfacing with the State of Louisiana, five local parishes, and the State of Mississippi to maintain offsite emergency response capabilities in a constant state of readiness. The Emergency Planning Staff is also involved in daily activities relating to onsite emergency response capabilities.

The RBS General Manager will provide assistance to the Emergency Preparedness Manager in reviewing, approving, and implementing the RBS Emergency Plan via the On-Site Safety Review Committee (OSRC). The authority and responsibility of the OSRC are described in USAR Section 13.4 and procedures.

EOI will send individuals responsible for the planning effort to seminars, lectures, and other available training courses in emergency planning.

EOI will arrange for and conduct independent audits of the emergency preparedness program at least every 24 months in accordance with 10CFR50.54(t). The audit will include a review of the plan, the EIPs, equipment maintenance, drills, and exercises. Management controls shall be implemented for evaluation and correction of audit findings. The result of the audit shall be documented and reported to the appropriate management. The part of the report involving interface with State and local governments shall be available to the applicable government. Audit results will be retained for a period of 5 years.

13.3.7.1 Emergency Organizational Preparedness

13.3.7.1.1 Training

The Emergency Preparedness Manager is responsible for the overall administration of the Emergency Planning Training Program. Personnel assigned duties associated with the Emergency Plan will undergo specialized training for their responsibilities. Each department head is responsible for ensuring that personnel in his department have received the appropriate training.

13.3.7.1.1.1 Emergency Response Organization (ERO) General Training

All RBS ERO members are indoctrinated on this plan and procedures through the Plant Access Training Program (PAT). In addition, ERO members will receive Radiation Worker Training (RWT), described in USAR Section 13.2 or Radiological Orientation Training based upon their emergency response duties. The training described in USAR 13.2 with regard to Emergency Planning is conducted in accordance with RBS training program procedures. The objectives of this training are:

1. Familiarize personnel with the scope, applicability, and implementation of the emergency plans and procedures.
2. Teach the general duties and responsibilities assigned to all station personnel.
3. Keep personnel informed of applicable changes in this plan and procedures.
4. Maintain a high degree of preparedness at all levels of the station organization.

RBS emergency response personnel receive the following instruction:

1. Content of this plan and procedures.
2. Implementation and operation of the plan, including the assignment of duties and responsibilities, location and use of emergency response facilities, and location of emergency equipment and supplies.

3. Individual employee responsibilities with regard to the use of emergency facilities and equipment, personnel response, and communications systems.
4. Classification of tones used on the Page Party/Gaitronics System as follows:

Pulse: Evacuation
Siren: Fire
Warble: Announcement
Steady: Test
5. Procedures and requirements associated with personnel accountability, evacuation, and exposure criteria.
6. Radiation protection, with special emphasis on the principles and use of protective clothing and equipment; personnel dosimetry; portable radiation instrumentation and methods of decontamination if appropriate to their assigned job functions.
7. Employee responsibilities in the event of a security threat.

13.3.7.1.1.2 Specialized Training

Personnel assigned to the onsite emergency organization with specific Emergency Plan duties and responsibilities receive specialized training for their respective assignments as follows:

Emergency Director and Emergency Plant Manager - Receive initial training in coordinating details of the station Emergency Plan and its interaction with State and local plans. Special emphasis is given to the required recommendations for offsite protective actions. This training will be repeated at least annually.

Accident Assessment Personnel - The Shift Manager and other Senior Reactor Operators are responsible for initial accident assessment and classification. They receive special training in the use and meaning of the EALs and evaluation of plant safety degradation with offsite dose potential. The Emergency Director and his designees will be responsible for detailed accident assessment. They receive training in plant safety system analysis, offsite dose projection based upon effluent release and ambient meteorology, EAL classification, and Protection Action Guides. The training for all accident assessment personnel will be conducted at least annually.

Radiological Monitoring Teams - Receive comprehensive training in all aspects of emergency procedures requiring their services. These areas include: personnel monitoring and decontamination, onsite and offsite surveys, handling radiologically contaminated injured personnel, and supervising re-entry into contaminated areas. This training is conducted at least annually.

Firefighting Teams - Receive plant specific training in firefighting. Emphasis is placed upon radiation safety and the details of fire suppression equipment and systems. Fire Brigade training is conducted in accordance with the RBS Fire Protection Program procedure.

First Aid Personnel - Receive training in at least Red Cross Multi-Media first aid and the special handling of contaminated personnel. Sufficient numbers of personnel receive training to provide adequate support on all shifts. Training is conducted on a frequency required to maintain qualifications.

Search and Rescue Personnel - Search and rescue operations will be implemented by personnel who have received specific training in search and rescue techniques. Sufficient numbers of personnel are trained to provide continuous coverage for the emergency response organization.

Repair and Damage Control Personnel - Repair and damage control operations are conducted by individuals who have received training on plant equipment and layout such that repair and damage control activities can be efficiently and effectively implemented, at the discretion of the Emergency Director or Emergency Plant Manager.

River Bend Station Personnel - Take part in exercises and drills coordinated with River Bend Station. These drills along with proper training ensure that assigned personnel are aware of their Emergency Plan responsibilities and are capable of handling them. Training is conducted annually.

Communicators - Receive comprehensive training in the transmission of emergency information and instructions. This includes training in the use of the primary and alternate communication systems, message content and format, message dissemination and record keeping. Training is conducted annually

Chemistry Technicians - Receive training in dose assessment. This training is conducted at least annually.

Security Officers - Receive training on the accountability, notification, and access control procedures to support the RBS Emergency Plan. This training is conducted at least annually.

13.3.7.1.1.3 Training of Offsite Agencies

Orientation and training is available to offsite organizations and agencies involved in emergency planning for River Bend Station. Programs, as described in the Louisiana Peacetime Radiological Response Plan, the River Bend Station Attachment, and the Mississippi Radiological Response Plan are available through the GOHSEP and MEMA, respectively. The programs are offered to participating organizations and agencies. The objective of these programs is to familiarize participants with the health hazards and methods of operation as applied to radiological incidents. These programs will be repeated as necessary to maintain an adequate response capability.

EOI provides training for offsite organizations and agencies as specified in respective agreements and understandings. In addition, those offsite organizations and agencies that may provide onsite emergency assistance are encouraged to become familiar with the physical layout of the River Bend Station. They are invited to meet key personnel and to attend appropriate emergency plan training and orientation courses conducted by or for EOI. Training programs have been developed for specific offsite organization and agencies. Hospital, ambulance, rescue, fire, law enforcement, and Emergency Management personnel will receive training in their expected roles, the procedures for notification, and basic radiation protection. These groups are requested to attend the appropriate training program when it is presented.

Where mutual aid agreements exist between EOI and local support agencies such as fire, police and ambulance, the training is also offered to the other departments that are members of the mutual aid district. Such training is made available on an annual basis to the appropriate personnel of the following organizations and agencies:

Point Coupee Parish Sheriff, West Feliciana Parish Sheriff and West Feliciana Firefighting Personnel - Receive training in the site Emergency Plan on an annual basis. This training details their responsibilities in support of both onsite and offsite emergencies.

West Feliciana Parish Hospital and Our Lady of the Lake Regional Medical Center - Training is provided by EOI in the handling and treatment of contaminated personnel. These hospitals participate in offsite emergency medical drills. Generally, each hospital participates in emergency drills on an alternating basis.

13.3.7.1.2 Drills and Exercises

EOI conducts periodic drills and exercises to verify the emergency preparedness of all participating organizations. Drills are conducted to allow the participants to be familiar with their duties and responsibilities, to verify the adequacy of methods used in the emergency procedures, to check the availability of emergency supplies and equipment, and to verify the operability of emergency equipment. Exercises demonstrate that emergency response organizations and facilities are adequate to provide protection for site personnel and the general public.

13.3.7.1.2.1 Responsibilities of Emergency Preparedness Manager

The Emergency Preparedness Manager is responsible for planning, scheduling, and coordinating all Emergency Plan drills and exercises. In planning a drill or exercise, the Manager will:

1. Assign personnel to prepare a scenario for use in exercises and drills which includes, but is not limited to the following:
 - a. Basic objective(s) of each drill and exercise.
 - b. Date(s), time period, place(s), and participating organizations.
 - c. Simulated events (including all appropriate meteorological and radiological conditions).
 - d. Time schedule of real and simulated initiating events.
 - e. Narrative summary describing the conduct of the exercises or drills to include such things as simulated casualties, offsite fire department assistance, rescue of personnel, use of protective clothing, deployment of radiological monitoring teams, and public information activities.
 - f. Arrangements for qualified observers including the provision for advance exercise materials
2. Coordinate efforts with other appropriate emergency organizations and agencies.
3. Coordinate the proposed schedule and objectives with the RBS Regulatory Assurance and Performance Improvement Director, the RBS General Manager, and the RBS Site Vice President.
4. Ensure that qualified observers from Federal, State or local governments are invited to observe and critique the appropriate exercises (usually the biennial exercises).
5. Schedule and conduct as soon as possible after the exercise, a critique to evaluate the ability of the participants of the exercise to perform as described in the plan and implementing procedures.

6. Establish means for evaluating the observer and participant comments on areas needing improvement, including changes to this plan and the EIPs, and for assigning responsibility for implementing corrective action.
7. Establish management controls to ensure that corrective actions are implemented.

13.3.7.1.2.2 Emergency Response Exercises

An emergency response exercise is conducted at least once every 2 years to demonstrate the effectiveness of the integrated onsite and offsite emergency plans. The exercise is conducted in accordance with NRC/FEMA rules and will include mobilization of State and local personnel and resources adequate to verify the capability to respond to a severe radiological emergency at RBS having offsite consequences. EOI will provide for a critique of the exercise by qualified observers/evaluators.

In alternate years, when an exercise is not scheduled, EOI conducts a drill that tests the major portions of the onsite emergency plan, procedures and emergency response facilities. State and local agencies are invited to participate to the extent that they wish, and at least partial participation by these agencies is anticipated. These "off-year" drills are conducted and critiqued in a similar manner as the biennial exercises.

The scenario will be varied so that all major elements of the plans and preparedness organizations are tested within a 8-yr period. Some elements may be demonstrated independent of the biennial exercise and will be evaluated and critiqued. EOI will make provisions to demonstrate unannounced augmentation capabilities between 6:00 p.m. and 4:00 A.M., once every 8 yrs. Exercises will be conducted under various simulated weather conditions in each 8 year period.

13.3.7.1.2.3 Emergency Response Drills

Emergency response drills are held periodically which involve appropriate offsite as well as onsite organizations. These drills are supervised instruction periods aimed at testing, developing, and maintaining skills in a particular area. Drills may be training evolutions, or may be evaluated by designated individuals, and are conducted simulating, as closely as practical, actual emergency conditions. Examples of drills that are conducted and their frequency are as follows:

1. Communication Tests

Communications with State and local governments within the plume exposure pathway EPZ are tested monthly. Communications with Federal emergency response organizations and states within the ingestion pathway are tested monthly. The HPN and ENS communication systems located in the respective RBS Emergency Response Facilities, and NRC Headquarters are tested monthly. Pagers used to activate the emergency response organization are tested at least quarterly.

2. Communication Drills

Communication drills between the RBS, the States of Louisiana and Mississippi, local EOCs, and station field assessment teams are conducted annually. These communications drills will include the aspect of understanding the content of simulated emergency messages.

3. Fire Drills

Fire drills are conducted in accordance with the River Bend Station Fire Protection Program.

4. Medical Emergency Drills

A medical emergency drill involving a simulated contaminated individual which contains provisions for participation by the local support services agencies (e.g., ambulance and offsite medical treatment facility) is conducted biennially for each local support agency. The medical drill may be performed independently or as part of a site drill or biennial exercise.

5. Radiological Monitoring Drills

Radiological monitoring drills shall be conducted annually, and will include the collection and analysis of sample media such as water, grass, soil, and air from the owner-controlled and nearby offsite areas. These samples will be collected by field monitoring teams.

6. Radiation Protection Drills

- a. Radiation protection drills which involve response to and preliminary analyses of simulated elevated airborne samples, as well as direct radiation measurements in the environment, shall be conducted semi-annually.

7. Owner Controlled Area Evacuation and Accountability Drill

An evacuation drill, of the Protected Area portion only, is conducted annually to ensure that Protected Area accountability can be performed in the required time.

The capability to notify personnel or members of the public outside the Protected Area fence of an owner controlled area evacuation will be demonstrated at least every six years to ensure notification can be performed within approximately 60 minutes.

8. Site Drills

The above drills may be scheduled such that a combination of drills is conducted simultaneously. Site Drill scenarios are prepared which require involvement of various emergency teams, organizations and facilities. Records are maintained of all emergency plan drills for at least five years.

13.3.7.2 Review and Updating the Emergency Plan and Emergency Implementing Procedures

The Emergency Plan and the EIPs are reviewed and updated annually by the Emergency Preparedness Manager. The review takes into account: the results of drills and exercises; changes in EOI, Louisiana, and Mississippi policy and plans; and various agreements with offsite agencies. Specific letters of agreement in support of the River Bend Station Emergency Plan will be verified annually as part of the review process. Proposed changes, except for editorial, to the Emergency Plan are reviewed by the On-Site Safety Review Committee (OSRC) to consider the impact of the changes on the plan, station policy, design, personnel, operational requirements, and various agreements with offsite agencies. Revisions to the Emergency Plan are signed and implemented by the Emergency Preparedness Manager. The Emergency Plan and EIP revision process is controlled by RBS procedures and complies with the provisions of 10 CFR 50.54 (q) and 10 CFR 50, Appendix E, paragraph V. Emergency Plan revisions and updated procedures are distributed by the administrative support group. Emergency Plan revisions are provided to LDEQ.

Familiarization with EIP changes will be accomplished using one, or a combination of the following:

- a. Operator and technical training sessions.
- b. Tabletop sessions.
- c. Required reading sheets, circulated to all affected personnel for significant changes.

The Emergency Telephone Book listing emergency telephone numbers is updated at least quarterly.

13.3.7.3 Emergency Equipment and Supplies

The Emergency Preparedness Manager is responsible for the inventory and inspection of designated emergency equipment and supplies. Emergency equipment and supplies and their locations are listed in Appendix E. Detailed listings of emergency equipment and supplies are contained in an implementing procedure. This equipment is inventoried, inspected, and operationally checked, at least quarterly and after each use. Portable radiation monitoring equipment included in these inventories is calibrated in accordance with approved procedures. Equipment, supplies, and parts having shelf lives are checked and replaced as necessary. Any deficiencies found are either cleared immediately or documented for corrective action.

The Emergency Preparedness Manager will assign personnel responsibility for correcting deficiencies.

13.3.8 Recovery

River Bend Station will respond to an emergency event by activating the appropriate level of the emergency organization. The Emergency Plant Manager or his designee will assess the conditions resulting from the emergency by observing monitoring instrumentation and evaluating information and data supplied by emergency teams. The Emergency Director will ensure that the total population exposure is periodically calculated in accordance with instructions in the Emergency Implementing Procedures (EIPs). As the actual or potential quantity of radioactive material released is significantly reduced, the Emergency Plant Manager may recommend the termination of the emergency classification, using accepted guidelines. When procedure guidelines for termination are met, the Emergency Director will terminate the emergency and update his recommendations for offsite radiological response. All emergency and support organizations shall be notified of the termination of the emergency and the initiation of the recovery organization.

The termination of the emergency and transition to the recovery organization can only be effected after plant conditions are stable and the probability of any adverse effect on the general public or damage to the plant has been substantially reduced. The Emergency Director has the responsibility to determine when the emergency situation is stable and entry into the recovery phase can commence.

Recovery operations, under the direction of the Emergency Director, will be directed at restoring River Bend Station to an operational status. Support for this effort may be located in both the TSC and EOF, and will consist of River Bend Station, other EOI, and contracted technical and construction personnel as needed. The basic structure of the Recovery Organization will be dependent on the nature of the accident, the post-accident conditions, and the nature and magnitude of the effort needed to maintain the plant in a safe condition and to restore the plant to pre-accident conditions. In the event that upon termination of the emergency, the plant is capable of routine operations within technical specifications, the Emergency Director in concert with the Emergency Plant Manager may effect the transition to the normal operating organization.

Guidelines for determining when the Site Area or General Emergency situation can be considered stable and the recovery organization can be established (if necessary) are as follows:

1. The reactor is shut down, is in a stable safe configuration and adequate core cooling is available.
2. Excessive releases of radioactivity to the environment have been terminated and no further potential for significant radioactivity releases exists.
3. Offsite concentrations of radioactivity in the atmosphere or in waterways have dispersed to near background levels, excluding ground deposition.
4. The State of Louisiana, the local Parishes and the NRC concur in terminating the emergency.

Following a determination that the emergency conditions no longer exist, the Emergency Director will notify and obtain the concurrence of the Emergency Plant Manager prior to disbanding the emergency organization. The Emergency Director is responsible for assuring that all emergency actions are complete and closed out and that the recovery organization is available, adequately staffed, and have been briefed on their responsibilities. The Manager, Radiation Protection as part of the Recovery Organization, will be responsible for ensuring that all radiological waste produced as a result of an accident at RBS is disposed of properly.

With the securing of emergency operations, an orderly evaluation of (1) the causes and effects of the emergency and (2) the measures necessary to place the station back into operation will commence. Personnel assigned by the RBS General Manager will conduct a limited investigation on the event cause. A detailed investigation on the event and emergency response will be conducted, as appropriate, by the Recovery Organization in cooperation with outside agencies such as the LDEQ, GOHSEP, MEMA, MSDH, and the NRC. The nuclear safety aspects of the event reports and procedures written for the investigation will be reviewed by the On-Site Safety Review Committee to reduce the probability of recurrence of the event.

Incidents will be reported in accordance with applicable regulations.

To the extent practical, the administrative controls imposed on normal operation will be maintained during the recovery phase. During recovery operations, the exposure limits specified in 10CFR20 will apply. Therefore, entry into radiation areas will be done only when accompanied by Radiation Protection personnel to ensure that radiation levels are at permissible levels. Continuous coverage by Radiation Protection personnel may be waived provided that personnel are adequately instructed in the specific radiological hazard associated with the work to be performed and that personnel entering the area are specifically trained in radiation monitoring techniques.

Plans and procedures for the recovery effort will be developed, as required, to handle the specific details of the accident.

Table 13.3-1
Emergency Action Level Initiating Conditions

RECOGNITION CATEGORY		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
Abnormal Rad Levels / Radiological Effluent	Radiological Effluents	AG1 Offsite dose resulting from an actual or IMMINENT release of gaseous radioactivity > 1000 mR TEDE or 5000 mR thyroid CDE for the actual or projected duration of the release using actual meteorology <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	AS1 Offsite dose resulting from an actual or IMMINENT release of gaseous radioactivity > 100 mR TEDE or 500 mR thyroid CDE for the actual or projected duration of the release <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	AA1 Any release of gaseous or liquid radioactivity to the environment > 200 times the ODCM limit for ≥ 15 minutes <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	AU1 Any release of gaseous or liquid radioactivity to the environment > 2 times the ODCM limit for ≥ 60 minutes <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>
	Abnormal Rad Levels			AA2 Damage to irradiated fuel or loss of water level that has resulted or will result in the uncovering of irradiated fuel outside the reactor vessel <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	AU2 UNPLANNED rise in plant radiation levels <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>
				AA3 Rise in radiation levels within the facility that impedes operation of systems required to maintain plant safety functions <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	

Table 13.3-1
Emergency Action Level Initiating Conditions

RECOGNITION CATEGORY		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
Fission Product Barrier Degradation	FPB Loss / Potential Loss	FG1 Loss of ANY two barriers AND loss or potential loss of the third barrier. <i>Op Mode: 1, 2, 3</i>	FS1 Loss or potential loss of ANY two barriers <i>Op Mode: 1, 2, 3</i>	FA1 ANY loss or ANY potential loss of EITHER fuel clad or RCS <i>Op Mode: 1, 2, 3</i>	FU1 ANY loss or ANY potential loss of containment <i>Op Mode: 1, 2, 3</i>
	Security Events	HG1 HOSTILE ACTION resulting in loss of physical control of the facility <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	HS1 HOSTILE ACTION within the PROTECTED AREA <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	HA1 HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	HU1 Confirmed SECURITY CONDITION or threat which indicates a potential degradation in the level of safety of the plant <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>
Hazards and Other Conditions Affecting Plant Safety	Security Events				
	Security Events				

Table 13.3-1
Emergency Action Level Initiating Conditions

RECOGNITION CATEGORY		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
Hazards and Other Conditions Affecting Plant Safety	Discretionary	HG2 Other conditions exist which in the judgment of the Emergency Director warrant declaration of a GENERAL EMERGENCY <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	HS2 Other conditions exist which in the judgment of the Emergency Director warrant declaration of a SITE AREA EMERGENCY <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	HA2 Other conditions exist which in the judgment of the Emergency Director warrant declaration of an ALERT. <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	HU2 Other conditions exist which in the judgment of the Emergency Director warrant declaration of a NOUE <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>
	Control Room Evacuation		HS3 Control Room evacuation has been initiated and plant control cannot be established <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	HA3 Control Room evacuation has been initiated <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	
	Fire			HA4 FIRE or EXPLOSION affecting the operability of plant safety systems required to establish or maintain safe shutdown <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	HU4 FIRE within PROTECTED AREA boundary not extinguished within 15 minutes of detection or EXPLOSION within the PROTECTED AREA <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>

Table 13.3-1
Emergency Action Level Initiating Conditions

RECOGNITION CATEGORY		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
Hazards and Other Conditions Affecting Plant Safety	Toxic or Flammable gases			HA5 Access to a VITAL AREA is prohibited due to toxic, corrosive, asphyxiant or flammable gases which jeopardize operation of operable equipment required to maintain safe operations or safely shutdown the reactor <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	HU5 Release of toxic, corrosive, asphyxiant or flammable gases deemed detrimental to NORMAL PLANT OPERATIONS <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>
	Natural Phenomena			HA6 Natural or destructive phenomena affecting VITAL AREAS <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>	HU6 Natural or destructive phenomena affecting the PROTECTED AREA <i>Op Mode: 1, 2, 3, 4, 5, DEFUELED</i>
System Malfunction	Loss of AC Power	SG1 Prolonged loss of all offsite and all onsite AC power to emergency busses <i>Op Mode: 1, 2, 3</i>	SS1 Loss of all offsite and all onsite AC power to emergency busses for ≥ 15 minutes <i>Op Mode: 1, 2, 3</i>	SA1 AC power capability to emergency busses reduced to a single power source for ≥ 15 minutes such that any additional single failure would result in station blackout <i>Op Mode: 1, 2, 3</i>	SU1 Loss of all offsite AC power to emergency busses for ≥ 15 minutes <i>Op Mode: 1, 2, 3</i>

Table 13.3-1
Emergency Action Level Initiating Conditions

RECOGNITION CATEGORY		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
System Malfunction	Failure of Reactor Protection System	SG3 Automatic scram and all manual actions fail to shutdown the reactor and indication of an extreme challenge to the ability to cool the core exists <i>Op Mode: 1, 2</i>	SS3 Automatic scram fails to shutdown the reactor and the manual actions taken from the reactor control console are not successful in shutting down the reactor <i>Op Mode: 1, 2</i>	SA3 Automatic scram fails to shutdown the reactor and the manual actions taken from the reactor control console are successful in shutting down the reactor <i>Op Mode: 1, 2</i>	
	Loss of DC Power		SS4 Loss of all vital DC power for \geq 15 minutes <i>Op Mode: 1, 2, 3</i>		
	Loss of Decay				

Table 13.3-1
Emergency Action Level Initiating Conditions

RECOGNITION CATEGORY		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
System Malfunction	Loss of Annunciators / Indication		SS6 Inability to monitor a SIGNIFICANT TRANSIENT in progress <i>Op Mode: 1, 2, 3</i>	SA6 UNPLANNED loss of safety system annunciation or indication in the control room with either (1) a SIGNIFICANT TRANSIENT in progress, or (2) compensatory non-alarming indicators are not available <i>Op Mode: 1, 2, 3</i>	SU6 UNPLANNED loss of safety system annunciation or indication in the Control Room for ≥ 15 minutes <i>Op Mode: 1, 2, 3</i>
	RCS Leakage				SU7 RCS leakage <i>Op Mode: 1, 2, 3</i>
	Loss of Communication				SU8 Loss of all onsite or offsite communications capabilities. <i>Op Mode: 1, 2, 3</i>
	Cladding Degradation				SU9 Fuel clad degradation <i>Op Mode: 1, 2, 3</i>
	Inadvertent Criticality				SU10 Inadvertent criticality <i>Op Mode: 3</i>

Table 13.3-1
Emergency Action Level Initiating Conditions

RECOGNITION CATEGORY		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
System Malfunction	TS LCO Limit Exceeded				SU11 Inability to reach required operating mode within Technical Specification limits <i>Op Mode: 1, 2, 3</i>
Cold Shutdown / Refueling	RCS Leakage	CG1 Loss of RCS/RPV inventory affecting fuel clad integrity with containment challenged <i>Op Mode: 4, 5</i>	CS1 Loss of RCS/RPV inventory affecting core decay heat removal capability <i>Op Mode: 4, 5</i>	CA1 Loss of RCS/RPV inventory <i>Op Mode: 4, 5</i>	CU1 RCS leakage <i>Op Mode: 4</i>
	Loss of RCS Inventory				CU2 UNPLANNED loss of RCS/RPV inventory <i>Op Mode: 5</i>
	Loss of Decay Heat Removal			CA3 Inability to maintain plant in cold shutdown <i>Op Mode: 4, 5</i>	CU3 UNPLANNED loss of decay heat removal capability with irradiated fuel in the RPV <i>Op Mode: 4, 5</i>

Table 13.3-1
Emergency Action Level Initiating Conditions

RECOGNITION CATEGORY		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
Cold Shutdown / Refueling	Loss of AC Power			CA5 Loss of all offsite and all onsite AC power to emergency busses for ≥ 15 minutes <i>Op Mode: 4, 5, Defueled</i>	CU5 AC power capability to emergency busses reduced to a single power source for ≥ 15 minutes such that any additional single failure would result in station blackout <i>Op Mode: 4, 5</i>
	Loss of DC Power				CU6 Loss of required DC power for ≥ 15 minutes <i>Op Mode: 4, 5</i>
	Inadvertent Criticality				CU7 Inadvertent criticality <i>Op Mode: 4, 5</i>
	Loss of Communication				CU8 Loss of all onsite or offsite communications capabilities <i>Op Mode: 4, 5, Defueled</i>

RBS – EP

Table 13.3-1
Emergency Action Level Initiating Conditions

RECOGNITION CATEGORY		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	NOUE
ISFSI	Confinement Boundary Damage				E-HU1 Damage to a loaded cask CONFINEMENT BOUNDARY <i>Op Mode: All</i>

Table 13.3-2

USAR Postulated Accidents and Related Emergency Classification

<u>USAR Accident</u>	<u>Gamma Deep Dose Equivalent at EAB (rem)</u> ⁽¹⁾	<u>Thyroid Committed Dose Equivalent at EAB (rem)</u> ⁽¹⁾	<u>Total Effective Dose Equivalent at EAB (TEDE) (rem)</u> ⁽¹⁾⁽³⁾	<u>Classification (Likely)</u> ⁽⁴⁾
Control rod drop accident (Limited CRDA)	(2)	(2)	1.0 (4.9)	Alert
Steam line break outside containment	(2)	(2)	1.4	Site Area Emergency
Loss of coolant accident	(2)	(2)	17.8	General Emergency
Offgas system failure	1.3 ⁽²⁾	Negligible ⁽²⁾		Site Area Emergency
Radioactive liquid waste system leak or failure (release to the atmosphere)	0.0040 ⁽²⁾	5.1 ⁽²⁾		Alert
Fuel handling accident in fuel building	(2)	(2)	2.6	Site Area Emergency

⁽¹⁾ These doses are taken from the Radiological Analyses presented in Chapter 15 of the USAR.

⁽²⁾ Not analyzed in AST

⁽³⁾ Analyzed in AST

⁽⁴⁾ This is the likely classification based on event classification and not on the maximum dose projection values listed. The actual classification will be based on actual conditions during the accident per EIP-2-001.

EAB is exclusion area boundary

Table 13.3-3

Accident Assessment Techniques

<u>Accident Description</u>	<u>Estimated Concentrations in Building Ventilation Systems $\mu\text{Ci/cc}^{(1)}$ unless otherwise noted</u>	<u>Applicable Monitors</u>
<u>Reactor Building</u>		<u>Reactor Building</u>
Design basis LOCA (100% fuel inventory)	2E+01 (noble gas) ⁽²⁾ 2E-01 (halogens) 7E+05 R/hr (all isotopes) ⁽³⁾	Main Plant Exhaust Duct ⁽⁶⁾ (1RMS*RE125) Reactor Building Containment PAMS (1RMS*RE16A, 16B) ⁽⁶⁾
Degraded ECCS operation (10% fuel inventory)	4E+04 R/hr (all isotopes) ⁽³⁾ 7E+07 mR/hr (all isotopes) ⁽³⁾	Drywell PAMS A&B ⁽⁶⁾ (1RMS*RE20A, 20B) Containment Purge Isolation A&B ⁽⁶⁾ (1RMS*RE21A, 21B)
Degraded ECCS operation (1% fuel inventory)	4E+00 (noble gas) 2E+00 (halogens) 2E-01 (noble gas) ⁽²⁾ 2E-03 (halogens)	Reactor Building Annulus Ventilation A&B (1RMS*RE11A, 11B) Main Plant Exhaust Duct (1RMS-RE126)
Cladding perforation releasing 100% gap activity	2E+02 (noble gas) ⁽²⁾ 3E+02 (halogens) 2E+03 (noble gas) ⁽³⁾ 3E+03 (halogens)	Containment Atmosphere (1RMS*RE111) Drywell Atmosphere (1RMS*RE112)

Table 13.3-3

Accident Assessment Techniques (Continued)

<u>Accident Description</u>	Estimated Concentrations in Building Ventilation Systems $\mu\text{Ci/cc}^{(1)}$ unless otherwise noted	<u>Applicable Monitors</u>
ECCS operating satisfactorily 100% coolant activity	4E-07 (noble gas) ⁽²⁾ 1E-07 (halogens)	Standby Gas Treatment System Effluent (1RMS*RE103)
	2E-04 (noble gas) ⁽³⁾ 4E-03 (halogens)	Containment Purge (1RMS*RE116)
<u>Fuel Building</u>		<u>Fuel Building</u>
Design Basis Fuel Handling Accident	3E+00 (noble gas) 4E-02 (halogens) ⁽⁴⁾	Fuel Building Vent Exhaust ⁽⁶⁾ (1RMS*RE5A and *RE 5B)
<u>Turbine Building</u>		<u>Turbine Building</u>
Design Basis Control Rod Drop Accident	3E-05 (noble gas) 3E-07 (halogens)	Turbine Building Ventilation (1RMS-RE118) (including condensate demineralizer area)
Design Basis Main Steam Line Break	1E-05 (noble gas) 4E-02 (halogens)	Turbine Building Ventilation (1RMS-RE118)
<u>Cond/Demin + Offgas Bldg.</u>		<u>Cond/Demin + Offgas Bldg.</u>
Design Basis Main Condenser Gas Treatment System Failure	4E+00 (noble gas) 9E-05 (halogens)	Offgas Bldg. Ventilation (1RMS-RE124) Main Plant Exhaust Duct ⁽⁶⁾ (1RMS*RE125 and 1RMS-RE126)

Table 13.3-3

Accident Assessment Techniques (Continued)

<u>Accident Description</u>	<u>Estimated Concentrations in Building Ventilation Systems $\mu\text{Ci/cc}^{(1)}$ unless otherwise noted</u>	<u>Applicable Monitors</u>
<u>Radwaste Building</u>		<u>Radwaste Building</u>
Design Basis Liquid Radwaste	1E-06 (noble gas) ⁽⁵⁾ 1E-03 (halogens)	Radwaste Bldg. Vent. Exhaust (1RMS-RE6A and RE6B)

(1) Concentration in main exhaust duct will be lower due to dilution.

(2) Values for ventilation systems downstream of the standby gas treatment system filters.

(3) Values for containment radiation level.

(4) Values for ventilation system downstream of Seismic Category I filter trains.

(5) Noble gas contribution from accident is negligible. Values reflect normal release.

(6) These monitors are nuclear safety grade monitors which are qualified to post-LOCA environmental conditions.

(7) Table information is from Calculation PR-c-422.

Table 13.3-7

ASSESSMENT ACTIONS

<u>Action</u>	<u>Description</u>
Surveillance of Main Control Room Instrumentation	The radiation level, pressure, temperature, level, and flow data are monitored. The Main Control Room operators can assess plant status by observing sensor readout. Most sensors have visual and audio alarms. Data will be provided to the Emergency Director as necessary for his assessment. Main Control Room operators will take corrective actions as necessary.
Personnel Accountability	A head count of all personnel onsite is made by the emergency organization. Security log-in sheets and personnel rosters will assist in this assessment.
In-plant Radiological Surveys	The radiation monitoring teams will perform these surveys. The radiation levels on the plant's area and process monitoring systems can be obtained from the TSC, OSC, or Main Control Room to assist in these surveys. Surveys of equipment and personnel for contamination are done with portable equipment from the emergency lockers or other devices used routinely.
Onsite Surveys	Surveys conducted by the radiation monitoring teams.
Offsite Consequence Assessment	The radiological assessment personnel will be using effluent monitors and meteorological data to make assessments of offsite consequences. Offsite radiation monitoring teams will report survey results to validate calculations as time permits.
Environmental Monitoring	For less immediate actions, samples of various environmental media are collected and analyzed by LDEQ, MSDH/DRH, and River Bend Station Personnel.
Assessment Reporting	In the case of offsite consequences, Federal, State, and local agencies are immediately notified in accordance with the Emergency Plan. Predetermined criteria, including a declared General Emergency, are used to initiate various protective actions for the public by the local parishes.
Detailed assessment actions procedures are described in the Emergency Implementing Procedures for various emergency classifications (see Appendix F).	

Table 13.3-9

Alternate Radiological Laboratory Facilities

<u>Laboratory Facility</u>	<u>Type of Laboratory</u>	<u>Functional Applicability</u>
Teledyne Brown Engineering	Environmental	Radiological analysis of environmental samples
Entergy Operations, Inc. Waterford 3 SES Taft, Louisiana	Chemistry and Radiological	Chemistry Lab, equipped for chemical and radiological analysis
Entergy Operations, Inc. Grand Gulf Nuclear Station Port Gibson, Mississippi	Chemistry and Radiological	Chemistry Lab, equipped for chemical and radiological analysis

Table 13.3-10

EXPOSURE CRITERIA FOR EMERGENCY WORKERS

<u>Situation</u>	Total Effective Dose Equivalent (TEDE) (rem)	Committed Dose Equivalent (CDE) Thyroid (rem)	Extremity (rem)
Pre-planned emergency actions not related to lifesaving or protecting the public	5	50 ¹	50
Immediate actions to prevent extensive equipment damage, further escape of radioactivity or to control fires	10	100	100
To save a life or prevent conditions that could injure large populations	25 ²	NO LIMIT ³	NO LIMIT ³
Personnel Contamination Limits ⁴	<u>Beta-Gamma</u> 1000 dpm per probe	<u>Alpha</u> 20 dpm per probe	

1. Administration of stable Iodine should be considered when the thyroid dose exceeds 5 REM (CDE).
2. Up to 75 REM (TEDE) may be authorized for rescue workers who are volunteers and who are aware of the risks involved.
3. Although respirators should be used where effective to control the dose to emergency team workers, thyroid or extremity dose should not be a limiting factor for lifesaving activities; however, an attempt should be made to limit thyroid and extremity doses to 10 times the TEDE.
4. If individuals cannot be decontaminated below these levels, the Radiological Coordinator shall determine what actions will be taken.

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TABLE 13.3-17

SHIFT STAFFING AND AUGMENTATION CAPABILITIES

Major Functional Area	Emergency Tasks	Position Title Or Expertise	Location	On Shift (h)	Capability for Additions
					90 Min
Plant Operations and Assessment of Operational Aspects	Emergency Direction and Control	Shift Manager (SRO)	CR	1	--
		Emergency Plant Manager	TSC	--	1 (e)
		Control Room Supervisor (SRO)	CR	1	--
		Nuclear Control Operator (RO)	CR	2	--
		Nuclear Equipment Operator	CR	6 (k)	
	Firefighting, firefighting communications	Fire Brigade (NEOs, other)	CR	5 (a,m)	Provided by offsite fire department personnel
	Technical Support and Core/Thermal Hydraulics (d)	Shift Technical Advisor	CR	1 (c)	--
	Core/Thermal Hydraulics	Reactor Engineer	TSC	--	1 (e)
Notification/Communication	Offsite Notifications (State, Local, Federal) and maintain communications, Notification of plant On-Call emergency personnel	Nuclear Equipment Operator or Nuclear Control Operator	CR	1 (l)	
		TSC/CR Communicator OR Offsite Communicator OR ENS Communicator	CR/TSC/EOF	--	3 (e)
Radiological Accident Assessment and Support of Operational Accident Assessment	EOF Direction and Control	Emergency Director	EOF	--	1 (e)
	Offsite Dose Assessment	Shift Personnel (Operations or Chemistry)	CR	1 (a)	--
		Radiological Assessment Coordinator OR Dose Assessor	TSC/EOF	--	3 (e)
	Chemistry/Radio-Chemistry	Chemistry Technician	CR/OSC	1	3
Plant System Engineering	Technical Support (f)	Electrical/I&C Engineer OR Mechanical Engineer OR Engineering Coordinator OR TSC Manager OR Operations Coordinator OR EOF Manager OR EOF Communicator OR EOF Technical Advisor	TSC/EOF	--	6
Repair and Corrective Actions		Radwaste Operator	OSC	1 (a)	--
		Electrical Maintenance			2
		I&C Maintenance	OSC	2 (i)	2
		Mechanical Maintenance			2

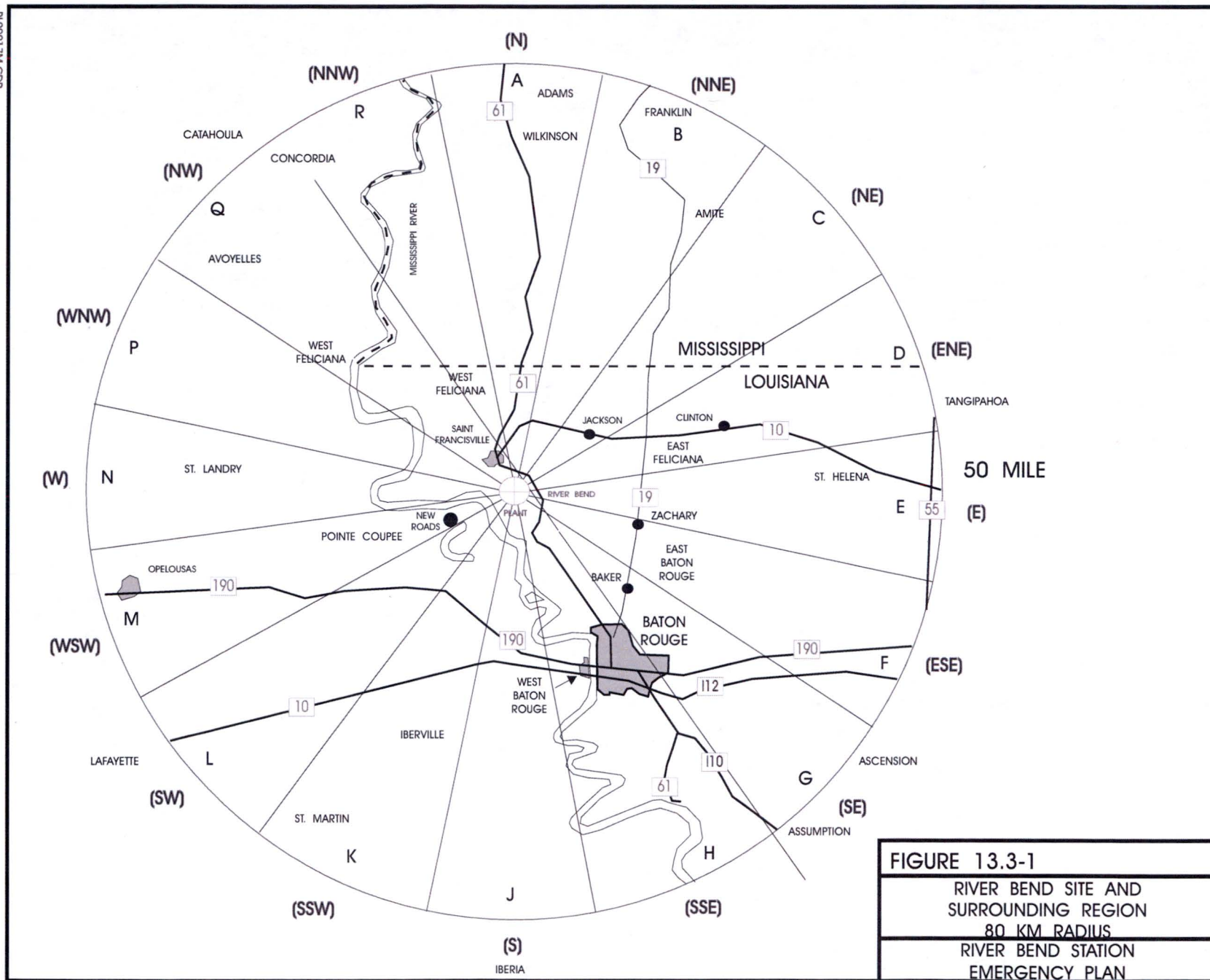
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TABLE 13.3-17

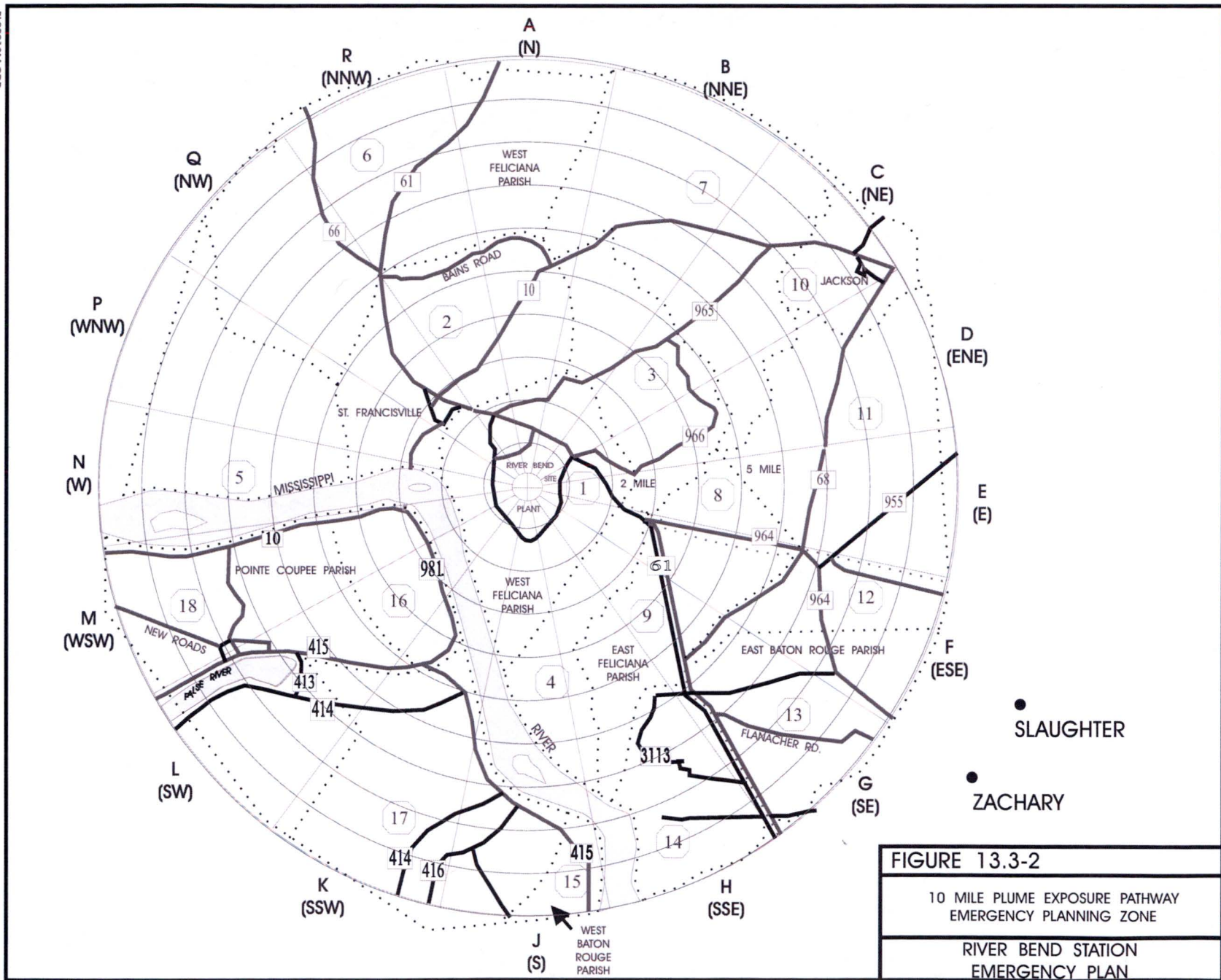
SHIFT STAFFING AND AUGMENTATION CAPABILITIES

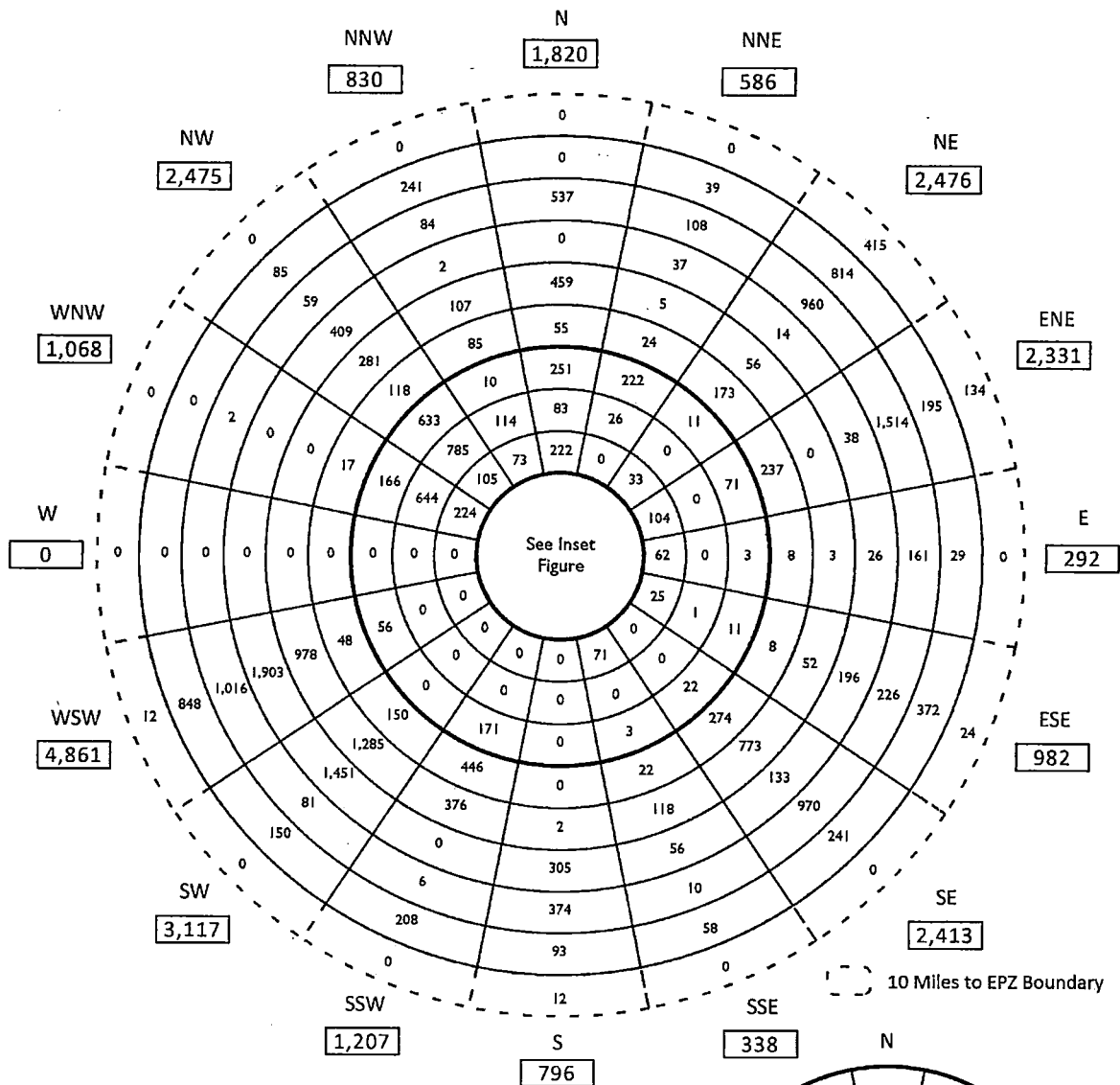
Major Functional Area	Emergency Tasks	Position Title or Expertise	Location	On Shift (h)	Capability for Additions
					90 Min
Radiation Protection	-Access Control -HP coverage for repair, corrective actions, search and rescue, first-aid, and fire fighting -Personnel monitoring -Dosimetry -Surveys (offsite, onsite, and in-plant surveys on as-needed basis only)	Radiation Protection Technician	OSC	2	11(b) (g) (j)
Rescue / First aid		First Responders	OSC	2 (a)	Provided by support hospitals
Security	Security, personnel accountability	Security Personnel			(See Security Plan)

Notes:

- (a) May be provided by Shift Personnel assigned other duties.
- (b) Must be trained for the Emergency Task being performed.
- (c) STA staffing in accordance with River Bend Station Technical Requirements Manual.
- (d) Core/Thermal Hydraulics is part of normal STA duties as listed in the Updated Final Safety Analysis Report and Technical Specifications.
- (e) These personnel will report and augment shift personnel in 75 minutes (45 minutes if onsite).
- (f) Includes Sr. Engineering expertise and Sr. Operations personnel.
- (g) In addition to HP coverage provided by the radiation protection staff, Chemistry and Operations personnel are trained in the use of portable survey instruments.
- (h) These ERO positions may be vacant for not more than 2 hours, in order to provide for unexpected absences, provided action is taken to fill the required position. This allowance is not applicable during declared emergencies.
- (i) Electrical/I&C are trained in valve manipulation for basic mechanical tasks. Mechanical Maintenance personnel are trained in basic electrical/I&C tasks. The personnel on shift may be any combination of the three maintenance disciplines.
- (j) Two RP Technicians will report as offsite team members in 75 minutes.
- (k) At least one is communicator qualified.
- (l) Must be qualified as Communicator.
- (m) May be filled by non-operations personnel with Fire Brigade qualification. This change to the staffing table is based upon the On-Shift ERO Staffing Assessment that was completed in accordance with 10 CFR 50 Appendix E Section IV.A.9 and documented in the River Bend Station On-Shift Staffing Analysis Final Report Rev. 0.
River Bend Station On-Shift Staffing Analysis Final Report Rev 1 documents dual role OSM/STA in accordance with River Bend Station Technical Requirements Manual

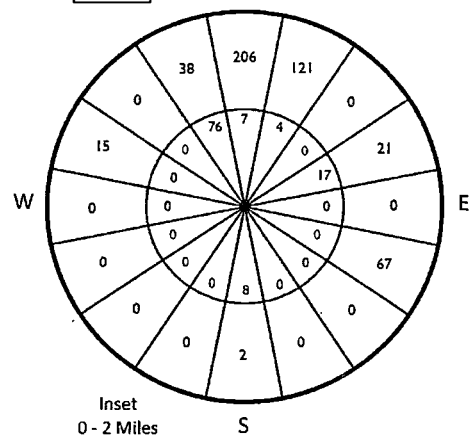






Resident Population

Miles	Subtotal by Ring	Cumulative Total
0 - 1	112	112
1 - 2	470	582
2 - 3	919	1,501
3 - 4	1,653	3,154
4 - 5	1,630	4,784
5 - 6	1,665	6,449
6 - 7	4,495	10,944
7 - 8	4,570	15,514
8 - 9	6,108	21,622
9 - 10	3,373	24,995
10 - EPZ	597	25,592
Total:		25,592

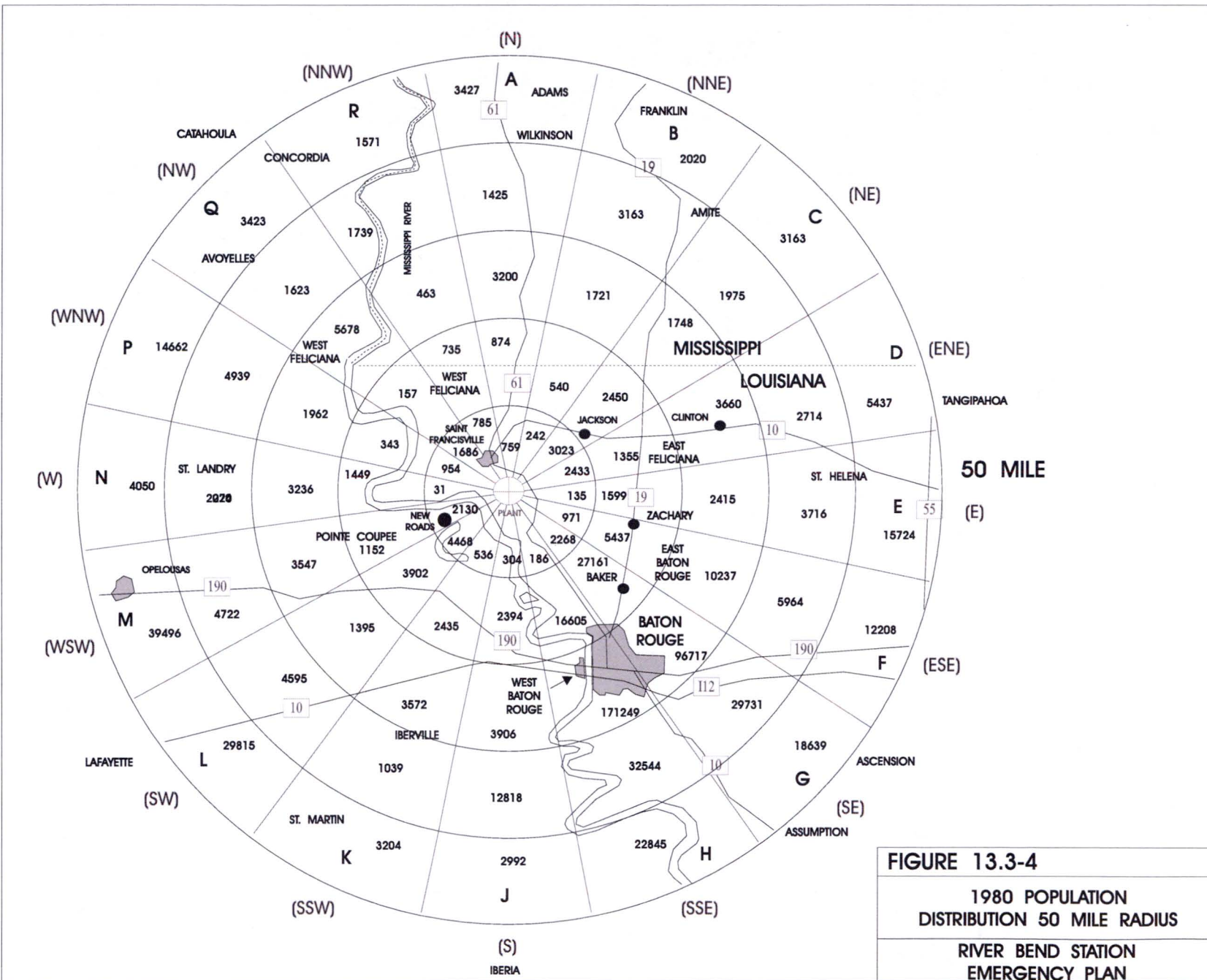


Population estimated from 2010 Census Data

FIGURE 13.3-3
2010 POPULATION DISTRIBUTION 10 MILE RADIUS RIVER BEND STATION EMERGENCY PLAN

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ONSITE		Emergency Operations Facility		OFF SITE
Main Control Room	Technical Support Center	Operations Support Center	Primary Access Point	Recovery Operations & Offsite Coordination
				Joint Information Center

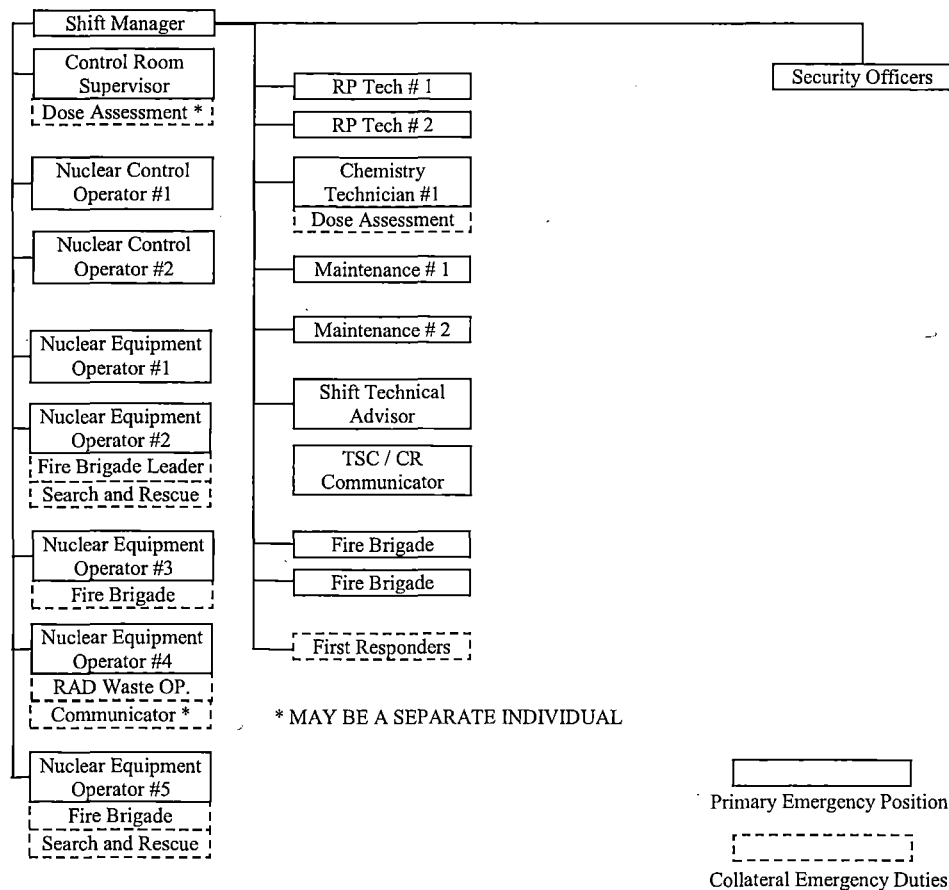
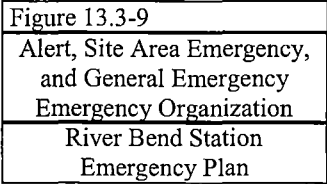
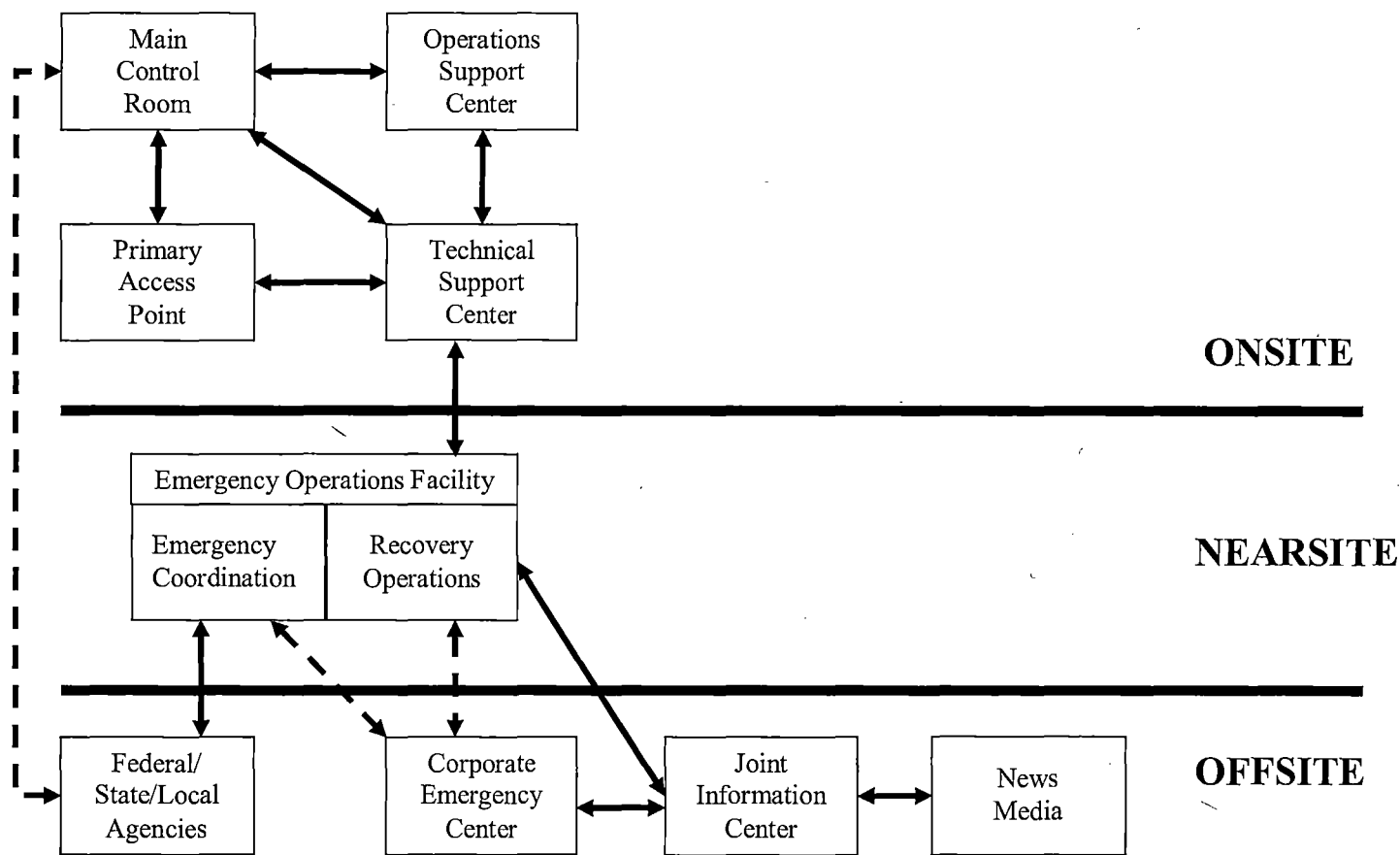


Figure 13.3-7
Notification Of Unusual Event
Emergency Organization
River Bend Station
Emergency Plan





NOTE:
Dotted lines indicate interaction during initial phase
and Notification of Unusual Event emergency

FIGURE 13.3-18
River Bend Station Emergency Response Facilities
River Bend Station Emergency Plan

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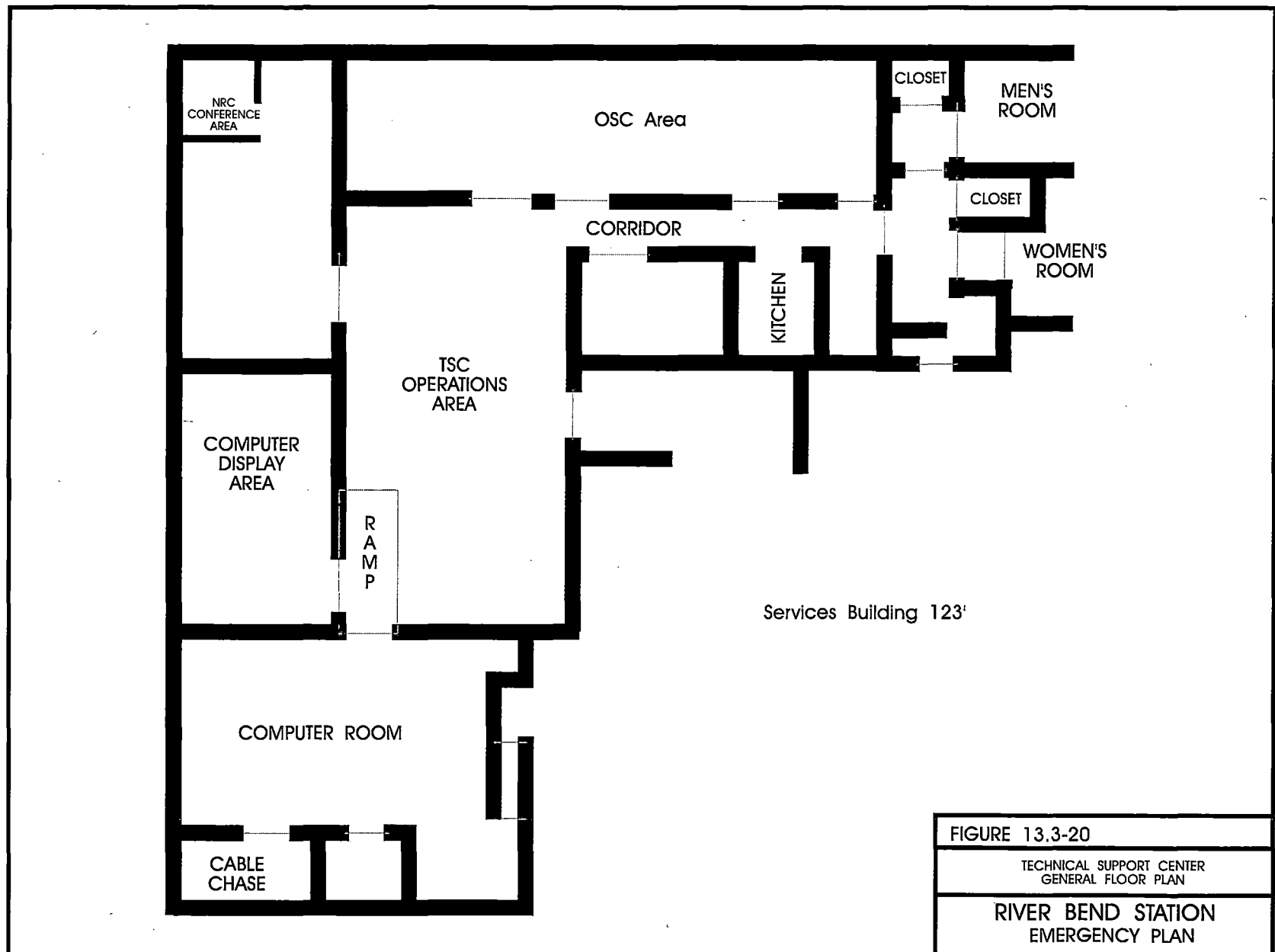
	Control Room	OSC	TSC	EOF	JIC	CAS	PAP/SAS	WF Sheriff / 911	WF EOC	EF EOC	PC EOC	EBR EOC	WBR EOC	LDEQ	GOHSEP	MEMA	MHSP	Alt. EOF	EOI Jackson	WF Hospital	LOL Hospital	NRC HDQRS	NRC Region IV	RP Office	Chem. Hot Lab
Control Room – TSC Hotline	●		●																						
Emergency Shutdown Hotline	●	●	●																					●	●
Security Hotline						●	●	●																	
Corporate Hotline			●	●														●	●						
CR-TSC-OSC-EOF Hotline (Onsite Hotline)	●	●	●	●																					
NRC Onsite Hotline			●	●																					
InForm (Pri. Notification Sys.)	●		●	●	●			●	●	●	●	●	●	●	●	●	●	●							
State & Local Hotline (Alt. Notification Sys.)	●		●	●				●	●	●	●	●	●	●	●	●	●	●							
Hospital Hotline	●		●	●																●	●				
NRC Health Physics Network			●	●																		●	●		
NRC Emergency Notification System	●		●	●																		●	●		
Commercial Phone – St. Francisville Direct	●																								
Commercial Phone – Baton Rouge Direct	●																								
EOI Telephone – RBS CBX	●	●	●	●	●	●	●											●	●						
Status Phone (CR/TSC Communicator)	●		●	●																					
Facsimile Service			●	●	●				●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
RBS Operations Radio	●		●	●		●	●																		
RBS Security Radio	●		●	●		●	●																		
Local Parish Radio (Backup Notifications)	●		●	●		●	●	●	●	●	●	●	●	●	●			●							
Prompt Notification System (Sirens)	●			●					●	●	●	●						●							
Radiation Team Radio			●	●														●							
LDEQ Radio				●										●											
Control Room – Security Ring Down	●					●	●																		

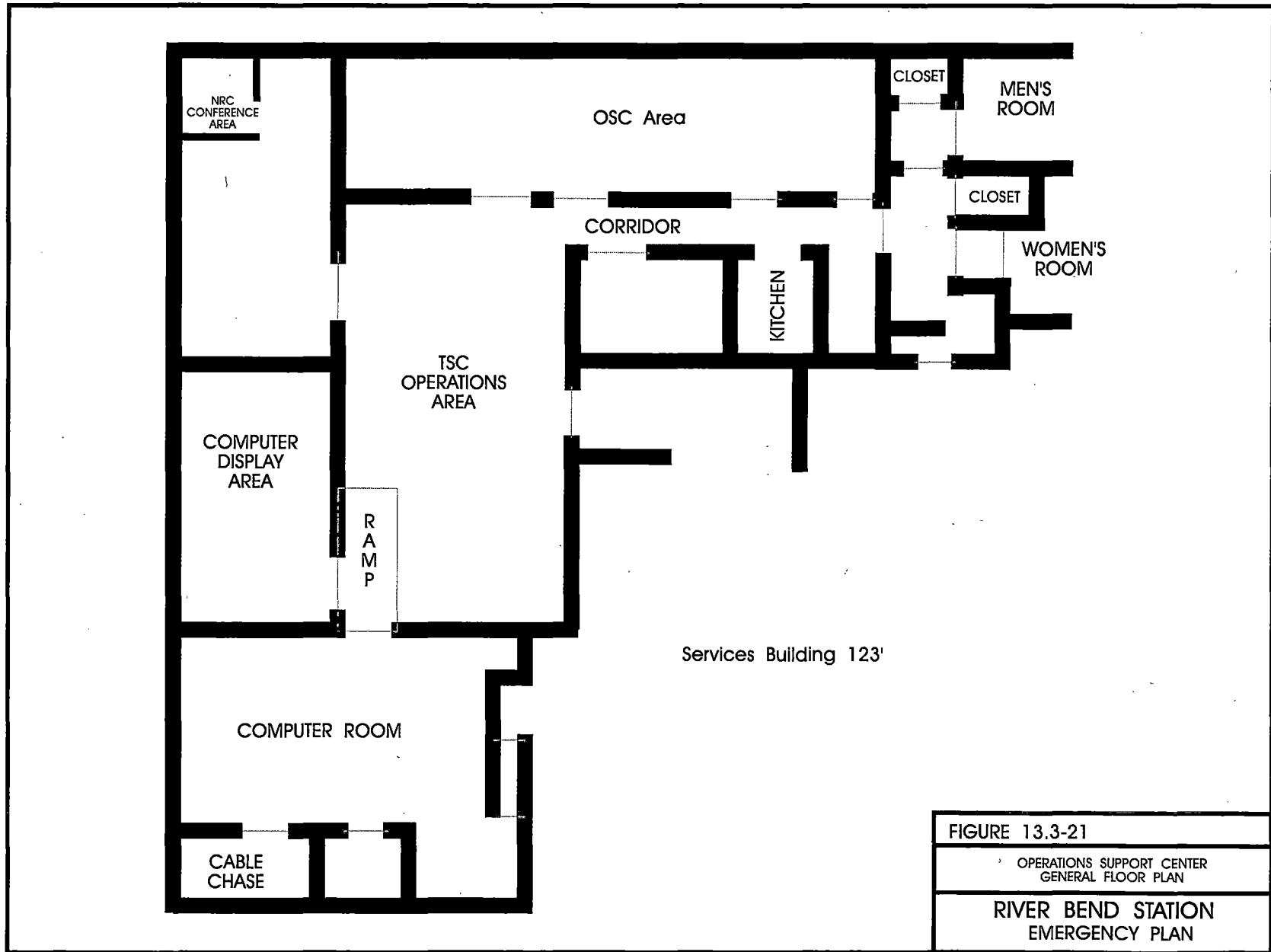
- Legend
- = Location has indicated service
- ◆ = Printer Only

FIGURE 13.3-19

River Bend Station
Communications System

River Bend Station
Emergency Plan





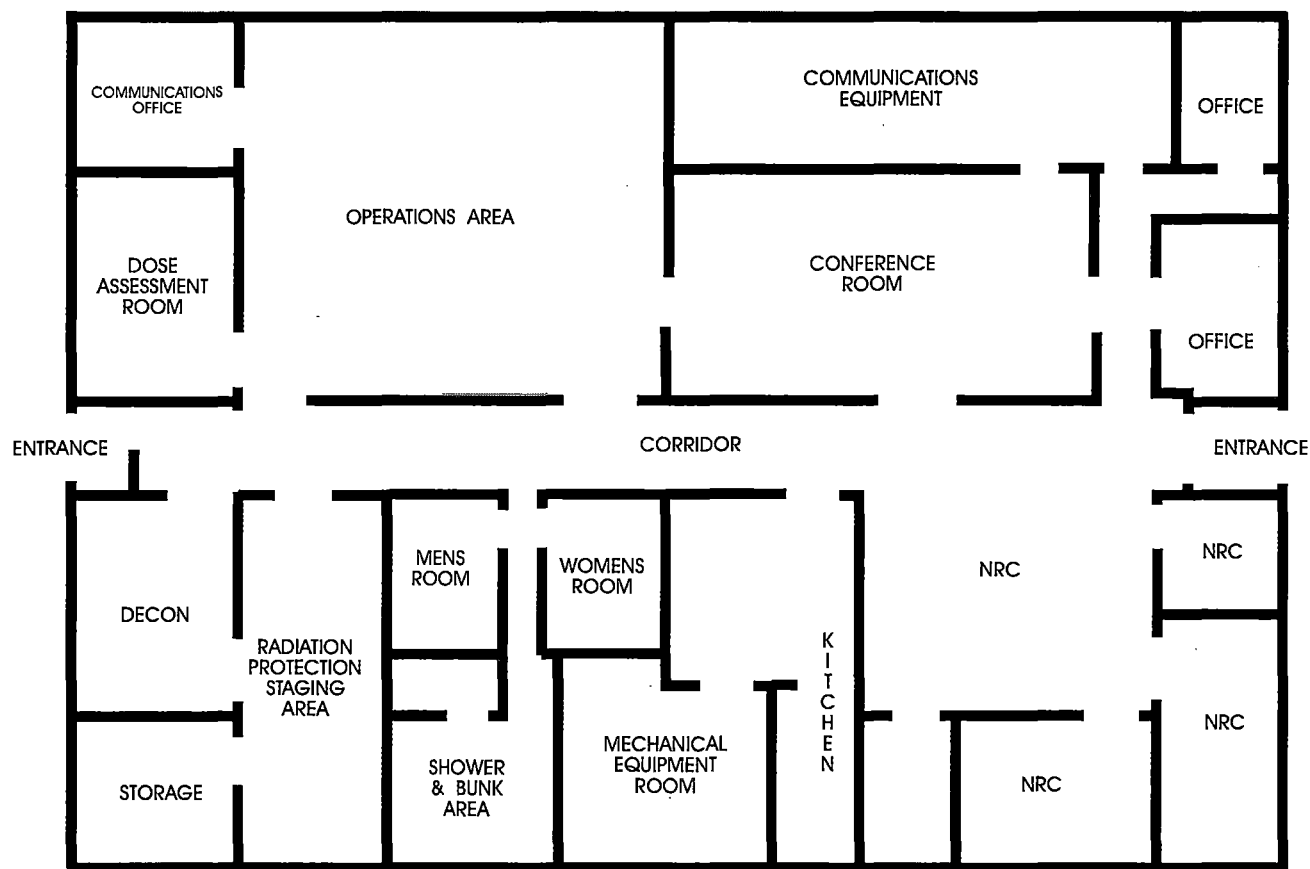
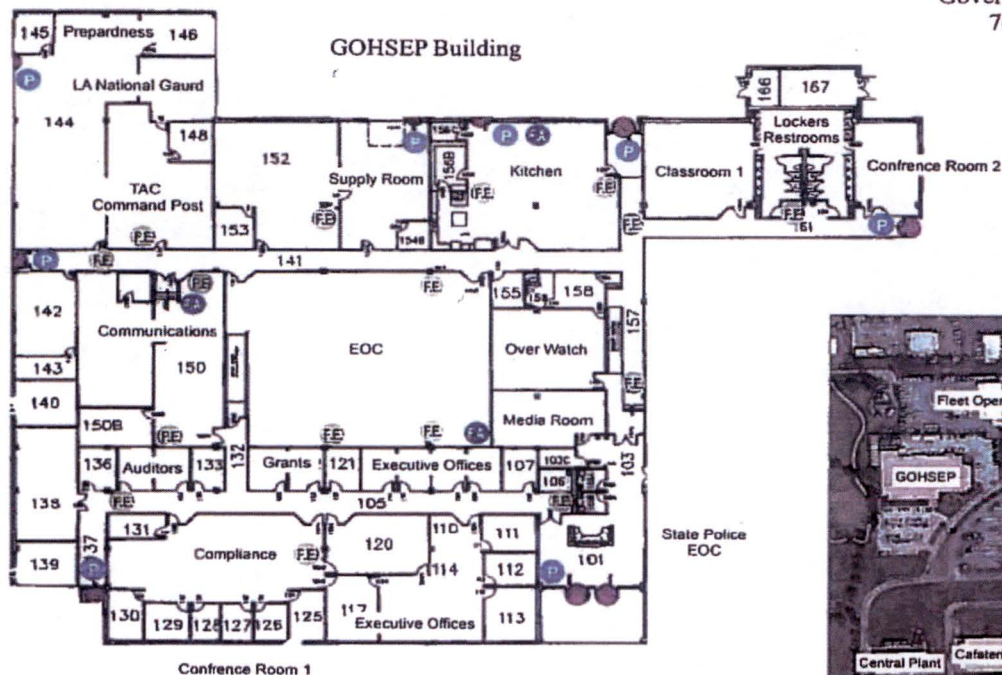


FIGURE 13.3-22

EMERGENCY OPERATIONS FACILITY
GENERAL FLOOR PLAN

RIVER BEND STATION
EMERGENCY PLAN

Incident
Bunkers



Created by GOHSEP 3/15/2013

Governor's Office of Home Land Security and Preparedness
7667 Independence Blv. Baton Rouge, LA 70806
(225) 925-7500



State Police Compound



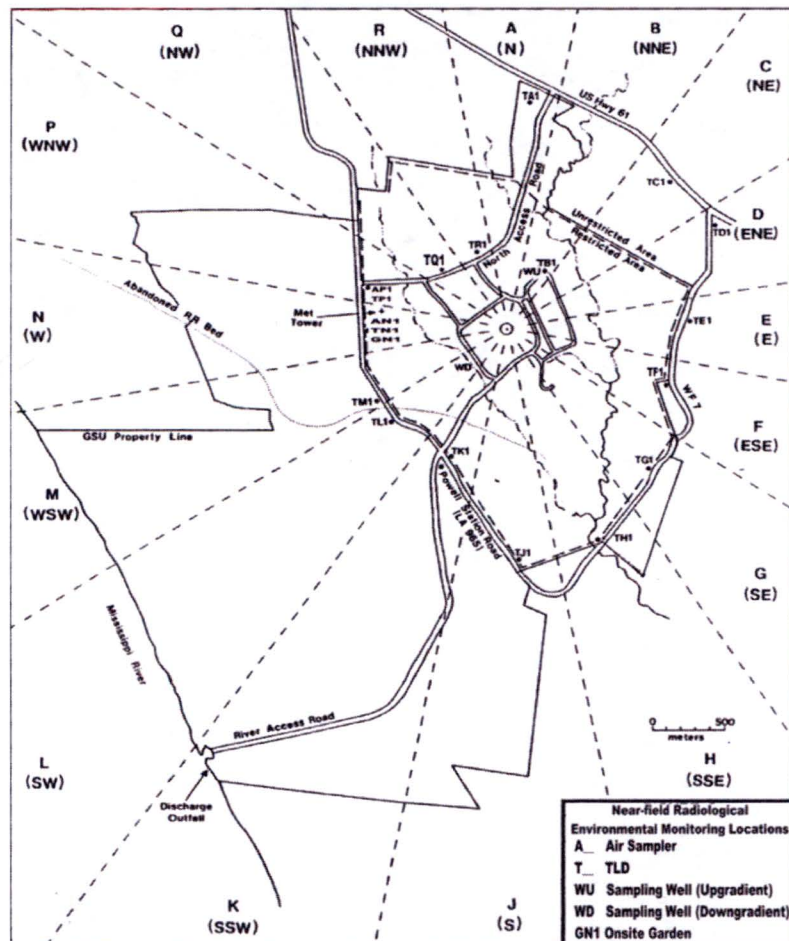
FIGURE 13.3-23

JOINT INFORMATION CENTER
GENERAL FLOOR PLAN

RIVER BEND STATION
EMERGENCY PLAN

REVISION 43

November 2017



REFER TO THE ODCM FOR ENLARGED MAPS

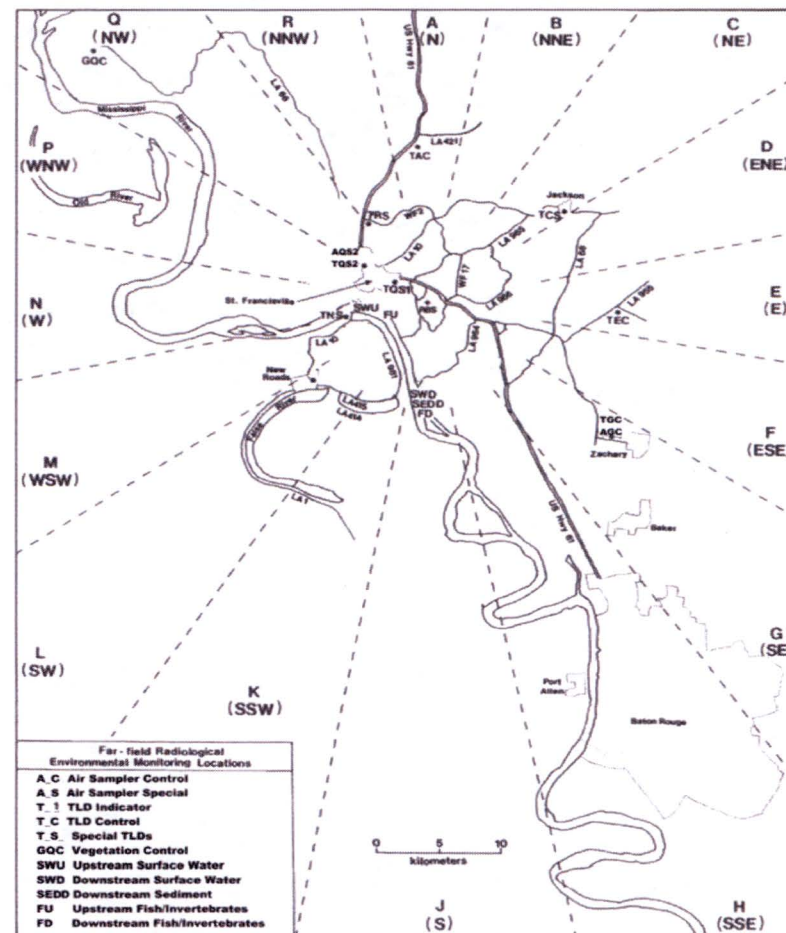


FIGURE 13.3-24

**RADIOLOGICAL ENVIRONMENTAL
MONITOR LOCATIONS
RIVER BEND STATION
EMERGENCY PLAN**

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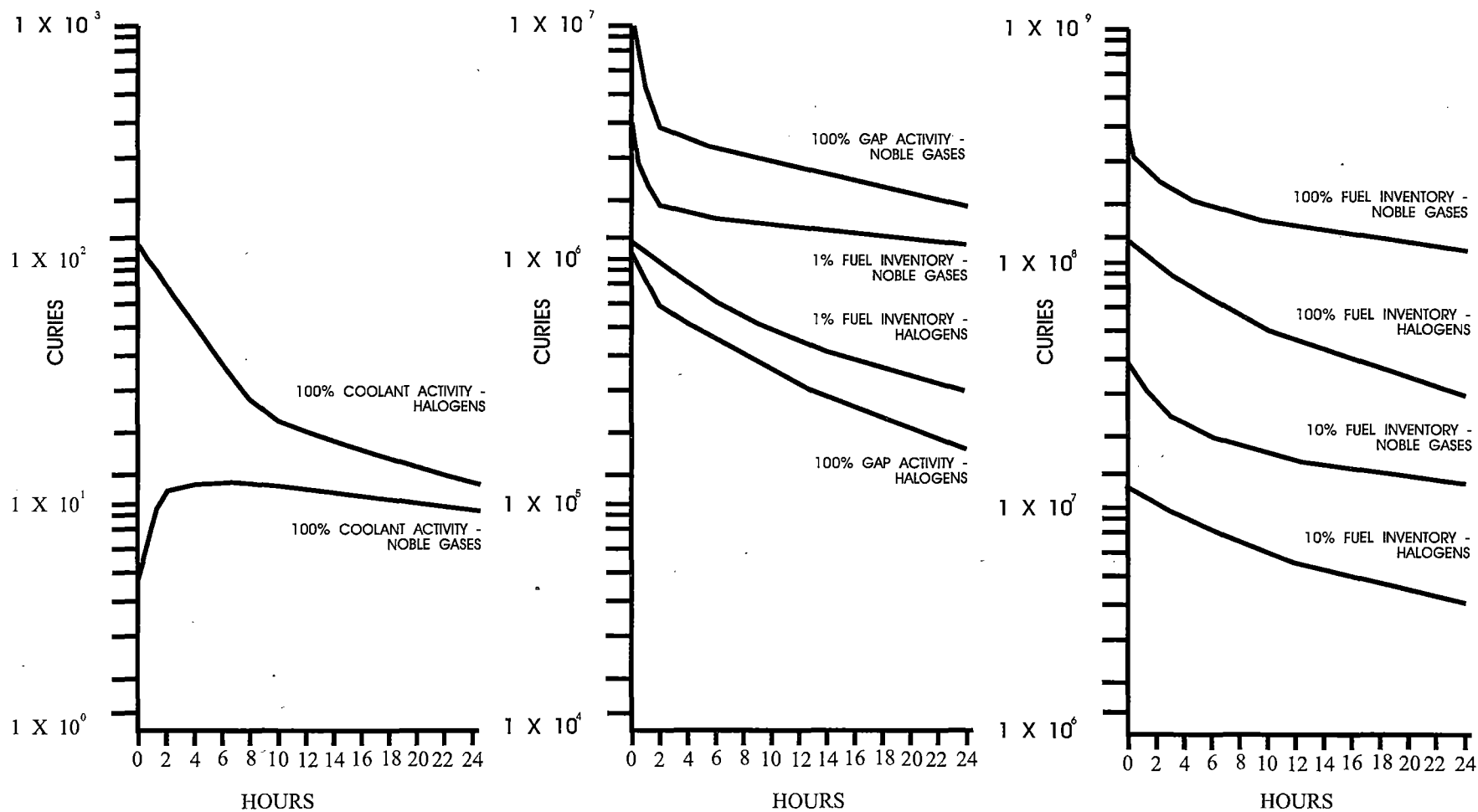


FIGURE 13.3-25

CURIE CONTENT IN CONTAINMENT
VS TIME AFTER ACCIDENT

RIVER BEND STATION
EMERGENCY PLAN

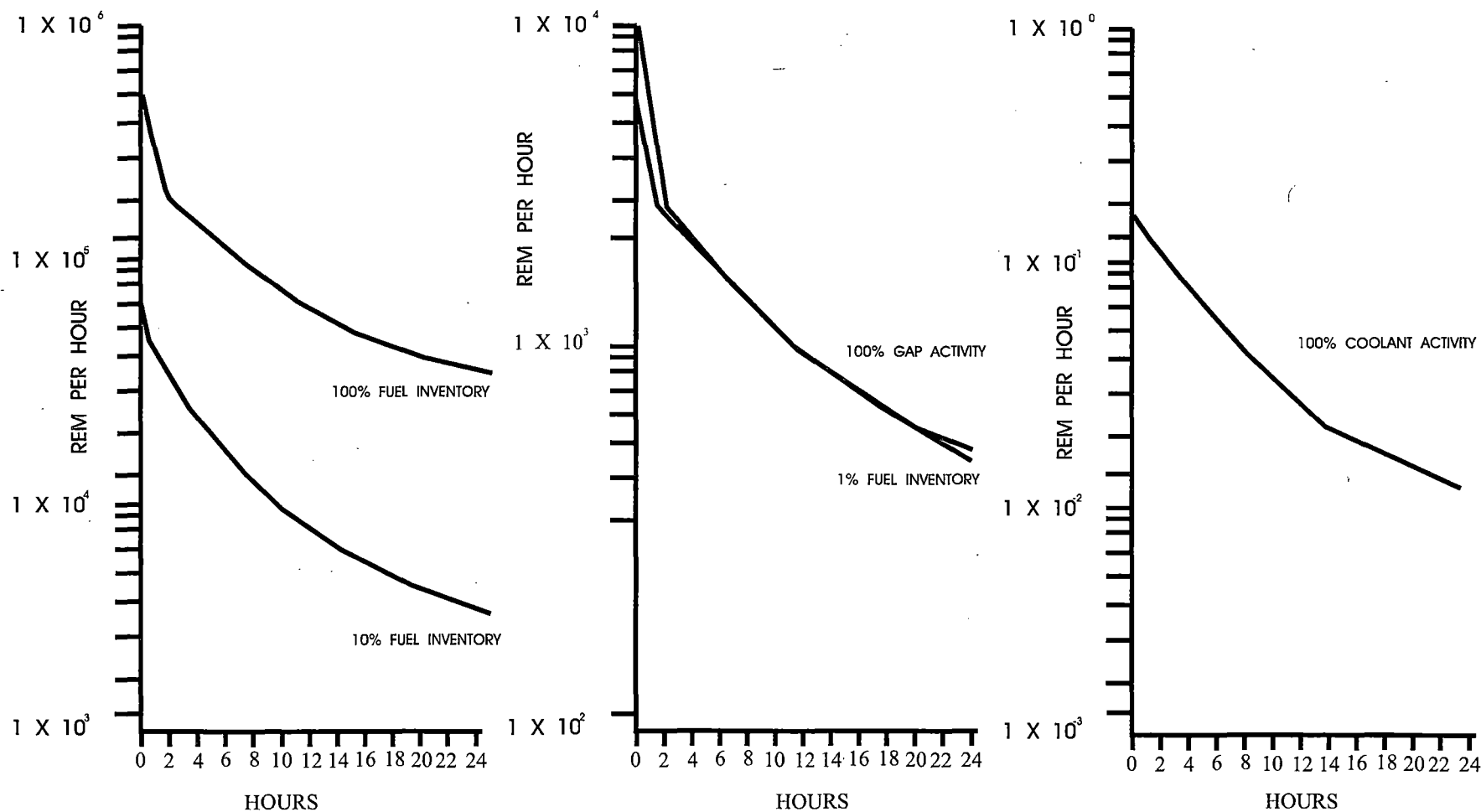


FIGURE 13.3-26

CONTAINMENT P.A.M. READING
VS TIME AFTER ACCIDENT

RIVER BEND STATION
EMERGENCY PLAN

RBS - EP

APPENDIX A
EMERGENCY ORGANIZATION
JOB DESCRIPTIONS

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SHIFT MANAGER

A. LOCATION: Main Control Room

B. FUNCTIONS AND RESPONSIBILITIES:

1. Assume a position to permit him to determine the overall plant status.
2. Function as the Emergency Director and Emergency Plant Manager until relieved.
3. Communicate (or direct someone to communicate) to other site personnel or outside agencies to request assistance or provide information.
4. Receive information from Health Physics personnel on inplant and offsite dose rates and advise the Control Room Supervisor so that corrective action can be taken to mitigate the consequences of a release to the environs.
5. Deleted
6. Provide information and recommendations on accident response to the Emergency Director and Emergency Plant Manager.
7. Monitor plant parameters and plant conditions.
8. Determine the Severe Accident mitigation strategy.

CONTROL ROOM SUPERVISOR

A. LOCATION: Main Control Room

B. FUNCTIONS AND RESPONSIBILITIES:

1. Provide direction and control of emergency operation and emergency operating procedures until additional support arrives.
2. Assist the Shift Manager with reports of plant conditions and recommendations for plant emergency control.

SHIFT TECHNICAL ADVISOR

- A. LOCATION: Main Control Room
- B. FUNCTION AND RESPONSIBILITIES:
 - 1. Provide advisory technical support to the Shift Manager in the areas of thermal hydraulics, reactor engineering, and plant analysis with regard to the safe operation of the unit.
 - 2. Assist the Shift Manager in the implementation and completion of the response procedures' checklists.

TSC/CONTROL ROOM COMMUNICATOR

- A. LOCATION: Main Control Room
- B. FUNCTION AND RESPONSIBILITIES:
 - 1. Communicate with the Operations Coordinator (TSC), Technical Advisor (EOF), EOF Communicator (EOF), TSC Communicator and the EOF Log Keeper via the Status Phone to provide the current plant status and actions initiated by the Shift Manager.
 - 2. Initially serve as the ENS Communicator until the TSC is operational.
 - 3. If qualified, can assume Emergency Director during EOF relocation.

NUCLEAR CONTROL OPERATORS

- A. LOCATION: Main Control Room
- B. FUNCTIONS AND RESPONSIBILITIES:
 - 1. Support the Shift Manager in emergency assessment and emergency plant operations.
 - 2. Provide assistance as directed by the Control Room Supervisor to mitigate the effects of the emergency situation.
 - 3. May be assigned responsibilities as Fire Brigade leader, Search and Rescue Team leader.

NUCLEAR EQUIPMENT OPERATORS

A. LOCATION: Main Control Room / OSC

B. FUNCTIONS AND RESPONSIBILITIES:

1. Provide plant operational data to the Shift Manager for accident assessment and emergency response operations.
2. Operate plant equipment in support of emergency response and recovery operations.
3. Member of the Fire Brigade and Search and Rescue Team and may be assigned responsibilities as Fire Brigade leader and Search and Rescue Team leader.
4. A designated NEO acts as Control Room Communicator in notifying State, local, and federal agencies until additional support arrives.
5. Assist OSC teams on plant / operational matters

COMMUNICATORS (OFFSITE)

A. LOCATION: Main Control Room, and Emergency Operations Facility

B. FUNCTIONS AND RESPONSIBILITIES

1. Perform emergency notification procedures.
2. Maintain contact with offsite authorities and relay appropriate information concerning station status.
3. Relay inquiries from offsite authorities to appropriate emergency response organization members.

RBS - EP
OPERATIONS SUPPORT CENTER MANAGER

A. LOCATION: Operations Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

1. Coordinate all OSC emergency response activities.
2. Provide direction to the OSC support personnel.
3. Keep the Emergency Plant Manager informed of the status of OSC operations.

OPERATIONS SUPPORT CENTER WORK CONTROL, MECHANICAL and ELECTRICAL/I&C COORDINATORS*

A. LOCATION: Operations Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

1. Assist the OSC Manager in coordinating OSC emergency response activities.
2. Keep the OSC Manager informed of the status of OSC operations.
3. Assume the responsibilities of the OSC Manager when the OSC Manager is not available.
4. Assign work team composition and perform pre-job briefs on work to be done.
5. Maintain OSC Team Work Orders.

* Position to be filled by I&C, Mechanical, or Electrical disciplines.

LOG KEEPERS AND TSC COMMUNICATOR

A. LOCATION: Operations Support Center/Technical Support Center/Emergency Operations Facility

B. FUNCTIONS AND RESPONSIBILITIES:

1. Receive information from the TSC/CR Communicator pertaining to current plant parameters and action initiated by the Shift Manager.
2. Update the OSC/TSC/EOF status boards and/or displays with current emergency information obtained from the:
 - a. Emergency Director / Emergency Plant Manager
 - b. EOF Manager / TSC Manager
 - c. OSC Manager / OSC Coordinators
 - d. Radiological Assessment Coordinator / Radiological Coordinator
 - e. Technical Advisor / Operations Coordinator
 - f. Dose Assessor

OPERATIONS SUPPORT*

A. LOCATION: Operations Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

1. Assist Coordinators in assigning operational tasks to operators.
2. Ensure the Shift Manager is informed of OSC Teams and activities
3. Identify potential operational support needs.
4. Support the OSC as needed.

* Onshift operator and may be assigned other duties.

RAD/CHEM COORDINATOR

A. LOCATION: Operations Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

1. Coordinate activities of Radiation Protection and Chemistry personnel in the OSC.
2. Ensure coordinated radiation protection coverage of repair actions, search and rescue activities, first aid, and firefighting.
3. Ensure proper personnel dosimetry and monitoring for emergency response personnel.
4. Coordinate sampling and analytical facilities.

MECHANICAL MAINTENANCE

A. LOCATION: Operations Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

Implement repair and corrective actions as directed by the Operations Support Center Manager.

ELECTRICAL MAINTENANCE

A. LOCATION: Operations Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

Implement repair and corrective actions as directed by the Operations Support Center Manager.

I & C MAINTENANCE

A. LOCATION: Operations Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

Implement repair and corrective actions as directed by the Operations Support Center Manager.

RADIATION PROTECTION TECHNICIANS

A. LOCATION: Operations Support Center

B. FUNCTIONS TO RESPONSIBILITIES:

1. Assist in access control to radioactive contaminated areas.
2. Provide radiation protection coverage for repair and corrective actions, search and rescue, first aid, and firefighting.
3. Provide for personnel monitoring during an evacuation of site personnel.
4. Provide personnel monitoring and dosimetry for emergency response personnel.
5. Assist with radiation protection tasks as directed by the RAD/CHEM Coordinator.

CHEMISTRY TECHNICIANS

A. LOCATION: Operations Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

1. Support accident assessment efforts by obtaining and analyzing plant radiochemistry and chemistry samples.
2. May be assigned to an offsite Radiological Monitoring Team.
3. Perform dose assessment in the Control Room when required.

HABITABILITY TECHNICIANS

A. LOCATION: Operations Support Center/Emergency Operations Facility

B. FUNCTIONS AND RESPONSIBILITIES:

1. Complete the check of emergency equipment and perform initial and periodic habitability surveys of the CR/OSC/TSC/EOF.
2. Maintain the OSC/TSC and EOF contamination control point.
3. Perform other actions as directed by the Rad/Chem Coordinator / Radiological Coordinator / Radiological Assessment Coordinator.
4. Operate the EOF Decontamination Facility as necessary.
5. Keep the Rad/Chem Coordinator / Radiological Coordinator / Radiological Assessment Coordinator informed of the status of CR/OSC/TSC/EOF habitability in their responsible facility.

FIRE BRIGADE

A. LOCATION: *

B. FUNCTIONS AND RESPONSIBILITIES:

Provide fire suppression and protection activities, as required.

* When required, will be dispatched by the Main Control Room. May be assigned other duties.

FIRST RESPONDER TEAM *

A. LOCATION: Operations Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

Provide emergency care or treatment to ill or injured personnel before medical assistance can be obtained during an emergency.

* When required

SEARCH AND RESCUE *

A. LOCATION: Operations Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

Search for missing or troubled plant personnel and return them safely to the facility.

* When required

EMERGENCY PLANT MANAGER

A. LOCATION: Technical Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

1. Provide the overall management for all onsite operations and procedures in support of the objectives of the emergency response and recovery operations.
2. Approve the analysis and the development of plan and procedures which are conducted in direct support of operations personnel.
3. Authorize dose limits which exceed the provisions of 10CFR20 and recommendation for Potassium Iodide (KI) use.

TECHNICAL SUPPORT CENTER MANAGER

A. LOCATION: Technical Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

1. Coordinate the activities of the RBS staff in the TSC.
2. Coordinate the analysis and development of plans and procedures to directly support operations personnel with the objective of placing the plant in a safe shutdown condition in a manner which minimizes effects on the public.
3. Coordinate the analysis of instrument and control problems, the installation of short-term instrument and control modifications, and evaluate alternatives.
4. Coordinate the analysis of system operations problems, the installation of system modifications, and evaluate alternatives.
5. Coordinate the analysis of conditions and development of guidance for operations shift personnel on the protection of the reactor core.
6. Review the Notification Message Form information.
7. Ensure long-term TSC organization relief rotation.
8. Coordinate with the Administration & Logistics Coordinator to obtain additional communications equipment, office supplies, equipment, materials and personnel resources, as necessary for the TSC.
9. Ensure necessary documents are collected for record retention.

REACTOR ENGINEER

A. LOCATION: Control Room/Technical Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

1. Analyze core parameters to determine current conditions of the core.
2. Review proposed plant operations with respect to the effect on core conditions.
3. Develop recommendations for plant operations that would affect core conditions.

ENGINEERING COORDINATOR

A. LOCATION: Technical Support Center

B. FUNCTIONS AND RESPONSIBILITIES

Coordinate with the Operations Coordinator and the Maintenance Coordinator in determining repair and corrective actions necessary to mitigate the emergency.

MECHANICAL ENGINEER

A. LOCATION: Technical Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

Analyze problems associated with the operation of plant systems and equipment and develop plans to best cope with system and equipment operational problems.

ELECTRICAL/I&C ENGINEER

A. LOCATION: Technical Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

Analyze problems associated with the operation of plant systems and equipment and develop plans to best cope with system and equipment operational problems.

OPERATIONS COORDINATOR

A. LOCATION: Technical Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

1. Provide assistance to the Emergency Plant Manager in monitoring plant parameters and analyzing plant conditions.
2. Provide advice and assistance to the Emergency Plant Manager and Operations in system valve alignments and equipment operation.
3. Assist in coordinating the emergency response and recovery organization objectives requiring implementation by Operations.
4. Keep the Technical Support Center Manager and the Emergency Plant Manager informed of operational aspects of the emergency.

MAINTENANCE COORDINATOR

A. LOCATION: Technical Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

1. Provide advice to the TSC Manager and the Engineering Coordinator regarding plant mechanical, electrical, and I&C repair and corrective actions.
2. Coordinate with the Operations Coordinator regarding performance of maintenance by OSC maintenance personnel.
3. Initiate Work Orders and coordinate repair and corrective actions with the OSC Coordinators.
4. Keep the TSC Manager informed regarding plant maintenance activities, especially those activities which could affect the release of radioactivity offsite.

RADIOLOGICAL COORDINATOR

A. LOCATION: Technical Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

1. Direct Radiation Protection and Chemistry personnel in accumulating radiation data and dose assessment data and in implementing radiation protection programs in support of the emergency response and recovery operations.
2. Provide ALARA review of proposed emergency response organization activities and recommendation for Potassium Iodide (KI) use.
3. Provide radiation protection support to the EOF upon request from the Radiological Assessment Coordinator.
4. Provide for the decontamination of station personnel and equipment.
5. Coordinate medical evaluations for overexposed personnel, as required.
6. Provide recommendations to the TSC Manager on chemistry and radiochemistry problems.
7. Coordinate the development and implementation of methods to process liquid and gaseous radioactive waste accumulated during the emergency.

SECURITY COORDINATOR

A. LOCATION: Technical Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

1. Keep the Security Force advised of emergency status.
2. Coordinate with the Radiological Coordinator regarding protective actions for the Security Force.
3. Keep the Emergency Plant Manager informed of any security contingency event which may be occurring and response in progress.
4. Keep the Emergency Plant Manager informed of evacuation accountability status.

STATION SECURITY SUPERVISOR

A. LOCATION: Primary Access Point

B. FUNCTIONS AND RESPONSIBILITIES:

1. Direct station security personnel in maintaining the station security system in support of the emergency response and recovery operations.
2. Coordinate onsite personnel accountability with the Emergency Plant Manager during emergency situations.
3. Coordinate personnel evacuation with the Emergency Plant Manager and restrict access to secured areas.
4. Maintain contact with the Security Coordinator.

ENS COMMUNICATOR

A. LOCATION: Technical Support Center

B. FUNCTIONS AND RESPONSIBILITIES:

1. Relieve the Control Room/TSC Communicator from the responsibility of talking with the NRC via the ENS line.
2. Relay approved operational data information as requested by the NRC.
3. Ensure that the Radiological Assessment Coordinator in the EOF is notified when the NRC requests that the HPN Line be manned.

EMERGENCY DIRECTOR

A. LOCATION: Emergency Operations Facility

B. FUNCTIONS AND RESPONSIBILITIES:

1. Assume the Emergency Director functions and responsibilities once the EOF is operational.
2. Provide the overall direction and control of the RBS emergency response and recovery operations.
3. Responsible for emergency classifications based upon plant conditions, meteorology, and radiological data.
4. Authorize dose limits which exceed the provisions of 10CFR20 and recommendation for Potassium Iodide (KI) use.

EMERGENCY OPERATIONS FACILITY MANAGER

A. LOCATION: Emergency Operations Facility

B. FUNCTIONS AND RESPONSIBILITIES:

1. Coordinate the activities of the RBS staff in the EOF.
2. Receive any responding representatives from offsite emergency response agencies and assist in their information and communication needs.
3. Obtain information necessary for preparation of the Notification Message Form.

RBS - EP
RADIOLOGICAL ASSESSMENT COORDINATOR

A. LOCATION: Emergency Operations Facility

B. FUNCTIONS AND RESPONSIBILITIES:

1. Direct the Dose Assessor, Offsite Team Coordinator, and the EOF Habitability Technician in the EOF in accumulating radiological data and dose assessment data.
2. Recommend offsite protective actions to the Emergency Director.
3. Ensure dispatch of offsite radiological monitoring personnel through the Offsite Team Coordinator in order to evaluate radioactive releases.
4. Advise the Radiological Coordinator in the TSC upon request.
5. Provide information to responding representatives from offsite emergency response agencies regarding possible offsite radiological consequences.
6. Interpret the offsite radiological data obtained and update the EOF staff and offsite authorities with the results, in terms of both real-time measurements and, to the extent possible, projected radiological exposures.
7. Review and assess results of dose calculations.
8. When requested by the NRC, provide health physics, dose assessment and meteorological data via the Health Physics Network.

DOSE ASSESSOR

- A. LOCATION: Emergency Operations Facility
- B. FUNCTIONS AND RESPONSIBILITIES:
 - 1. Perform dose assessment calculations.
 - 2. Provide dose assessment information and inplant radiological monitoring data to the Radiological Assessment Coordinator.

OFFSITE TEAM COORDINATOR

- A. LOCATION: Emergency Operations Facility
- B. FUNCTIONS AND RESPONSIBILITIES:
 - 1. Organize and dispatch offsite radiological monitoring personnel and relay instructions from the Radiological Assessment Coordinator to offsite teams.
 - 2. Provide radiological monitoring data from offsite monitoring teams to the Radiological Assessment Coordinator.
 - 3. Keep track of radiation exposure of offsite teams.

OFFSITE MONITORING TEAMS

A. LOCATION: Emergency Operations Facility (Offsite)

B. FUNCTIONS AND RESPONSIBILITIES:

1. Monitor gaseous/particulate releases by taking radiation readings/air samples in the plume pathway.
2. Retrieve and replace permanently placed TLDs when directed.
3. Place additional TLDs in designated locations as deemed necessary by the Radiological Assessment Coordinator.
4. Retrieve air, vegetation, soil, and liquid samples for laboratory analysis.
5. Keep the Offsite Team Coordinator informed of radiological conditions, location, and whole-body radiation exposure.

TECHNICAL ADVISOR

A. LOCATION: Emergency Operations Facility

B. FUNCTIONS AND RESPONSIBILITIES:

1. Advise the Emergency Director and other EOF personnel on the operational aspects of the emergency.
2. Analyze plant and emergency parameters using the Emergency Response Information System (ERIS).
3. Ensure that ERIS data is made available in the EOF and pertinent information is posted on the status boards.
4. Recommend actions on classification of emergencies and support PAR decision/determination.

EOF COMMUNICATOR

A. LOCATION: Emergency Operations Facility

B. FUNCTIONS AND RESPONSIBILITIES:

1. Review proposed plant operations with respect to the effect on core conditions.
2. Confirm activation of sirens by parishes.
3. Activate sirens when requested by the parishes.

ADMINISTRATION AND LOGISTICS COORDINATOR

A. LOCATION: Emergency Operations Facility

B. FUNCTIONS AND RESPONSIBILITIES:

1. Provide the general office support functions, including typing, reproduction, office supplies, and office furniture.
2. Handle the arrangements for motel, airline, and trailer arrangements.
3. Acquire additional communications equipment, as necessary.
4. Function as the emergency organization purchasing agent with responsibility for contract negotiation/administration and material control.
5. Provide for food deliveries and operation of the field kitchen in the EOF.
6. Meet the manpower request needs of the emergency and recovery organization both in the technical and operational support disciplines.
7. Coordinate access security measures for personnel access to the EOF and obtain approval from EOF Manager to admit personnel not on EOF access list.

PUBLIC INFORMATION LIAISON

- A. LOCATION: Emergency Operations Facility
- B. FUNCTIONS AND RESPONSIBILITIES:
 - 1. Monitor emergency status and interface with the emergency response organization to determine information to be provided to the Joint Information Center for public dissemination.
 - 2. Coordinate the review of information to be released to the public with the Emergency Director.
 - 3. Keep the Joint Information Center staff informed of changes in emergency conditions.

LEAD OFFSITE LIAISON

- A. LOCATION: Emergency Operations Facility
- B. FUNCTIONS AND RESPONSIBILITIES
 - 1. Obtain plant information to brief any offsite agencies in EOF and Offsite Liaisons

OFFSITE LIAISON

- A. LOCATION: Offsite Parish/State Emergency Operations Centers
- B. FUNCTIONS AND RESPONSIBILITIES:
 - 1. Act as EOI representative to assist in the interpretation of information received from RBS.
 - 2. Provide feedback to the EOF concerning parish/state actions taken based on the emergency situation.

JOINT INFORMATION CENTER MANAGER

A. LOCATION: Joint Information Center

B. FUNCTIONS AND RESPONSIBILITIES

1. Coordinate information at the Joint Information Center with state, local, federal, representatives from other agencies and the media.
2. Review and approve Entergy news releases.

COMPANY SPOKESPERSON

A. LOCATION: Joint Information Center

B. FUNCTIONS AND RESPONSIBILITIES

1. Participate in press conferences for the news media at the Joint Information Center.
2. Assist in preparing press releases for publication concerning emergency conditions and status.
3. Authorized to make public statements concerning the emergency situation.

RBS - EP

APPENDIX B
LETTERS OF AGREEMENT

APPENDIX B

LETTERS OF AGREEMENT

TITLE

State of Louisiana - Memorandum of Understanding

St. Francisville Volunteer Fire Department

West Feliciana Parish Fire Protection District One

West Feliciana Parish Sheriff's Office

West Feliciana Parish Hospital

West Feliciana Ambulance Service

Acadian Ambulance Service

Our Lady of the Lake Regional Medical Center

State of Mississippi, Letter of Commitment

Local support service arrangements have been made with offsite groups to provide on-site aid in the event of an emergency situation, including those resulting from hostile actions, at RBS.

Section 13.3.4.3.2 describes the local support services per the Letters of Agreement (LOA) by the applicable agencies listed above.

Current signed copies of the LOA are on file in the Emergency Planning Office.

RBS - EP

APPENDIX C
SUPPORTING EMERGENCY PLANS

SUPPORTING EMERGENCY PLANS

The River Bend Station Emergency Plan has been written to define the necessary actions to be performed by River Bend Station personnel to efficiently and adequately respond to an emergency situation at the River Bend Station.

Actions by organizations other than the River Bend Station may also be necessary. These actions include, but are not limited to, providing assistance to the onsite River Bend Station Emergency Organization, assisting with dose assessment and implementing protective action recommendations. The organizations that will provide support to the River Bend Station are described in various emergency plans. These Supporting Emergency Plans include the:

1. Louisiana Peacetime Radiological Response Plan
2. Louisiana Peacetime Radiological Response Plan, River Bend Station Attachment
3. Mississippi Radiological Emergency Preparedness Plan
4. INPO Resource Manual
5. Emergency Medical Assistance Program (EMAP)

The Louisiana Peacetime Radiological Response Plan (LPRRP) has been developed by the State of Louisiana to provide guidance on the actions needed to be taken to ensure the protection of the public and a rapid and adequate response to all radiological emergencies within the State and near its borders.

The Louisiana Peacetime Radiological Response Plan River Bend Station Attachment is an attachment to the LPRRP which outlines the authorities, responsibilities, and procedures of the various state and local agencies and Entergy Operations, Inc. when responding to an emergency situation at the River Bend Station.

The Mississippi Radiological Emergency Preparedness Plan was developed by the State of Mississippi to describe its response organization and capabilities to cope with radiological emergencies affecting Mississippi. It identifies the necessary measures to be taken to safeguard the public, protect property, and promote early recovery from the consequences of a radiological incident.

RBS - EP

The Institute of Nuclear Power Operations (INPO) Resource Manual has been developed by all nuclear utilities to provide a mechanism by which member utilities may assist each other in times of a nuclear power plant emergency.

The EMAP contains the plans and procedures to be followed by Our Lady of the Lake Regional Medical Center and the West Feliciana Parish Hospital personnel in admitting and treating potentially contaminated injured or ill personnel from River Bend Station.

Copies of these Supporting Emergency Plans can be found in the Emergency operations Facility.

RBS - EP

APPENDIX D

SUMMARY OF EVACUATION TIME ESTIMATES

RBS - EP

Appendix D

Summary of Evacuation Time Estimates*

Table D-1. Time to Clear the Indicated Area of 90 Percent of the Affected Population

	Summer		Summer		Summer	Winter		Winter		Winter	Winter	Summer	
	Midweek		Weekend		Midweek Weekend	Midweek		Weekend		Midweek Weekend	Weekend	Midweek	
Scenario:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:
Region	Midday		Midday		Evening	Midday		Midday		Evening	Midday	Midday	Region
	Good Weather	Rain	Good Weather	Rain	Good Weather	Good Weather	Rain	Good Weather	Rain	Good Weather	Special Event	Roadway Impact	
Entire 2-Mile Region, 5-Mile Region, and EPZ													
R01	2:15	2:20	2:15	2:20	2:20	2:15	2:15	2:15	2:15	2:20	2:15	2:15	R01
R02	2:25	2:30	2:20	2:20	2:20	2:25	2:25	2:15	2:15	2:20	2:15	2:25	R02
R03	3:05	3:15	2:50	3:05	2:55	3:10	3:20	2:55	3:15	2:55	4:50	3:10	R03
2-Mile Region and Keyhole to 5 Miles													
R04	2:25	2:25	2:15	2:20	2:20	2:25	2:25	2:15	2:15	2:20	2:15	2:25	R04
R05	2:20	2:20	2:15	2:20	2:20	2:20	2:20	2:15	2:15	2:20	2:15	2:20	R05
R06	2:20	2:20	2:15	2:20	2:20	2:20	2:20	2:15	2:15	2:20	2:15	2:20	R06
R07	2:25	2:25	2:20	2:20	2:20	2:20	2:25	2:15	2:20	2:20	2:15	2:25	R07
R08	2:20	2:25	2:20	2:25	2:25	2:20	2:20	2:15	2:20	2:20	2:15	2:20	R08
R09	2:20	2:25	2:20	2:25	2:25	2:20	2:20	2:15	2:20	2:20	2:15	2:20	R09
R10	2:15	2:20	2:15	2:20	2:20	2:15	2:15	2:15	2:15	2:20	2:15	2:15	R10
R11	2:15	2:20	2:15	2:20	2:20	2:15	2:20	2:15	2:15	2:20	2:15	2:15	R11
R12	2:25	2:25	2:15	2:20	2:20	2:20	2:25	2:10	2:15	2:15	2:10	2:25	R12
R13	2:25	2:25	2:15	2:20	2:20	2:20	2:25	2:10	2:15	2:15	2:10	2:25	R13
5-Mile Region and Keyhole to EPZ Boundary													
R14	3:20	3:35	3:10	3:30	3:20	3:30	3:50	3:20	3:45	3:20	3:20	3:20	R14
R15	3:05	3:15	2:55	3:00	2:55	3:10	3:20	3:00	3:15	2:55	3:00	3:05	R15
R16	3:05	3:10	2:50	2:55	2:50	3:10	3:15	2:55	3:10	2:50	2:55	3:05	R16
R17	2:30	2:35	2:20	2:20	2:20	2:30	2:30	2:15	2:20	2:20	2:15	2:30	R17
R18	2:30	2:30	2:20	2:20	2:20	2:30	2:30	2:15	2:20	2:20	2:15	2:30	R18
R19	2:30	2:35	2:20	2:20	2:20	2:30	2:30	2:15	2:20	2:20	2:15	2:30	R19
R20	2:35	2:35	2:20	2:20	2:20	2:30	2:35	2:15	2:20	2:20	5:00	2:35	R20
R21	2:35	2:35	2:20	2:20	2:20	2:30	2:35	2:15	2:20	2:20	5:00	2:35	R21

*Details of evacuation time estimates are on file in the RBS Emergency Planning Department
Figure 13.3-4 does not indicate the 2010 Census population

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Appendix D

Summary of Evacuation Time Estimates*

	Summer		Summer		Summer	Winter		Winter		Winter	Winter	Summer	
	Midweek		Weekend		Midweek Weekend	Midweek		Weekend		Midweek Weekend	Weekend	Midweek	
Scenario:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:
Region	Midday		Midday		Evening	Midday		Midday		Evening	Midday	Midday	Region
	Good Weather	Rain	Good Weather	Rain	Good Weather	Good Weather	Rain	Good Weather	Rain	Good Weather	Special Event	Roadway Impact	
R22	2:35	2:35	2:20	2:20	2:20	2:30	2:30	2:15	2:20	2:20	5:00	2:35	R22
R23	2:35	2:35	2:20	2:25	2:20	2:30	2:40	2:25	2:35	2:20	5:00	2:35	R23
R24	2:30	2:30	2:20	2:25	2:20	2:30	2:40	2:25	2:40	2:20	2:25	2:30	R24
R25	3:05	3:15	2:50	3:05	2:55	3:15	3:20	3:10	3:20	2:55	3:10	3:05	R25
Staged Evacuation - 2-Mile Region and Keyhole to 5 Miles													
R26	3:00	3:05	3:00	3:00	3:05	3:00	3:00	3:00	3:00	3:05	3:00	3:00	R26
R27	3:05	3:05	3:00	3:00	3:10	3:05	3:05	3:00	3:00	3:05	3:00	3:05	R27
R28	2:45	2:45	2:45	2:45	2:45	2:40	2:45	2:40	2:40	2:45	2:40	2:45	R28
R29	2:45	2:45	2:45	2:45	2:45	2:40	2:45	2:40	2:40	2:45	2:40	2:45	R29
R30	2:45	2:45	2:45	2:45	2:50	2:45	2:45	2:45	2:45	2:45	2:45	2:45	R30
R31	2:40	2:40	2:40	2:40	2:45	2:35	2:35	2:35	2:40	2:45	2:35	2:40	R31
R32	2:40	2:40	2:40	2:40	2:45	2:40	2:40	2:40	2:40	2:45	2:40	2:40	R32
R33	2:35	2:35	2:40	2:40	2:40	2:35	2:35	2:35	2:35	2:40	2:35	2:35	R33
R34	2:35	2:35	2:35	2:35	2:40	2:35	2:35	2:35	2:35	2:40	2:35	2:35	R34
R35	2:55	3:00	2:55	2:55	3:00	2:55	3:00	2:55	2:55	3:00	2:55	2:55	R35
R36	3:00	3:00	2:55	2:55	3:00	2:55	3:00	2:55	2:55	3:00	2:55	3:00	R36

*Details of evacuation time estimates are on file in the RBS Emergency Planning Department
Figure 13.3-4 does not indicate the 2010 Census population

Appendix D

Summary of Evacuation Time Estimates*

Table D-2. Time to Clear the Indicated Area of 100 Percent of the Affected Population

	Summer		Summer		Summer	Winter		Winter		Winter	Winter	Summer	
	Midweek		Weekend		Midweek Weekend	Midweek		Weekend		Midweek Weekend	Weekend	Midweek	
Scenario:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario
Region	Midday		Midday		Evening	Midday		Midday		Evening	Midday	Midday	Region
	Good Weather	Rain	Good Weather	Rain	Good Weather	Good Weather	Rain	Good Weather	Rain	Good Weather	Special Event	Roadway Impact	
Entire 2-Mile Region, 5-Mile Region, and EPZ													
R01	4:45	4:45	4:45	4:45	4:45	4:45	4:45	4:45	4:45	4:45	4:45	4:45	R01
R02	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R02
R03	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	6:40	4:55	R03
2-Mile Region and Keyhole to 5 Miles													
R04	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R04
R05	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R05
R06	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R06
R07	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R07
R08	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R08
R09	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R09
R10	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R10
R11	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R11
R12	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R12
R13	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R13
5-Mile Region and Keyhole to EPZ Boundary													
R14	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R14
R15	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R15
R16	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R16
R17	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R17
R18	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R18
R19	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R19
R20	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	6:40	4:55	R20
R21	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	6:35	4:55	R21

*Details of evacuation time estimates are on file in the RBS Emergency Planning Department
Figure 13.3-4 does not indicate the 2010 Census population

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Appendix D

Summary of Evacuation Time Estimates*

	Summer		Summer		Summer	Winter		Winter		Winter	Winter	Summer	
	Midweek		Weekend		Midweek Weekend	Midweek		Weekend		Midweek Weekend	Weekend	Midweek	
Scenario:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:
Region	Midday		Midday		Evening	Midday		Midday		Evening	Midday	Midday	Region
	Good Weather	Rain	Good Weather	Rain	Good Weather	Good Weather	Rain	Good Weather	Rain	Good Weather	Special Event	Roadway Impact	
R22	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	6:40	4:55	R22
R23	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	6:35	4:55	R23
R24	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R24
R25	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R25
Staged Evacuation - 2-Mile Region and Keyhole to 5 Miles													
R26	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R26
R27	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R27
R28	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R28
R29	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R29
R30	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R30
R31	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R31
R32	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R32
R33	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R33
R34	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R34
R35	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R35
R36	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R36

*Details of evacuation time estimates are on file in the RBS Emergency Planning Department
Figure 13.3-4 does not indicate the 2010 Census population

RBS - EP

Appendix D

Summary of Evacuation Time Estimates*

Table D-3. Time to Clear 90 Percent of the 2-Mile Area within the Indicated Region.

	Summer		Summer		Summer	Winter		Winter		Winter	Winter	Summer	
	Midweek		Weekend		Midweek Weekend	Midweek		Weekend		Midweek Weekend	Weekend	Midweek	
Scenario:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario
Region	Midday		Midday		Evening	Midday		Midday		Evening	Midday	Midday	Region
	Good Weather	Rain	Good Weather	Rain	Good Weather	Good Weather	Rain	Good Weather	Rain	Good Weather	Special Event	Roadway Impact	
Unstaged Evacuation - 2-Mile Region													
R01	2:15	2:20	2:15	2:20	2:20	2:15	2:15	2:15	2:15	2:20	2:15	2:15	R01
Unstaged Evacuation - 2-Mile Region and Keyhole to 5-Miles													
R02	2:20	2:25	2:20	2:20	2:25	2:20	2:20	2:15	2:20	2:20	2:15	2:20	R02
R04	2:20	2:25	2:20	2:20	2:25	2:20	2:20	2:15	2:20	2:25	2:15	2:20	R04
R05	2:20	2:20	2:15	2:20	2:20	2:15	2:20	2:15	2:15	2:20	2:15	2:20	R05
R06	2:20	2:20	2:15	2:20	2:20	2:15	2:20	2:15	2:15	2:20	2:15	2:20	R06
R07	2:20	2:20	2:15	2:20	2:20	2:15	2:20	2:15	2:15	2:20	2:15	2:20	R07
R08	2:15	2:20	2:15	2:20	2:20	2:15	2:15	2:15	2:15	2:20	2:15	2:15	R08
R09	2:15	2:20	2:15	2:20	2:20	2:15	2:15	2:15	2:15	2:20	2:15	2:15	R09
R10	2:15	2:20	2:15	2:20	2:20	2:15	2:20	2:15	2:15	2:20	2:15	2:15	R10
R11	2:15	2:20	2:15	2:20	2:20	2:15	2:15	2:15	2:15	2:20	2:15	2:15	R11
R12	2:20	2:25	2:20	2:20	2:25	2:15	2:20	2:15	2:20	2:20	2:15	2:20	R12
R13	2:20	2:25	2:20	2:20	2:25	2:20	2:20	2:15	2:20	2:20	2:15	2:20	R13
Staged Evacuation 2-Mile Region and Keyhole to 5-Miles													
R26	2:40	2:45	2:45	2:45	2:45	2:40	2:40	2:45	2:45	2:45	2:45	2:40	R26
R27	2:40	2:45	2:45	2:45	2:45	2:40	2:40	2:45	2:45	2:45	2:45	2:40	R27
R28	2:30	2:35	2:30	2:35	2:40	2:30	2:30	2:30	2:30	2:40	2:30	2:30	R28
R29	2:30	2:35	2:30	2:35	2:40	2:30	2:30	2:30	2:30	2:40	2:30	2:30	R29
R30	2:30	2:35	2:30	2:35	2:40	2:30	2:30	2:30	2:30	2:40	2:30	2:30	R30
R31	2:30	2:30	2:30	2:30	2:35	2:25	2:30	2:25	2:25	2:35	2:25	2:30	R31
R32	2:30	2:30	2:30	2:30	2:35	2:25	2:30	2:25	2:25	2:35	2:25	2:30	R32
R33	2:30	2:30	2:30	2:30	2:35	2:25	2:30	2:25	2:25	2:35	2:25	2:30	R33
R34	2:30	2:30	2:30	2:30	2:35	2:25	2:30	2:25	2:25	2:35	2:25	2:30	R34
R35	2:40	2:45	2:45	2:45	2:45	2:40	2:40	2:40	2:40	2:45	2:40	2:40	R35
R36	2:40	2:45	2:45	2:45	2:45	2:40	2:40	2:40	2:45	2:45	2:40	2:40	R36

*Details of evacuation time estimates are on file in the RBS Emergency Planning Department
Figure 13.3-4 does not indicate the 2010 Census population

Appendix D

Summary of Evacuation Time Estimates*

Table D-4. Time to Clear 100 Percent of the 2-Mile Area within the Indicated Region

	Summer		Summer		Summer	Winter		Winter		Winter	Winter	Summer	
	Midweek		Weekend		Midweek Weekend	Midweek		Weekend		Midweek Weekend	Weekend	Midweek	
Scenario:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Scenario:
Region	Midday		Midday		Evening	Midday		Midday		Evening	Midday	Midday	Region
	Good Weather	Rain	Good Weather	Rain	Good Weather	Good Weather	Rain	Good Weather	Rain	Good Weather	Special Event	Roadway Impact	
Unstaged Evacuation - 2-Mile Region													
R01	4:45	4:45	4:45	4:45	4:45	4:45	4:45	4:45	4:45	4:45	4:45	4:45	R01
Unstaged Evacuation - 2-Mile Region and Keyhole to 5-Miles													
R02	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R02
R04	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R04
R05	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R05
R06	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R06
R07	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R07
R08	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R08
R09	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R09
R10	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R10
R11	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R11
R12	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R12
R13	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R13
Staged Evacuation -2-Mile Region and Keyhole to 5-Miles													
R26	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R26
R27	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R27
R28	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R28
R29	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R29
R30	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R30
R31	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R31
R32	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R32
R33	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R33
R34	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R34
R35	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R35
R36	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R36

*Details of evacuation time estimates are on file in the RBS Emergency Planning Department
Figure 13.3-4 does not indicate the 2010 Census population

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APPENDIX E
EMERGENCY KITS

Appendix E**Emergency Kits**

<u>Emergency Kit</u>	<u>Location</u>	<u>Contents (General)*</u>
Ambulance Emergency Kit	PAP	Dosimetry; Protective Clothing, Contamination Control Supplies
Emergency Locker	Main Control Room	Portable Survey Instruments; Air Sampling Equipment; Protective Clothing; Respiratory Protection Equipment and Supplies; Potassium Iodide (KI)
Emergency Kit	EOF	Survey Instruments; Protective Clothing; Contamination Control Equipment and Supplies; Air Sampling Equipment; Decontamination Equipment and Supplies; Potassium Iodide (KI)
Offsite Team Kits	EOF	Survey Instruments; Protective Clothing; Respiratory Protective Equipment; Air Sampling Equipment; Environmental Sampling Equipment and Supplies; Maps; Raingear; Communications Equipment; Potassium Iodide (KI)
Emergency Locker	OSC	Survey Instruments; Protective Clothing; Respiratory Protective Equipment; Air Sampling Equipment; Dosimetry; Repair and Corrective Action Equipment and Supplies; Contamination Control Equipment and Supplies; First Aid Supplies; Communications Equipment

Appendix E**Emergency Kits**

<u>Emergency Kit</u>	<u>Location</u>	<u>Contents (General)*</u>
Emergency Locker	TSC	Survey Instruments; Air Sampling Equipment; Respiratory Protective Equipment; Protective Clothing; Contamination Control Equipment and Supplies; Dosimetry; Potassium Iodide (KI)
Emergency Equipment Kit	Decontamination Room, Services Building	Survey Instruments; Decontamination Equipment and Supplies; First Aid Equipment; Potassium Iodide (KI)
Emergency Equipment Kit	West Feliciana Parish Hospital	Survey Instruments; Dosimetry; Protective Clothing; Contamination Control Equipment and Supplies; Bioassay Equipment; Decontamination Equipment and Supplies
Emergency Equipment Kit	Our Lady of the Lake Hospital	Survey Instruments; Dosimetry; Protective Clothing; Contamination Control Equipment and Supplies; Bioassay Equipment; Decontamination Equipment and Supplies

* Emergency Kit Inventories are contained in EIP-2-103.

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APPENDIX F
EIP PROCEDURE LISTING

EMERGENCY IMPLEMENTING PROCEDURES

The Emergency Implementing Procedures (EIPs) are a set of procedures that have been written to effectively and efficiently implement a response to emergency situations at the River Bend Station (RBS) in accordance with the Emergency Plan. The EIPs have been written to incorporate the necessary elements of NUREG-0654 Revision 1, NUREG 0578 and the recommendations of the Atomic Industrial Forum's (AIF) Nuclear Power Plant Emergency Response Plan. Table F-1 is an EIP Procedure Listing and Table F-2 is a cross-reference of the Emergency Plan and Implementing Procedures.

The EIPs address emergency response functions, including classification of emergencies, activation of the emergency response organization and facilities, notifications, communications, protective action recommendations and emergency response support functions.

Classification of an emergency is accomplished using Emergency Action Levels (EALs) developed from NEI-99-01, Methodology for Development of Emergency Action Levels. EIP-2-001 contains initiating events that are compared with plant conditions to provide the appropriate emergency classification. When an emergency is classified, the remaining EIPs provide guidance on actions that may be necessary to cope with the emergency situation.

Protective Actions may be necessary to protect the health and safety of the public. Protective Action recommendations are made to offsite authorities when releases of radioactive materials, projected offsite doses or plant status indicate an actual or potential threat to the health and safety of the public. EIPs provide the necessary guidance to make these recommendations when necessary.

EIPs for Emergency Response Facilities provide guidance for the effective functioning of the emergency response organization during an emergency. They provide guidance to key groups which include Radiation Protection, Security, OSC Staff, TSC Staff, EOF Staff, and the Joint Information Center.

Emergency support activity procedures provide guidance to perform major tasks not usually performed during normal day to day operations. These procedures include, but are not limited to, Offsite Dose Calculation, Offsite Radiological Monitoring, Evacuation, Personnel Accountability, Personnel Search and Rescue, and Recovery.

Emergency support activity procedures provide guidance to maintain the Emergency Response Facilities, Emergency Response Organization, and the Emergency Plan. Supplementary Procedures (EPPs) provide for the maintenance of the emergency preparedness equipment and the Emergency Planner qualification program at RBS.

Chemistry program procedures provide guidance on the method to estimate core damage and obtain samples. Other support activities are described in the Security and Fire Protection programs.

Table F-1

EIP PROCEDURE LISTING

<u>EIP No.</u>	<u>Procedure Title</u>
EIP-2-001	Classification of Emergencies
EIP-2-002	Classification Actions
EIP-2-006	Notifications
EIP-2-007	Protective Action Recommendation Guidelines
EP-4-ALL	Exposure Authorization Form
EP-8-ALL	KI Instructions and Briefing
EIP-2-014	Offsite Radiological Monitoring
EN-EP-611	Operations Support Center (OSC) Operations
EIP-2-016	Operations Support Center
EN-EP-610	Technical Support Center (TSC) Operations
EIP-2-018	Technical Support Center
EN-EP-609	Emergency Operations Facility (EOF) Operations
EIP-2-020	Emergency Operations Facility
EIP-2-022	Alternate EOF - Activation and Transfer of Functions
EIP-2-023	Joint Information Center
EIP-2-024	Offsite Dose Calculations
EIP-2-026	Evacuation, Personnel Accountability, and Search and Rescue
EN-EP-613	Recovery from a Declared Emergency
EIP-2-101	Periodic Review of the Emergency Plan
EIP-2-103	Emergency Equipment Inventory
EN-TQ-110	Emergency Preparedness Training Program
EN-EP-306	Drills and Exercises

Table F-2

EMERGENCY PLAN AND IMPLEMENTING PROCEDURE CROSS REFERENCE

<u>Emergency Plan Section</u>	<u>Implemented by Procedure Number</u>
13.3.1	EIP-2-101
13.3.1.1	NA
13.3.2	EIP-2-001 EIP-2-006 EIP-2-016 EIP-2-018 EIP-2-020 EN-EP-609 EN-EP-610 EN-EP-611
13.3.3	NA
13.3.3.1	EIP-2-001 EIP-2-006 EIP-2-018 EIP-2-020 EIP-2-022 EN-EP-609 EN-EP-610
13.3.3.1.1	EIP-2-002
13.3.3.1.2	EIP-2-002 EIP-2-026
13.3.3.1.3	EIP-2-002 EIP-2-006 EIP-2-018 EIP-2-020 EIP-2-022 EIP-2-023 EN-EP-609 EN-EP-610

Table F-2 (Cont)

<u>Emergency Plan Section</u>	<u>Implemented by Procedure Number</u>
13.3.3.1.4	EIP-2-002 EIP-2-006 EIP-2-018 EIP-2-020 EIP-2-022 EN-EP-609 EN-EP-610
13.3.3.2	EIP-2-001
13.3.3.2.1	EIP-2-001 EIP-2-014 EIP-2-024
13.3.3.2.2	EIP-2-001 EIP-2-002 EIP-2-014 EIP-2-024
13.3.3.3	EPP-2-201
13.3.4	EIP-2-002 EIP-2-016 EIP-2-018 EIP-2-020 EIP-2-022 EN-EP-609 EN-EP-610 EN-EP-611
13.3.4.1	EIP-2-002
13.3.4.2	EIP-2-002 EIP-2-016 EIP-2-018 EIP-2-020 EN-EP-609 EN-EP-610 EN-EP-611

Table F-2 (Cont)

<u>Emergency Plan Section</u>	<u>Implemented by Procedure Number</u>
13.3.4.2.1	EIP-2-002 EIP-2-018 EIP-2-020 EIP-2-022 EN-EP-609 EN-EP-610
13.3.4.2.2	EIP-2-002 EIP-2-016 EIP-2-018 EIP-2-020 EN-EP-609 EN-EP-610 EN-EP-611
13.3.4.2.2.1	EIP-2-002 EIP-2-016 EIP-2-018 EIP-2-020 EN-EP-609 EN-EP-610 EN-EP-611
13.3.4.2.2.2	EIP-2-006 EIP-2-018 EIP-2-020 EIP-2-022 EN-EP-609 EN-EP-610
13.3.4.2.2.3	EIP-2-002 EP-4-ALL EP-8-ALL EIP-2-014 EIP-2-016 EIP-2-020 EN-EP-609 EN-EP-611
13.3.4.2.2.4	EIP-2-016 EIP-2-018 EN-EP-610

Table F-2 (Cont)

<u>Emergency Plan Section</u>	<u>Implemented by Procedure Number</u>
13.3.4.2.2.5	EIP-2-016 EN-EP-611
13.3.4.2.2.6	Implemented by Fire Protection Procedures
13.3.4.2.2.7	Implemented by Administrative Procedures
13.3.4.2.2.8	EIP-2-026
13.3.4.2.2.9	EIP-2-016 EN-EP-611
13.3.4.2.2.10	EIP-2-026
13.3.4.3	EIP-2-018 EIP-2-020 EN-EP-609 EN-EP-610
13.3.4.3.1	EIP-2-020 EN-EP-609 EIP-2-023
13.3.4.3.2	Implemented by Fire Protection Procedures and Administrative Procedures
13.3.4.3.3	EIP-2-020 EN-EP-609
13.3.4.3.4	Louisiana State Plan
13.3.4.4	N/A
13.3.4.4.1	Louisiana State Plan
13.3.4.4.2	Parish Plans
13.3.4.4.3	Mississippi State Plan
13.3.5	EIP-2-001 EIP-2-002

Table F-2 (Cont)

<u>Emergency Plan Section</u>	<u>Implemented by Procedure Number</u>
13.3.5.1	EIP-2-002 EIP-2-006 EIP-2-016 EIP-2-018 EIP-2-020 EN-EP-609 EN-EP-610 EN-EP-611 EIP-2-023
13.3.5.2	EIP-2-001 EIP-2-007 EIP-2-014 EIP-2-018 EIP-2-020 EIP-2-022 EN-EP-609 EN-EP-610 EIP-2-024
13.3.5.3	EIP-2-016 EN-EP-611
13.3.5.4	EIP-2-002 EIP-2-007 EIP-2-018 EIP-2-020 EN-EP-609 EN-EP-610 EIP-2-026
13.3.5.4.1	NA
13.3.5.4.1.1	EP-4-ALL EP-8-ALL EIP-2-026
13.3.5.4.1.1.1	EIP-2-002 EIP-2-026
13.3.5.4.1.1.2	EIP-2-002
13.3.5.4.1.1.3	EIP-2-026

Table F-2 (Cont)

<u>Emergency Plan Section</u>	<u>Implemented by Procedure Number</u>
13.3.5.4.1.1.4	EIP-2-026
13.3.5.4.1.1.5	EIP-2-016 EIP-2-018 EIP-2-020 EN-EP-609 EN-EP-610 EN-EP-611 EIP-2-026 EIP-2-103
13.3.5.4.1.1.6	EP-4-ALL EP-8-ALL EIP-2-026
13.3.5.4.1.1.7	EN-EP-613
13.3.5.4.1.2	EIP-2-006 EIP-2-007 EIP-2-020 EN-EP-609 Louisiana State Plan Mississippi State Plan
13.3.5.4.1.2.1	EIP-2-006 EIP-2-018 EIP-2-020 EIP-2-022 EN-EP-609 EN-EP-610
13.3.5.4.1.2.2	EPP-2-201 Louisiana State Plan
13.3.5.4.1.2.3	EIP-2-007 EIP-2-018 EIP-2-020 EN-EP-609 EN-EP-610
13.3.5.4.2	EIP-2-103

Table F-2 (Cont)

<u>Emergency Plan Section</u>	<u>Implemented by Procedure Number</u>
13.3.5.4.3	EP-4-ALL EP-8-ALL EIP-2-014
13.3.5.5	Implemented by Administrative Procedures
13.3.5.5.1	EP-4-ALL EP-8-ALL EIP-2-016 EIP-2-018 EN-EP-610 EN-EP-611
13.3.5.5.2	EIP-2-103
13.3.6	NA
13.3.6.1	EIP-2-016 EIP-2-018 EIP-2-020 EIP-2-022 EN-EP-609 EN-EP-610 EN-EP-611
13.3.6.1.1	EIP-2-018 EN-EP-610
13.3.6.1.2	EIP-2-016 EN-EP-611
13.3.6.1.3	EIP-2-002
13.3.6.1.4	EIP-2-002 EIP-2-018 EN-EP-610
13.3.6.1.5	EIP-2-020 EN-EP-609 EIP-2-022 EN-EP-613

Table F-2 (Cont)

<u>Emergency Plan Section</u>	<u>Implemented by Procedure Number</u>
13.3.6.1.5.1	EIP-2-020 EN-EP-609 EIP-2-022
13.3.6.1.5.2	EIP-2-020 EN-EP-609
13.3.6.1.5.3	NA
13.3.6.1.5.4	EIP-2-020 EN-EP-609
13.3.6.1.5.5	EIP-2-020 EN-EP-609
13.3.6.1.5.6	EIP-2-020 EN-EP-609
13.3.6.1.5.7	EIP-2-020 EN-EP-609
13.3.6.1.5.8	EIP-2-020 EN-EP-609
13.3.6.1.6	EIP-2-023
13.3.6.1.7	EIP-2-023
13.3.6.2	EIP-2-006 EIP-2-018 EIP-2-020 EIP-2-022 EN-EP-609 EN-EP-610
13.3.6.2.1	EIP-2-016 EIP-2-018 EIP-2-020 EN-EP-609 EN-EP-610 EN-EP-611

Table F-2 (Cont)

<u>Emergency Plan Section</u>	<u>Implemented by Procedure Number</u>
13.3.6.2.2	EIP-2-006 EIP-2-016 EIP-2-018 EIP-2-020 EIP-2-022 EN-EP-609 EN-EP-610 EN-EP-611
13.3.6.3	NA
13.3.6.3.1	EIP-2-002 EIP-2-018 EIP-2-020 EN-EP-609 EN-EP-610
13.3.6.3.2	N/A
13.3.6.4	EIP-2-002 EIP-2-016 EIP-2-018 EN-EP-610 EN-EP-611 EIP-2-103
13.3.6.5	EP-4-ALL EP-8-ALL EIP-2-103
13.3.6.6	EIP-2-016 EN-EP-611 Implemented by Fire Protection Program
13.3.6.7	EIP-2-020 EN-EP-609
13.3.7	EIP-2-101
13.3.7.1	NA

Table F-2 (Cont)

<u>Emergency Plan Section</u>	<u>Implemented by Procedure Number</u>
13.3.7.1.1	EN-TQ-110
13.3.7.1.1.1	EN-TQ-110
13.3.7.1.1.2	EN-TQ-110
13.3.7.1.1.3	EN-EP-306
13.3.7.1.2	EN-EP-306
13.3.7.1.2.1	EN-EP-306
13.3.7.1.2.2	EN-EP-306
13.3.7.1.2.3	EN-EP-306
13.3.7.2	EIP-2-101
13.3.7.3	EIP-2-103
13.3.8	EIP-2-002 EIP-2-018 EIP-2-020 EN-EP-609 EN-EP-610 EIP-2-022 EN-EP-613

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APPENDIX G
NUREG 0654 CROSS REFERENCE

**RIVER BEND STATION EMERGENCY PLAN
NUREG 0654 CROSS REFERENCE**

NUREG 0654 Section Listing	Emergency Plan Section Numbers	Title
A. Assignment of Responsibility		
1.a	13.3.4.3	Augmentation of Site Emergency Organization
	13.3.4.3.1	EOI Corporate Support
	13.3.4.3.2	Local Support Services
	13.3.4.3.4	Federal Government Agencies
	13.3.4.4.1	State of Louisiana
	13.3.4.4.2	River Bend Parishes
	13.3.4.4.3	State of Mississippi
1.b	13.3.2	Summary of Emergency Plan
	13.3.4	Organizational Control of Emergencies
	13.3.5.4.1.2.1	EOI Responsibilities During an Onsite Emergency Event with Offsite Radiological Consequences
1.c	Fig. 13.3-18	River Bend Station Emergency Response Facilities
1.d	13.3.4.2.1	Direction/Coordination
1.e	13.3.4.2.2	Plant Staff Emergency Assignments
	13.3.4.2.2.2	Notification/Communication
3.	Appendix B	Letters of Agreement
4.	13.3.4.2.2	Plant Staff Emergency Assignments

B. Onsite Emergency Organization

1.	13.3.3.4	Organizational Control of Emergencies
	13.3.3.4.1	Normal Operating Organization
	13.3.3.4.2	Onsite Emergency Organization
	13.3.3.4.2.2	Plant Staff Emergency Assignments
2.	13.3.4.2.1	Direction and Control
3.	13.3.4.2.1	Direction and Control
4.	13.3.4.2.1	Direction and Control

NUREG 0654 Section Listing	Emergency Plan Section Numbers	Title
5.	13.3.4.2 Appendix A	Onsite Emergency Organization Emergency Organization Job Description
6.	13.3.4.4 Figure 13.3-18	Coordination with Participating Agencies River Bend Station Emergency Response Facilities
7.	13.3.4.2.2 13.3.4.3.1	Plant Staff Emergency Assignments EOI Corporate Support
7.a	13.3.4.2.2 13.3.4.3.1	Plant Staff Emergency Assignments EOI Corporate Support
7.b	13.3.8 13.3.4.2.2.1 13.3.4.2.2.4	Recovery Plant Operations and Assessment of Operational Aspects Plant Systems Engineering, Repair and Corrective Actions
7.c	13.3.4.2.1 13.3.4.3.1	Direction / Coordination EOI Corporate Support
7.d	13.3.4.2.1 13.3.4.3.1 13.3.6.1.6	Direction / Coordination EOI Corporate Support Joint Information Center (JIC)
8.	13.3.4.3 13.3.4.3.2 Appendix B	Augmentation of Site Emergency Organization Local Support Services Letters of Agreement
9.	13.3.4.3 13.3.4.3.2 13.3.4.4 13.3.4.4.1 13.3.4.4.2 13.3.4.4.3 Appendix B	Augmentation of Site Emergency Organization Local Support Services State and Local Government Agencies State of Louisiana River Bend Parishes State of Mississippi Letters of Agreement

NUREG 0654	Emergency Plan	
<u>Section Listing</u>	<u>Section Numbers</u>	<u>Title</u>

C. Emergency Response Support and Resources

1.a	13.3.4.2.1	Direction and Coordination
1.b	13.3.4.3.4 Appendix B	Federal Government Agencies Letters of Agreement
1.c	13.3.4.4 13.3.4.4.1 13.3.4.4.2 13.3.4.4.3	State and Local Government Agencies State of Louisiana River Bend Parishes State of Mississippi
2.b	13.3.4.4.1	State of Louisiana
3	13.3.4.3.2 Appendix B	Local Support Services Letters of Agreement
4	13.3.4.3.2 Appendix B	Local Support Services Letters of Agreement

D. Emergency Classification System *

1.	13.3.3.1 13.3.3.2 13.3.3.2.1 13.3.3.2.2 Table 13.3.2 Table 13.3-3	Classification System Spectrum of Postulated Accidents Instrumentation Capability for Detection Evaluation USAR Postulated Accidents and Related Emergency Classification Accident Assessment Techniques
2.	13.3.3.2 Table 13.3-2	Spectrum of Postulated Accidents USAR Postulated Accidents and Related Emergency Classification

*Table 13.3.1 - Emergency Action Levels and Initiating Conditions are based on the methodology of NEI-99-01.

NUREG 0654	Emergency Plan	
<u>Section Listing</u>	<u>Section Numbers</u>	<u>Title</u>
E Notification Methods and Procedures		
1.	13.3.4.2.2.2 13.3.5.4.1.1.1 13.3.5.4.1.2.1	Notification / Communication Notification EOI Responsibilities During an Onsite Emergency Event with Offsite Radiological Consequence
2.	13.3.4.2.2.2 13.3.5.4.1.1.1	Notification / Communication Notification
3.	13.3.4.2.2.2 13.3.5.4.1.2.1	Notification / Communication EOI Responsibilities During an Onsite Emergency Event with Offsite Radiological Consequence
4. a-n	13.3.5.4.1.2.1	EOI Responsibilities During an Onsite Emergency Event with Offsite Radiological Consequence
6.	13.3.5.4.1.2.2	Public Notification and Information
7.	13.3.5.4.1.2.1 13.3.5.4.1.2.2	EOI Responsibilities During an Onsite Emergency Event with Offsite Radiological Consequence Public Notification and Information
F. Emergency Communications		
1.a	13.3.4.2.2.2 13.3.5.4.1.2.1 13.3.6.2.2	Notification / Communication EOI Responsibilities During an Onsite Emergency Event with Offsite Radiological Consequence Plant-to-Offsite Communications
1.b.	13.3.5.4.1.2.1 13.3.6.2.2	EOI Responsibilities During an Onsite Emergency Event with Offsite Radiological Consequence Plant-to-Offsite Communications
1.c.	13.3.4.3.4 13.3.6.2.2 Figure 13.3-19	Federal Government Agencies Plant-to-Offsite Communications River Bend Station Communications System

NUREG 0654 Section Listing	Emergency Plan Section Numbers	Title
1.d	13.3.6.1.5.4 13.3.6.2 13.3.6.2.1 13.3.6.2.2 Figure 13.3-19	Communication Communications Systems Site Communications Plant-to-Offsite Communications River Bend Station Communication System
1.e	13.3.4.2.2.2 13.3.5.4.1.1.1 13.3.5.4.1.2.1 13.3.6.2.1	Notification / Communication Notification EOI Responsibilities During an Onsite Emergency Event with Offsite Radiological Consequence Site Communications
1.f	13.3.6.2 13.3.6.1.5.4 Figure 13.3-19	Communications Systems Communications River Bend Station Communication System
2.	13.3.5.5.2	Decontamination and First Aid
3.	13.3.7.1.2.3	Emergency Response Drills
G Public Information		
1.	13.3.5.4.1.2.2	Public Notification and Information
2	13.3.5.4.1.2.2	Public Notification and Information
3.a	13.3.6.1.6	Joint Information Center (JIC)
3.b	13.3.6.1.6	Joint Information Center (JIC)
4.a,b.	13.3.4.2.1 13.3.4.3.1 13.3.6.1.6	Direction / Coordination EOI Corporate Support Joint Information Center (JIC)
4.c	13.3.5.4.1.2.2	Public Notification and Information
5	13.3.5.4.1.2.2	Public Notification and Information

NUREG 0654 Emergency Plan
Section Listing Section Numbers Title

H. Emergency Facilities and Equipment

- | | | |
|-------|--|--|
| 1. | 13.3.6.1.1
13.3.6.1.2 | Technical Support Center (TSC)
Operations Support Center (OSC) |
| 2. | 13.3.6.1.5 | Emergency Operations Center (EOF) |
| 4. | 13.3.6.1
13.3.3.1
13.3.4.2.2.1 | Emergency Response Facilities
Classification System
Plant Operations and Assessment of
Operational Aspect |
| 5.a-d | 13.3.6.3.1
Table 13.3-1 | Onsite Assessment Facilities
Emergency Action Levels and Initiating
Conditions |
| 6.a-c | 13.3.6.3.2 | Offsite Assessment Facilities and Equipment |
| 7. | 13.3.4.2.2.3
13.3.6.3.2
Appendix E | Radiological Accident Assessment
Offsite Assessment Facilities and Equipment
Emergency Kits |
| 8. | 13.3.5.2
13.3.6.3.1 | Assessment Actions
Onsite Assessment Facilities |
| 9. | 13.3.6.1.2
Appendix E | Operations Support Center (OSC)
Emergency Kits |
| 10. | 13.3.7.3
Appendix E | Emergency Equipment and Supplies
Emergency Kits |
| 11. | Appendix E | Emergency Kits |
| 12. | 13.3.4.2.2.3
13.3.6.1.5
Appendix A | Radiological Accident Assessment Event with
Emergency Operations Facility (EOF)
Emergency Organization Job Description |

NUREG 0654	Emergency Plan	
<u>Section Listing</u>	<u>Section Numbers</u>	<u>Title</u>
I. Accident Assessment		
1.	13.3.3.2 13.3.3.2.1 13.3.3.2.2 Table 13.3-1	Spectrum of Postulated Accidents Instrumentation Capability for Detection Evaluation Emergency Action Levels and Initiating Conditions
2.	13.3.5.4.1.2.1 13.3.6.2.2	EOI Responsibilities During an Onsite Emergency Event with Offsite Radiological Consequences Plant-to-Offsite Communications
3.a,b	13.3.3.2 13.3.3.2.1 13.3.3.2.2 13.3.5.2	Spectrum of Postulated Accidents Instrumentation Capability for Detection Evaluation Assessment Actions
4.	13.3.5.2	Assessment Actions
5.	13.3.5.2 13.3.5.4.1.2.1 Figure 13.3-19	Assessment Actions EOI Responsibilities During an Onsite Emergency Event with Offsite Radiological Consequences River Bend Station Onsite Communication System
6.	13.3.5.2	Assessment Actions
7.	13.3.4.2.2.3 Appendix E	Radiological Accident Assessment Emergency Kits
8.	13.3.4.2.2.3 13.3.5.2 Table 13.3-1 Table 13.3-2 Table 13.3-3 Table 13.3-7 Table 13.3-9	Radiological Accident Assessment Assessment Actions Emergency Action Levels and Initiating Conditions USAR Postulated Accidents and Related Emergency Classification Accident Assessment Techniques Assessment Actions Alternate Radiological Laboratory Facilities

NUREG 0654 Section Listing	Emergency Plan Section Numbers	Title
9.	13.3.4.2.2.3 13.3.5.2 13.3.6.3 Table 13.3-3 Appendix E	Radiological Accident Assessment Assessment Actions Assessment Facilities Accident Assessment Techniques Emergency Kits
10.	13.3.5.2 Appendix C	Assessment Actions Supporting Emergency Plans
J. Protective Response		
1.a,b,c,d	13.3.5.4.1.1.1 13.3.5.4.1.1.2 13.3.5.4.1.1.3 13.3.5.4.1.1.4	Notifications Site Access control Onsite Evacuation and Relocation Evacuation Times
2.	13.3.5.4.1.1.3	Onsite Evacuation and Relocation
3.	13.3.5.4.1.1.5	Monitoring Evacuees
4.	13.3.5.4.1.1.3 13.3.5.4.1.1.4 13.3.5.4.1.1.5 13.3.5.5.2	Onsite Evacuation and Relocation Evacuation Times Monitoring Evacuees Decontamination and First Aid
5.	13.3.4.2.2.8	Site Access Control and Personnel Accountability
6:a,b,c	13.3.5.4.2 13.3.5.4.3 Appendix E Appendix F	Use of Protective Equipment and Supplies Contamination control measures Emergency Kits EIP Procedure Listing
7.	13.3.5.4.1.2.2 13.3.5.4.1.2.3 13.3.5.2	Public Notification and Information Timing Requirements for Implementation of Offsite Protective Actions Assessment Actions
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RBG-47811

River Bend Station On-Shift Staffing Analysis Final Report Revision 1

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RIVER BEND STATION ON-SHIFT STAFFING ANALYSIS FINAL REPORT

Rev 1

November 14, 2017

Rev 0

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Rev 1

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RBS ON-SHIFT STAFFING ANALYSIS REPORT

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RBS ON-SHIFT STAFFING ANALYSIS REPORT

I. INTRODUCTION

This document is revision 1 to the final report for the On-shift Staffing Analysis (OSA) that commenced at River Bend Station (RBS) during the week of April 23, 2012. This OSA satisfies the requirement of 10 CFR 50 Appendix E Section IV.A.9, which states that nuclear power licensees shall perform "*a detailed analysis demonstrating that on-shift personnel assigned emergency plan implementation functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in the emergency plan.*" A structured approach was utilized to perform this analysis using the guidance found in NEI 10-05, Rev. 0, *Assessment of On-Shift Emergency Response Organization Staffing and Capabilities*. This analysis examined the capability of the minimum staff listed in Table 13.3-17 of the RBS Emergency Plan (E-Plan) to perform the actions for the key functional areas of events described in NSIR/DPR-ISG-01, *Interim Staff Guidance – Emergency Planning for Nuclear Power Plants*, until augmenting Emergency Response Organization (ERO) staff arrives in accordance with the E-Plan.

Changes made in revision 1 include use of a dual role OSM/STA in lieu of a separate STA and OSM. River Bend Station Technical Requirements Manual (TRM) allows for the use of a dual role STA/OSM with the addition of a fifth license. Use of the dual role OSM/STA and the fifth license has been added to the tables throughout the report. Additional changes include reassigning the responsibility for completion of the State/Local notification form and NRC event notification form from the STA to the dual role OSM/STA. The responsibility for the abbreviated NRC notification for the DBT event has also been reassigned from the STA to the dual role OSM/STA. The RBS Emergency Plan table 13.3-17 requires two personnel on-shift to provide first aid support activities. First aid activities are considered an acceptable collateral duty per NEI 10-05. The report has been revised to reflect the use of two on-shift personnel instead of specifically assigning it to security.

II. ANALYSIS SUMMARY

The OSA team determined that an on-shift staff of seventeen (17) is required to respond to the most limiting accident scenario reviewed, main control room fire and shutdown at the remote shutdown panel. The on-shift staff consists of individuals necessary to support each of the emergency plan functional areas or tasks:

- Emergency Direction and Control
- Plant Operations and Safe Shutdown (SSD)
- Fire Fighting (FB)
- Accident Assessment
- Radiation Protection and Chemistry
- Notification/Communication
- Technical Support
- Access Control and Accountability

NEI 10-05 states it is acceptable for certain function to be assigned to personnel already assigned other functions/tasks. These include Repair and Corrective Action, Rescue Operations and First Aid.

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A. Emergency Plan Minimum Staffing

Per 10 CFR 50.54 (q)(1)(iii), *Emergency planning function* means a capability or resource necessary to prepare for and respond to a radiological emergency, as set forth in the elements of section IV of Appendix E and, for nuclear power reactor licensees, the planning standards of § 50.47(b).

The following table indicates the result of the NEI 10-05 staffing analysis of on-shift personnel to perform the required emergency planning functions and the licensing basis requirement for each on-shift position.

Position	E-Plan Requirements	E-Plan Functional Area	On-Shift Staffing Analysis Results
Shift Manager (SM)	E-Plan Table 13.3-17	Emergency Direction and Control	1
Control Room Supervisor (CRS)	E-Plan Table 13.3-17	SSD	1
Shift Technical Advisor (STA) ³	E-Plan Table 13.3-17	Technical Support	1
Nuclear Control Operator (NCO #1)	50.54m E-Plan Table 13.3-17	SSD	1
Nuclear Control Operator (NCO #2)	50.54m E-Plan Table 13.3-17	SSD	1
Nuclear Equipment Operator (NEO #1)	E-Plan Table 13.3-17	SSD	1
Nuclear Equipment Operator (NEO #2)	E-Plan Table 13.3-17	FB	1
Nuclear Equipment Operator (NEO #3)	E-Plan Table 13.3-17	FB	1
Nuclear Equipment Operator (NEO #4)	E-Plan Table 13.3-17	FB	1
Nuclear Equipment Operator (NEO #5)	E-Plan Table 13.3-17	Communicator Notifications	1
Chemistry	E-Plan Table 13.3-17	Accident Assessment/Chemistry	1
Radiation Protection (RP) #1	E-Plan Table 13.3-17	Radiation Protection	1
RP #2	E-Plan Table 13.3-17	Radiation Protection	1
Maintenance Tech #1	E-Plan Table 13.3-17	Repair & Corrective Action	1 ¹
Maintenance Tech #2	E-Plan Table 13.3-17	Repair & Corrective Action	1 ¹
Fire Brigade #1	E-Plan Table 13.3-17	FB	1 ²
Fire Brigade #2	E-Plan Table 13.3-17	FB	1 ²
Security	Security Contingency Plan / E-Plan Table 13.3-17	Access Control and Accountability	Per Security Contingency Plan
TOTAL			17

¹Maintenance Tech #1 and #2 - the two Maintenance on-shift members are available to support operations when needed but were not identified in this OSA as having a specific emergency function or task for the accidents included in the analysis.

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²Fire Brigade #1 and #2 – the two positions did not have any actions or tasks identified in this OSA other than Fire Brigade. The on-shift members are available to support the Shift Manager, where qualified, in non-fire events.

³STA function may be filled by on shift SM or SRO provided the individual is qualified as STA and five licensed operators are on shift.

B. Other Commitments to Shift Staffing

NONE

C. Staffing Exceptions and Time Motion Studies (TMS)

1. The primary responsibility for the on-shift Chemistry Technician is chemistry/radiochemistry sampling; however no chemistry job tasks were noted as being required within the first 90 minutes of any of the analyzed events. It is therefore acceptable to assign the Chemistry Technician the E-Plan function of dose assessment. This task will be performed when directed by the Shift Manager and therefore will not overlap with any other task. No further analysis or TMS is required.
2. The Shift Manager is assigned the responsibility to make some notifications per OSP-046 such as the Duty Plant Manager, Operations Manager, and Resident Inspector. These notifications by phone are considered communications that are approximately one minute in length and are acceptable tasks for the Shift Manager. No further analysis or TMS is required.
3. Station staff are required to maintain continuous communications with the notification source during an aircraft threat in accordance with 10CFR50.54(hh) and Reg. Guide 1.214. There are no specific qualifications required to perform this task and the function is not required to be assigned in advance. The analysis of this event identified there are sufficient personnel on-shift to perform this task during the event. Specifically, an equipment operator, the radiation protection technicians, and chemistry technician were all available to fill this function. No further analysis or TMS is required.
4. The RBS Emergency Response Data System (ERDS) link to the NRC is on 24-hour operation and does not require activation by the on-shift ERO. The task of ERDS activation is therefore not included as an on-shift task requiring evaluation as part of this staffing analysis. 5.
5. The Shift Technical Advisor (STA) position at RBS is normally filled by an individual with the title STA as noted in the staffing table located in Section II.A of this report. The RBS Technical Requirements Manual (TRM) Table 5.2.2-1, Minimum Shift Crew Composition allows for the STA position to be filled by an on-shift shift manager (OSM) or Senior Reactor Operation (SRO) provided the individual meets the STA qualifications for the dual role position and five (5) licensed operators are on shift. NRC Generic Letter 86-04, "Policy Statement on Engineering Expertise On-Shift" and NEI 10-05 state that it is acceptable for the STA position to be filled by an STA qualified individual already serving in another on-shift role (dual-role individual). Additionally, the required fifth license would be available to assist in performing actions as directed by the CRS. This analysis was conducted assuming the STA role was filled by the OSM with the addition of the fifth licensed operator as required by the RBS TRM. As stated in NEI 10-05, use of a dual role individual is an acceptable collateral duty assignment that does not require a TMS.

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D. Emergency Plan Tasks Not Analyzed

1. Repair and Corrective Action - Per the guidance of NUREG-0654, Table B-1, repair and corrective action tasks may be performed by dedicated shift personnel or qualified shift personnel assigned other functions/tasks. Repair and corrective action is defined as:

- An action that can be performed promptly to restore a non-functional component to functional status (e.g., resetting a breaker), or to place a component in a desired configuration (e.g., open a valve), and which does not require work planning or implementation of lockout/tagout controls to complete.

In accordance with NEI 10-05 section 2.5, the analysis included a review of repair and corrective action tasks. For the purpose of this analysis, the tasks were considered to fall into two broad categories:

- Unplanned/unexpected actions that address equipment failures. These actions are contingent in nature and cannot be specified in advance.
- Planned/expected actions performed in support of operating procedure implementation, including severe accident management guidelines.

At RBS, two maintenance staff (any combination of mechanical, electrical, or I&C) are on shift and available to perform repair and corrective actions as needed. Nuclear Equipment Operators are also trained to perform the actions associated with this functional area. Actions (e.g., reset breakers, valve manipulation) directed by the Control Room Supervisor to mitigate the event per procedures were performed by the Nuclear Equipment Operators in this analysis. Repair and Corrective Action is an acceptable collateral duty per the guidance of NEI 10-05 and was not analyzed

2. Rescue Operations and First Aid: In accordance with NEI 10-05 section 2.6, the analysis also included a review of rescue operations and first aid response. Per the guidance of NUREG-0654, Table B-1, rescue operations and first aid may be performed by shift personnel assigned other functions. RBS Fire brigade members are trained to perform rescue operations and are assigned the task should the need arise. Rescue operations were not required in any of the accident scenarios reviewed. Additionally, two on-shift personnel per shift are trained in first aid and CPR. Rescue operations and first aid response are considered acceptable collateral duties per the guidance of NEI 10-05 and were not analyzed.

III. ANALYSIS PROCESS

This analysis was conducted by a joint team of corporate Emergency Preparedness (EP) personnel and station personnel from the Operations, Operations Training, Radiation Protection, Chemistry and Emergency Preparedness (EP) departments. Additionally, personnel from Engineering provided input to the analysis.

The emergency response to each event was determined by conducting a tabletop of the event using the emergency plan and procedures and the applicable department procedures such as Operations emergency and abnormal operating procedures.

Each scenario was reviewed by the cross disciplinary team to determine what plant actions and emergency plan implementation actions were required based on plant procedures prior to staff augmentation. These actions were then compared to the minimum staffing for Emergency Plan implementation as described in the Emergency Plan

RBS ON-SHIFT STAFFING ANALYSIS REPORT

Table 13.3-17, ensuring that no actions were assigned to staff members that conflicted with either their dedicated emergency plan role or their dedicated operational role as appropriate. In cases where multiple tasks were assigned to an individual in their role, the team evaluated timing of the tasks to ensure that they could be performed by the individual in series within any specified time requirements.

The results of the analysis for each of the scenarios are included in Section VIII, APPENDIX B – ON-SHIFT STAFFING ANALYSIS. Note that NSIR DPR-ISG-01 states that only DBA accidents “which would result in an emergency declaration” should be evaluated in the staffing assessment. Each of RBS DBA’s were evaluated and classified according to its UFSAR Chapter 15 description. If the accident description alone did not result in a classification, the projected accident EAB dose found in the UFSAR was utilized to determine if an EAL threshold would be exceeded within the first 90 minutes using the Abnormal Rad Level EAL thresholds. In cases where several projected doses were provided or release data was not detailed significantly to determine an EAL, the assessment used the radiological consequences associated with the realistic case in accordance with NEI 10-05.

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IV. ACCIDENT SCENARIOS

A. Accident Selection

1. The OSA scenarios were chosen using the guidance of NEI 10-05 and NSIR/DPR-ISG-01, "Interim Staff Guidance – Emergency Planning for Nuclear Power Plants." The evaluation considered the station Design Basis Accidents (DBA) described in the USAR along with additional scenarios specified by the guidance documents. The scenarios considered were:
 - Design Basis Threat (DBT) as described in NEI 10-05
 - DBA Control Rod Drop Accident (CRDA) as described in USAR 15.4.9
 - DBA Main Steam Line Break Accident (MSLB) as described in USAR 15.6.4
 - DBA Large Break Loss of Coolant Accident, (LOCA) as described in USAR 15.6.5
 - DBA Fuel Handling Accident (FHA) as described in 15.7.4
 - DBA Gaseous Radwaste System Leak or Failure/Augmented Off Gas treatment System Failure as described in USAR 15.7.1
 - DBA Liquid Radwaste System Leak or Failure as described in USAR 15.7.2
 - Aircraft Probable Threat
 - Fire requiring evacuation of the Control Room and plant shutdown from remote location, (Appendix R Fire)
 - Station Blackout, (SBO)
 - LOCA/General Emergency with release and PAR
 - DBA Instrument Line Break Accident as described in USAR 15.6.2
 - DBA Feedwater Line Break Outside Containment as described in USAR 15.6.6
 - DBA Liquid Radwaste System Tanks Failure as described in USAR 15.7.3
 - LOCA with entry into Severe Accident Management
 - One Recirculation Pump Shaft Seizure as described in USAR 5.3.3
 - One Recirculation Pump Shaft Break as described in USAR 15.3.4
 - Spent Fuel Cask Drop as described in USAR 15.7.5
 - Appendix R Fire That Results in Reactor Trip

B. Accident Scenarios included in the Analysis

1. Design Basis Threat (DBT)
 - Land and/or waterborne Hostile Action directed against the Protected Area by a Hostile Force. RBS DBT is land based. This event assumes the threat is neutralized immediately when inside the protected area fence, no significant damage to equipment or systems that require corrective actions before the ERO is staffed, no radiological release, and no fire that requires firefighting response before the ERO is staffed. EAL is based on the event.

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2. Control Rod Drop Accident (CRDA)
 - One control rod drops and reactor trips on high neutron flux scram. Credit is not taken for main steam isolation valve (MSIV) closure. Release pathway is through condenser, turbine building then to environment. Emergency Action Level (EAL) is based on Exclusion Area Boundary (EAB) information in USAR.
3. Main Steam Line Break (MSLB) Outside Containment
 - Break of one main steam line and release through the main steam tunnel blowout panel. Reactor coolant activity at Tech Spec limit. No EAL on the accident but on the USAR EAB 2-hr dose.
4. Loss of Coolant Accident
 - Double ended guillotine break of a recirculation line. All ECCS operate as designed. EAL is based on fission product barrier EALs.
5. Fuel Handling Accident
 - The accident involves a dropped fuel bundle on top of the core. Initial EAL is based on the event.
6. Gaseous Radwaste System Leak or Failure / Augmented Off Gas Treatment System Failure
 - A failure of the offgas system is assumed during a seismic event. Noble gases are released directly to the turbine building and subsequently through the ventilation system to the environment. EAL is based on USAR release information.
7. Liquid Radwaste System Leak or Failure
 - An unexpected and uncontrolled release of the radioactive liquid stored in all of the liquid radwaste system tanks. All tanks are assumed to rupture, releasing their entire contents to the radwaste building. High area radiation alarms and radwaste ventilation exhaust alert plant personnel. EAL is based on USAR EAB dose information.
8. Aircraft Probable Threat (50.54hh)
 - Notification is received from the NRC that a probable aircraft threat exists (>5 minutes, <30 minutes). EAL is based on the event.
9. Control Room Fire and Remote Shutdown
 - A fire occurs in the main control room requiring the evacuation and the procedure implemented to shutdown from the remote shutdown panels. EAL is based on the event.
10. Station Blackout
 - A loss of all offsite AC power occurs and the failure of the emergency diesel generators to start. EAL is based on the event.
11. General Emergency with release and PAR
 - Assumed SAE condition when dose projection indicates an upgrade to GE and a PAR based on release is warranted.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

C. Accident Scenarios Not Included in the Analysis

1. Instrument Line Break
 - Not applicable to RBS, no instrument lines carrying reactor coolant system located outside containment.
2. Feedwater Line Break Outside Containment
 - Bound by the DBA Main Steam Line Break Outside containment
3. Liquid Radwaste System Tanks Failure
 - No EAL met and therefore no staffing analysis is required for this accident.
4. Implement Severe Accident Management Guidelines (SAMG)
 - A review of the SAMGs associated with the initial site-specific Candidate High Level Actions concluded that no actions would require on-shift personnel other than licensed and non-licensed operators. No analysis required.
5. Seizure of One Recirculation Pump
 - Instantaneous stoppage of the pump motor shaft of one recirculation loop pump. No EAL met and therefore no staffing analysis is required for this accident.
6. Recirculation Pump Shaft Break
 - A recirculation loop pump shaft break event considers the degraded, delayed stoppage of the pump motor shaft of one recirculation loop pump. No EAL met and therefore no staffing analysis is required for this accident.
7. Cask Drop Accident
 - No radioactive material released from the cask, no significant damage to structures, systems or components, and no significant damage to the spent fuel inside the cask. No EAL met and therefore no staffing analysis is required for this accident.
8. Appendix R Fire that Results in Reactor Trip
 - The team concluded the Control Room fire to be the most limiting for resources and therefore a staffing analysis for an additional fire scenario is not required. The emergency plan and fire brigade responsibilities are the same for both events. No staffing analysis is required.

V. GENERAL ASSUMPTIONS AND LIMITATIONS

A. Notes and Assumptions Applicable to All RBS OSA

1. The RP and Chemistry tasks reviewed were those directed by the Shift Manager to support actions in Abnormal Operating Procedures (AOP), Emergency Operating Procedures (EOP), and Emergency Implementing Procedures (EIP). Any additional tasks directed by the Technical Support Center (TSC), Operations Support Center (OSC), or Emergency Operations Facility (EOF) procedures were not reviewed.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

2. RBS has 75 minute and 90 minute emergency responders when augmented while the ERO is offsite. This analysis was conducted assuming a 90 minute response of the augmented ERO since this is the time the emergency response facilities are required to be operational. No credit was taken for the 75 minute responders. No specific emergency response tasks requiring the augmented ERO were identified prior to the 90 minutes following the emergency declaration.
3. The OSA team determined there are no time critical RP and Chemistry tasks and that task performance is directed and prioritized by the Shift Manager. The time RP or Chemistry is directed to perform a task and the amount of time taken to complete tasks are estimated. No Chemistry samples are required by Tech Specs within the 90 minute period after a declaration. Since the Shift Manager directs when the tasks are performed, there are no overlapping RP or chemistry tasks.

B. NEI 10-05 Rev 0 Assumptions

1. Response time used for this analysis was the maximum acceptable number of minutes elapsed between emergency declaration and the augmented ERO position holder at a location necessary to relieve an on-shift position of the emergency response task. (90 min.)
2. On-shift personnel complement was limited to the minimum required number and composition as described in the site emergency plan. If the plan commitments allow for different minimum staffing levels (e.g., a variance between a normal dayshift and a backshift), the staffing with the smallest total number of personnel was used for the analysis.
3. Although the temporary absence of a position may be allowed by Tech Specs, the analysis was performed assuming that all required on-shift positions are filled.
4. Event occurred during off-normal work hours where ERO was offsite and all required minimum on-shift positions were filled.
5. On-shift personnel reported to their assigned response locations within timeframes sufficient to allow for performance of assigned actions.
6. On-shift staff had necessary Radiation Worker qualification to obtain normal dosimetry and enter the radiological control area (RCA) (but not locked high or very high radiation areas) without the aid of a RP technician.
7. Personnel assigned plant operations and SSD met the requirements and guidance (analyzed through other programs such as operator training) and were not evaluated as part of this assessment unless a role/function/task from another major response area was assigned as a collateral duty.
8. In-plant (manual) safety related operator actions to manipulate components and equipment from locations outside the control room to achieve and maintain safe shutdown was done by a member of the on-shift staff as defined in the unit's Tech Specs.
9. Fire brigade (FB) staff performance is analyzed through other station programs (e.g., fire drills) and was not evaluated as part of this assessment unless a role/function/task from another major response area was assigned as a collateral duty.
10. Individuals holding the position of RP technician or Chemistry technician are qualified to perform the range of tasks expected of their position.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

11. Security was not evaluated unless a role or function from another major response area was assigned as a collateral duty.
12. Communications, briefings, and peer checks are acceptable collateral duties.
13. All on-shift staff positions were evaluated, even if they had no known collateral duties, to ensure they can perform the tasks assigned to them. [Ref NSIR/DPR-ISG-01]
14. The Staffing Analysis specified the resources available to perform "Repair and Corrective Actions" and "Rescue Operations and First Aid" but these may be assigned as collateral duty to a designated on-shift responder.
15. For assessment purposes, NRC notifications were treated as a continuous action per 10CFR50.72(c)(3) and 73.71(b)(1). This means once the initial NRC communications are established, the NRC will request an open line be maintained with the NRC Operations Center.
16. DBA (postulated accident, Condition IV event, or limiting fault) is considered as "Unanticipated occurrences that are postulated for accident analysis purposes but not expected to occur during the life of the plant. A postulated accident could result in sufficient damage to preclude resumption of plant operation. As a result, a greater number and variety of actions would need to be implemented by plant personnel."
17. Unless otherwise specified in NSIR/DPR-ISG-01, Interim Staff Guidance – Emergency Planning for Nuclear Power Plants, or by the USAR initial conditions of a DBA analysis, it was assumed that the unit was in Mode 1, Power.
18. DBT assumed a hostile force breached the protected area fence but was neutralized with no adverse consequences to plant safety. Damage inflicted on plant systems, structures and components was not sufficient to prevent safe shutdown or cause a radiological release. There was no fire significant enough to warrant firefighting efforts prior to arrival of offsite resources and/or the augmented ERO.
19. The Staffing Analysis used DBA analysis assumptions, inputs, timing of events, plant protective response, and specified manual operator actions and their timing, as documented in the USAR.
20. In cases where a DBA analysis included a radiological release, and the starting point of the release was not clearly defined, the staffing analysis assumed that the release began 15-minutes after the initiating event.
21. Severe Accident Management Guideline (SAMG) - It is sufficient to simply assume that the accident progressed to conditions requiring a severe accident response; it did not include determining specific failures and the accident sequence.
22. SAMG - The actions analyzed included those that implement the initial site-specific actions assuming the core is not ex-vessel (i.e., no reactor vessel failure), and there is no actual or imminent challenge to containment integrity.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

VI. APPENDIX A - ANALYZED EVENTS AND ACCIDENTS

Event #	Event Type	Summary Description of Event	Plant Mode ¹	Reference Document(s)	Event ECL	Analysis Required?
1	DBT	Land and/or waterborne HOSTILE ACTION directed against the Protected Area by a HOSTILE FORCE.	1	NEI 10-05 ISG IV.C	Site Area Emergency	Yes
2	DBA	Control Rod Drop Accident	1	USAR 15.4.9	Alert	Yes
3	DBA	Instrument Line Break	1	USAR 15.6.2	None ²	No
4	DBA	Main Steam Line Break Outside Containment	1	USAR 15.6.4	Site Area Emergency	Yes
5	DBA	LOCA within RCPB	1	USAR 15.6.5	Site Area Emergency	Yes
6	DBA	Fuel Handling Accident	1	USAR 15.7.4	Alert	Yes
7	DBA	Feedwater Line Break Outside Containment (bound by MSLB)	1	USAR 15.6.6	None	No
8	DBA	Gaseous Radwaste System Leak or Failure / Augmented Off Gas Treatment System Failure	1	USAR 15.7.1	Unusual Event	Yes
9	DBA	Liquid Radwaste System Leak or Failure	1	USAR 15.7.2	Alert	Yes
10	DBA	Liquid Radwaste System Tanks Failure	1	USAR 15.7.3	None	No
11	Assumed for analysis purpose	Aircraft Probable Threat	1	10CFR50.54hh(1) RG 1.214	Alert	Yes
12	Assumed for Analysis Purpose	Control Room Evacuation and Remote Shutdown (fire in main control room)	1	USAR 7.4, Appendix 15A.6-46 10CFR50 Appendix R Fire Hazard Analysis	Alert	Yes

RBS ON-SHIFT STAFFING ANALYSIS REPORT

Event #	Event Type	Summary Description of Event	Plant Mode ¹	Reference Document(s)	Event ECL	Analysis Required?
13	Assumed for analysis purpose	Station Blackout	1	USAR Appendix 15C ISG IV.C	Site Area Emergency	Yes
14	Assumed for Analysis Purpose	LOCA – General Emergency with radiological release and PAR	1	ISG IV.C	General Emergency	Yes
15	Assumed for Analysis Purpose	LOCA with entry into severe accident procedures.	1	ISG IV.C	General Emergency	No ³
16	DBA	Seizure of One Recirculation Pump	1	USAR 15.3.3	None	No
17	DBA	Recirculation Pump Shaft Break	1	USAR 15.3.4	None	No
18	Assumed for Analysis Purpose	Cask Drop Accident	1	USAR 15.7.5	None	No
19	Assumed for Analysis Purpose	Appendix R Fire that results in Reactor Trip	1	ISG IV.C	Alert	No ⁴

¹ Plant mode per USAR or assumed for analysis purpose

² Instrument Line Pipe Break - This section is not applicable since RBS plant design does not have instrument lines containing primary coolant outside the containment

³ RBS does not meet the NEI 10-05 intent for the analysis of implementing SAMG. NEI 10-05 Section 2.11 states that the analysis of the ability to implement SAMG focuses on the reasonably expected initial mitigation action that would be performed by on-shift personnel other than licensed and non-licensed operators. The actions assessed by NEI 10-05 are those which implement the initial site-specific Candidate High Level Action assuming the core is not ex-vessel (i.e., no reactor vessel failure), and there is no actual or imminent challenge to containment integrity. RBS does include maintenance qualified to perform maintenance job tasks in minimum staffing but does not have contingency actions that must be completed by maintenance in the severe accident procedures.

⁴ Appendix R Fire is bound by the Control Room Fire and Remote Shutdown.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

VII. APPENDIX B – ON-SHIFT STAFFING ANALYSIS

A. Accident Analysis #1 – Design Basis Threat (DBT)

1. Accident Summary

- Land and/or waterborne HOSTILE ACTION directed against the Protected Area by a HOSTILE FORCE. Assume adversary characteristics defined by the Design Basis Threat. The scenario for the River Bend Staffing Analysis is land based.
- Security Code Red condition

2. Accident Specific Assumptions Made

- This event assumes the threat is neutralized immediately when inside the protected area fence, no significant damage to equipment or systems that require corrective actions before the ERO is staffed, no radiological release, and no fire that requires firefighting response before the ERO is staffed.
- Assume at power in Mode 1
- Security notifies the Shift Manager of condition Security Code RED.
- Assume all non-security staff is located inside the protected area at their normal work station when the event occurs.
- Assume all systems function and the core remains covered. No fuel damage and no release.

3. Procedures for Accident Response

- AOP-54, Security Threat
- EIP-2-001, Classification of Emergencies
- EIP-2-002, Classification Actions
- EIP-2-006, Notifications

RBS ON-SHIFT STAFFING ANALYSIS REPORT

4. Tables

RBS TABLE 1 – ON-SHIFT POSITIONS Analysis # 1 DBT Security Threat						
Line #	On-shift Position	E-Plan Basis Document	Augmentation Elapsed Time (min)*	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1	Shift Manager / Shift Technical Advisor	Emergency Plan Table 13.3.17	90	T2/L1 T2/L3 T5/L1 T5/L3 T5/L5 T5/L7 T5/L8 T5/L10 T5/L14	No	No
2	Control Room Supervisor	Emergency Plan Table 13.3.17	N/A	T2/L2	No	No
3	NCO #1	Emergency Plan Table 13.3.17	N/A	T2/L4	No	No
4	NCO #2	Emergency Plan Table 13.3.17	N/A	T2/L5	No	No
5	NCO #3	Emergency Plan Table 13.3.17	90	T5/L6 T5/L9 T5/L13	No	No
6	SNEO#1	Emergency Plan Table 13.3.17	N/A	T2/L6	No	No
7	SNEO#2	Emergency Plan Table 13.3.17	N/A	N/A	No	No
8	SNEO#3	Emergency Plan Table 13.3.17	N/A	N/A	No	No
9	SNEO#4	Emergency Plan Table 13.3.17	N/A	N/A	No	No
10	SNEO#5	Emergency Plan Table 13.3.17	N/A	N/A	No	No
11	FB #1	Emergency Plan Table 13.3.17	N/A	N/A	No	No
12	FB #2	Emergency Plan Table 13.3.17	N/A	N/A	No	No
13	Chem Tech	Emergency Plan Table 13.3.17	90	N/A	No	No
14	RP#1	Emergency Plan Table 13.3.17	90	N/A	No	No
15	RP#2	Emergency Plan Table 13.3.17	90	N/A	No	No
16	Maintenance #1	Emergency Plan Table 13.3.17	90	N/A	No	No
17	Maintenance #2	Emergency Plan Table 13.3.17	90	N/A	No	No
18	Security	Security Contingency Plan / Emergency Plan Table 13.3.17	N/A	T5/L15	No	No

NCO #3 will act as Communicator per AOP-054.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 2 – PLANT OPERATIONS & SAFE SHUTDOWN One Unit – One Control Room Analysis # 1 DBT Security Threat Minimum Operations Crew Necessary to Implement AOPs and EOPs or SAMGs if Applicable			
Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
1	Shift Manager	Shift Manager	Licensed Operator Training Program
2	Unit Supervisor	CRS	Licensed Operator Training Program
3	Shift Technical Advisor	Shift Manager	Licensed Operator Training Program / STA Training Program
4	Reactor Operator #1	NCO #1	Licensed Operator Training Program
5	Reactor Operator #2	NCO #2	Licensed Operator Training Program
6	Auxiliary Operator #1	SNEO #1	Non-Licensed Operator Training Program
7	Auxiliary Operator #2	N/A	N/A
8	Other needed for Safe Shutdown	N/A	N/A
9	Other needed for Safe Shutdown	N/A	N/A
10	Other needed for Safe Shutdown	N/A	N/A

Other (non-Operations) Personnel Necessary to Implement AOPs and EOPs or SAMGs if Applicable

Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
11	Mechanic	N/A	N/A
12	Electrician	N/A	N/A
13	I&C Technician	N/A	N/A
14	Other	N/A	N/A
15	Other	N/A	N/A

RBS ON-SHIFT STAFFING ANALYSIS REPORT

Fire Brigade

RBS TABLE 3 – FIREFIGHTING		
Analysis # 1 DBT Security Threat		
Line #	Performed by	Task Analysis Controlling Method
1	N/A	N/A
2	N/A	N/A
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A

This accident does not include the need for firefighting, first aid or search & rescue.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 4 – RADIATION PROTECTION AND CHEMISTRY
Analysis # 1 DBT Security Threat

LINE	Position Performing Function / Task	Performance Time Period After Emergency Declaration (minutes)																	
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90
1	In-Plant Survey: N/A																		
2	On-site Survey: N/A																		
3	Personnel Monitoring: N/A																		
4	Job Coverage: N/A																		
5	Offsite Rad Assessment: N/A																		
6	Other site specific RP (describe): N/A																		
7	Chemistry Function task #1 (describe) N/A																		
8	Chemistry Function task #2 (describe) N/A																		

No chemistry or RP job function tasks for the conditions described in the DBT assumptions. RP and Chemistry take cover as directed.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 5— EMERGENCY PLAN IMPLEMENTATION Analysis # 1 DBT Security Threat			
Line#	Function / Task	On-Shift Position	Task Analysis Controlling Method
1	Declare the emergency classification level (ECL)	Shift Manager	Emergency Planning Training Program / EP Drills
2	Approve Offsite Protective Action Recommendations	N/A	N/A
3	Approve content of State/local notifications	Shift Manager	Emergency Planning Training Program
4	Approve extension to allowable dose	N/A	N/A
5	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	Licensed Operator Training Program / Emergency Planning Training Program
6	ERO notification	NCO #3	Emergency Planning Training Program
7	Abbreviated NRC notification for DBT event	Shift Manager	Licensed Operator Training Program
8	Complete State/local notification form	Shift Manager	Emergency Planning Training Program
9	Perform State/local notifications	NCO #3	Emergency Planning Training Program
10	Complete NRC event notification form	Shift Manager	Licensed Operator Training Program
11	Activate ERDS	N/A	N/A
12	Offsite radiological assessment	N/A	N/A
13	Perform NRC notifications	NCO #3	Emergency Planning Training Program
14	Perform other site-specific event notifications (e.g., Duty Plant Manager, INPO, ANI, etc.)	Shift Manager	Licensed Operator Training Program
15	Personnel Accountability	Security Officer	Security Training Program / EP Drills

NCO #3 will act as Communicator per AOP-054.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

B. Design Basis Accident Analysis #2 – Control Rod Drop Accident

1. Accident Summary

- The control rod drop accident (CRDA) results from an assumed failure of the control rod-to-drive mechanism coupling after the control rod (very reactive rod) becomes stuck in its fully inserted position. It is assumed that the control rod drive is then fully withdrawn before the stuck rod falls out of the core. The control rod velocity limiter, an engineered safeguard, limits the control rod drop velocity. The resultant radioactive material release is maintained far below the guideline values of 10CFR50.67.
- Radionuclides are released from damaged fuel rods to the main condenser; single release path is modeled from the leakage of main condenser at 1% volume per day to the turbine building.
- Activity is distributed throughout the turbine building and passes directly to the environment (with no mixing or holdup in the TB volume) as a diffuse ground level release.

2. Accident Specific Assumptions Made

- Chemistry samples reactor coolant and provides the SM with sample result of activity $>300\mu\text{Ci/gm}$ ($T=0$). EAL is based on fuel clad failure.

3. Procedures for Accident Response

- AOP-61, Control Rod Mispositioned / Malfunction
- AOP-1, Reactor Scram
- AOP-2, Main Turbine and Generator Trips
- RSP-0229, Radiation Protection Response to Changing Plant Conditions
- EIP-2-001, Classification of Emergencies
- EIP-2-002, Classification Actions
- EIP-2-006, Notifications
- EIP-2-014, Offsite Radiological Monitoring
- EIP-2-12, Radiation Exposure Controls
- EIP-2-26, Evacuation, Personnel Accountability and Search and Rescue

RBS ON-SHIFT STAFFING ANALYSIS REPORT

4. Tables

RBS TABLE 1 – ON-SHIFT POSITIONS Analysis # 2 Control Rod Drop Accident						
Line #	On-shift Position	Basis Document	Augmentation Elapsed Time (min)*	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1	Shift Manager / Shift Technical Advisor	Emergency Plan Table 13.3.17	90	T2/L1 T2/L3 T5/L1 T5/L3 T5/L5 T5/L8 T5/L10 T5/L14	No	No
2	Control Room Supervisor	Emergency Plan Table 13.3.17	N/A	T2/L2	No	No
3	NCO #1	Emergency Plan Table 13.3.17	N/A	T2/L4	No	No
4	NCO #2	Emergency Plan Table 13.3.17	N/A	T2/L5	No	No
5	NCO #3	Emergency Plan Table 13.3.17	N/A	N/A	No	No
6	SNEO#1	Emergency Plan Table 13.3.17	N/A	T2/L6	No	No
7	SNEO#2	Emergency Plan Table 13.3.17	90	T5/L6 T5/L9 T5/L13	No	No
8	SNEO#3	Emergency Plan Table 13.3.17	N/A	N/A	No	No
9	SNEO#4	Emergency Plan Table 13.3.17	N/A	N/A	No	No
10	SNEO#5	Emergency Plan Table 13.3.17	N/A	N/A	No	No
11	FB #1	Emergency Plan Table 13.3.17	N/A	N/A	No	No
12	FB #2	Emergency Plan Table 13.3.17	N/A	N/A	No	No
13	Chem Tech	Emergency Plan Table 13.3.17	90	T5/L12	No	Yes
14	RP#1	Emergency Plan Table 13.3.17	90	T4/L2	No	No
15	RP#2	Emergency Plan Table 13.3.17	90	T4/L1	No	No
16	Maintenance #1	Emergency Plan Table 13.3.17	90	N/A	No	No
17	Maintenance #2	Emergency Plan Table 13.3.17	90	N/A	No	No
18	Security	Security Contingency Plan / Emergency Plan Table 13.3.17	N/A	N/A	No	No

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS-TABLE 2 – PLANT OPERATIONS & SAFE SHUTDOWN
One Unit – One Control Room
Analysis # 2 Control Rod Drop Accident

Minimum Operations Crew Necessary to Implement AOPs and EOPs or SAMGs if Applicable

Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
1	Shift Manager	Shift Manager	Licensed Operator Training Program
2	Unit Supervisor	CRS	Licensed Operator Training Program
3	Shift Technical Advisor	Shift Manager	Licensed Operator Training Program / STA Training Program
4	Reactor Operator #1	NCO #1	Licensed Operator Training Program
5	Reactor Operator #2	NCO #2	Licensed Operator Training Program
6	Auxiliary Operator #1	SNEO #1	Non-Licensed Operator Training Program
7	Auxiliary Operator #2	N/A	N/A
8	Other needed for Safe Shutdown	N/A	N/A
9	Other needed for Safe Shutdown	N/A	N/A
10	Other needed for Safe Shutdown	N/A	N/A

Other (non-Operations) Personnel Necessary to Implement AOPs and EOPs or SAMGs if Applicable

Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
11	Mechanic	N/A	N/A
12	Electrician	N/A	N/A
13	I&C Technician	N/A	N/A
14	Other	N/A	N/A
15	Other	N/A	N/A

RBS ON-SHIFT STAFFING ANALYSIS REPORT

Fire Brigade

RBS TABLE 3 – FIREFIGHTING Analysis # 2 Control Rod Drop Accident		
Line #	Performed by	Task Analysis Controlling Method
1	N/A	N/A
2	N/A	N/A
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A

This accident does not include the need for firefighting, first aid or search & rescue.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

**RBS TABLE 4 – RADIATION PROTECTION AND CHEMISTRY
Analysis # 2 Control Rod Drop Accident**

RBS TABLE 4 – RADIATION PROTECTION AND CHEMISTRY Analysis # 2 Control Rod Drop Accident																			
LINE	Position Performing Function / Task	Performance Time Period After Emergency Declaration (minutes)*																	
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90
1	In-Plant Survey: RP#2 <i>Perform applicable steps of RSP-229 (no time requirements) & as directed by SM</i>		X	X			X	X	X	X	X	X							
2	On-site Survey: RP#1						X	X	X	X			X	X	X	X	X		
3	Personnel Monitoring:																		
4	Job Coverage:																		
5	Offsite Rad Assessment: <i>(Included in Table 5)</i>																		
6	Other site specific RP (describe):																		
7	Chemistry Function task #1 (describe)																		
8	Chemistry Function task #2 (describe)																		

*Times are estimated

RP#2 sets up control room habitability air sampler then performs surveys in Turbine building using RSP-0229 Attachment 1

RP#1 performs survey outside the turbine building and then survey at site boundary

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 5 – EMERGENCY PLAN IMPLEMENTATION Analysis # 2 Control Rod Drop Accident			
Line #	Function / Task	On-Shift Position	Task Analysis Controlling Method
1	Declare the emergency classification level (ECL)	Shift Manager	Emergency Planning Training Program / EP Drills
2	Approve Offsite Protective Action Recommendations	N/A	N/A
3	Approve content of State/local notifications	Shift Manager	Emergency Planning Training Program
4	Approve extension to allowable dose	N/A	N/A
5	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	Licensed Operator Training Program / Emergency Planning Training Program
6	ERO notification	SNEO#2	Emergency Planning Training Program
7	Abbreviated NRC notification for DBT event	N/A	N/A
8	Complete State/local notification form	Shift Manager	Emergency Planning Training Program
9	Perform State/local notifications	SNEO #2	Emergency Planning Training Program
10	Complete NRC event notification form	Shift Manager	Licensed Operator Training Program
11	Activate ERDS	N/A	N/A
12	Offsite radiological assessment	Chemistry Technician	Emergency Planning Training Program
13	Perform NRC notifications	SNEO#2	Emergency Planning Training Program
14	Perform other site-specific event notifications (e.g., Duty Plant Manager, INPO, ANI, etc.)	Shift Manager	Licensed Operator Training Program
15	Personnel Accountability	Security Officer	Security Training Program

RBS ON-SHIFT STAFFING ANALYSIS REPORT

C. Design Basis Accident Analysis #4 – Main Steam Line Break Outside Containment

1. Accident Summary

- This event involves the postulation of a large steam line pipe break outside containment. It is assumed that a main steam line instantaneously and circumferentially breaks at a location downstream of the outermost isolation valve. The core is covered throughout the event and no fuel damage is calculated to result. This postulated event represents the limiting fault for breaks outside containment.
- Activity is released as a ground level unfiltered release from the main steam tunnel blowout panel and dispersed to offsite and control room receptors.

2. Accident Specific Assumptions Made

- Emergency Classification is not required based on the break of the main steam line. This analysis is based on the USAR MSLB accident dose of 1.4 REM TEDE.
- Assume the 1 hour dose is 0.7 Rem TEDE which meets the condition for a SAE. For analysis purpose, RP performs onsite and site boundary survey to provide the data to declare a SAE. Shift Manager receipt of data is T=0.

3. Procedures for Accident Response

- AOP-1, Reactor Scram
- AOP-2, Turbine/Generator Trip
- AOP-3, Automatic Isolations
- EIP-2-001, Emergency Classifications
- EIP-2-002, Classification Actions
- EIP-2-026, Evacuation, Personnel Accountability and Search and Rescue

RBS ON-SHIFT STAFFING ANALYSIS REPORT

4. Tables

RBS TABLE.1 – ON-SHIFT POSITIONS Analysis # 4 Main Steam Line Break (MSLB)						
Line #	On-shift Position	E-Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1	Shift Manager / Shift Technical Advisor	Emergency Plan Table 13.3.17	90	T2/L1 T2/L3 T5/L1 T5/L3 T5/L5 T5/L8 T5/L10 T5/L14	No	No
2	Control Room Supervisor	Emergency Plan Table 13.3.17	N/A	T2/L2	No	No
3	NCO #1	Emergency Plan Table 13.3.17	N/A	T2/L4	No	No
4	NCO #2	Emergency Plan Table 13.3.17	N/A	T2/L5	No	No
5	NCO #3	Emergency Plan Table 13.3.17	N/A	N/A	No	No
6	SNEO#1	Emergency Plan Table 13.3.17	N/A	T2/L6	No	No
7	SNEO#2	Emergency Plan Table 13.3.17	90	T5/L6 T5/L9 T5/L13	No	No
8	SNEO#3	Emergency Plan Table 13.3.17	N/A	N/A	No	No
9	SNEO#4	Emergency Plan Table 13.3.17	N/A	N/A	No	No
10	SNEO#5	Emergency Plan Table 13.3.17	N/A	N/A	No	No
11	FB #1	Emergency Plan Table 13.3.17	N/A	N/A	No	No
12	FB #2	Emergency Plan Table 13.3.17	N/A	N/A	No	No
13	Chem Tech	Emergency Plan Table 13.3.17	90	T5/L12	No	Yes
14	RP#1	Emergency Plan Table 13.3.17	90	T4/L2	No	No
15	RP#2	Emergency Plan Table 13.3.17	90	T4/L1	No	No
16	Maintenance #1	Emergency Plan Table 13.3.17	90	N/A	No	No
17	Maintenance #2	Emergency Plan Table 13.3.17	90	N/A	No	No

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 1 – ON-SHIFT POSITIONS Analysis # 4 Main Steam Line Break (MSLB)						
Line #	On-shift Position	E-Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
18	Security	Security Contingency Plan / Emergency Plan Table 13.3.17	N/A	T5/L15	No	No

RBS TABLE 2 – PLANT OPERATIONS & SAFE SHUTDOWN One Unit – One Control Room ANALYSIS # 4 Main Steam Line Break (MSLB)			
Minimum Operations Crew Necessary to Implement AOPs and EOPs or SAMGs if Applicable			
Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
1	Shift Manager	Shift Manager	Licensed Operator Training Program
2	Unit Supervisor	CRS	Licensed Operator Training Program
3	Shift Technical Advisor	Shift Manager	Licensed Operator Training Program / STA Training Program
4	Reactor Operator #1	NCO #1	Licensed Operator Training Program
5	Reactor Operator #2	NCO #2	Licensed Operator Training Program
6	Auxiliary Operator #1	SNEO #1	Non-Licensed Operator Training Program
7	Auxiliary Operator #2	N/A	N/A
8	Other needed for Safe Shutdown	N/A	N/A
9	Other needed for Safe Shutdown	N/A	N/A
10	Other needed for Safe Shutdown	N/A	N/A

Other (non-Operations) Personnel Necessary to Implement AOPs and EOPs or SAMGs if Applicable

Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
11	Mechanic	N/A	N/A
12	Electrician	N/A	N/A
13	I&C Technician	N/A	N/A

RBS ON-SHIFT STAFFING ANALYSIS REPORT

14	Other	N/A	N/A
15	Other	N/A	N/A

Fire Brigade

RBS TABLE 3 – FIREFIGHTING ANALYSIS # 4 Main Steam Line Break (MSLB)		
Line #	Performed by	Task Analysis Controlling Method
1	N/A	N/A
2	N/A	N/A
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A

This accident does not include the need for firefighting, first aid or search & rescue.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

**RBS TABLE 4 – RADIATION PROTECTION AND CHEMISTRY
Analysis # 4 Main Steam Line Break (MSLB)**

LINE	Position Performing Function / Task	Performance Time Period After Emergency Declaration (minutes)*																	
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90
1	In-Plant Survey: RP#2			X	X	X	X	X		X	X	X	X						
2	On-site Survey: RP#1				X	X	X	X	X					X	X	X	X	X	
3	Personnel Monitoring: N/A																		
4	Job Coverage: N/A																		
5	Offsite Rad Assessment: N/A																		
6	Other site specific RP (describe): N/A																		
7	Chemistry Function task #1 (describe) N/A																		
8	Chemistry Function task #2 (describe) N/A																		

*Times are estimated

RP#1 does out of plant and then site boundary surveys

RP#2 Performs RSP-0229 surveys then monitoring for the protected area evacuation

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 5.- EMERGENCY PLAN IMPLEMENTATION Analysis # 4 Main Steam Line Break (MSLB)			
Line #	Function / Task	On-Shift Position	Task Analysis Controlling Method
1	Declare the emergency classification level (ECL)	Shift Manager	Emergency Planning Training Program / EP Drills
2	Approve Offsite Protective Action Recommendations	N/A	N/A
3	Approve content of State/local notifications	Shift Manager	Emergency Planning Training Program
4	Approve extension to allowable dose	N/A	N/A
5	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	Licensed Operator Training Program / Emergency Planning Training Program
6	ERO notification	SNEO#2	Emergency Planning Training Program
7	Abbreviated NRC notification for DBT event	N/A	N/A
8	Complete State/local notification form	Shift Manager	Emergency Planning Training Program
9	Perform State/local notifications	SNEO#2	Emergency Planning Training Program
10	Complete NRC event notification form	Shift Manager	Licensed Operator Training Program
11	Activate ERDS	N/A	N/A
12	Offsite radiological assessment	Chemistry Technician	Emergency Planning Training Program
13	Perform NRC notifications	SNEO#2	Emergency Planning Training Program
14	Perform other site-specific event notifications (e.g., Duty Plant Manager, INPO, ANI, etc.)	Shift Manager	Licensed Operator Training Program
15	Personnel Accountability	Security Officer	Security Training Program / EP Drills

RBS ON-SHIFT STAFFING ANALYSIS REPORT

D. Design Basis Accident Analysis #5 – Loss of Coolant Accident

1. Accident Summary

- This event involves the postulation of a spectrum of piping breaks inside containment varying in size, type, and location. The break type includes steam and/or liquid process system lines. This event is also assumed to be coincident with a safe shutdown earthquake (SSE).
- The postulated event represents the envelope evaluation for liquid or steam line failures inside containment.
- Circumferential double ended guillotine break of a recirculation line coincident with a safe shutdown earthquake.
- Reactor scram, MSIVs isolate, ECCS initiates and injects, and SRVs operate at pressure relief setpoint.

2. Accident Specific Assumptions Made

- No operator action for the first 10 minutes when they initiate one RHR in Suppression Pool Cooling.

3. Procedures for Accident Response

- AOP-16, Loss of Standby Service Water
- AOP-4, Loss of Offsite Power
- AOP-1, Reactor Scram
- AOP-2, Turbine/Generator Trip
- AOP-28, Seismic Event
- EIP-2-001, Classification of Emergencies
- EIP-2-002, Classification Actions
- EIP-2-006, Notifications
- EIP-2-014, Offsite Radiological Monitoring
- EIP-2-026, Evacuation, Personnel Accountability and Search and Rescue
- EOP-01, RPV Control
- EOP-02, Primary Containment Control
- EOP-03, Secondary Containment Control

RBS ON-SHIFT STAFFING ANALYSIS REPORT

4. Tables

RBS TABLE 1 – ON-SHIFT POSITIONS Analysis # 5 Loss of Coolant Accident						
Line #	On-shift Position	E-Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1	Shift Manager / Shift Technical Advisor	Emergency Plan Table 13.3.17	90	T2/L1 T2/L3 T5/L1 T5/L3 T5/L4 T5/L5 T5/L8 T5/L10 T5/L14	No	No
2	Control Room Supervisor	Emergency Plan Table 13.3.17	N/A	T2/L2	No	No
3	NCO #1	Emergency Plan Table 13.3.17	N/A	T2/L4	No	No
4	NCO #2	Emergency Plan Table 13.3.17	N/A	T2/L5	No	No
5	NCO #3	Emergency Plan Table 13.3.17	N/A	N/A	No	No
6	SNEO#1	Emergency Plan Table 13.3.17	N/A	T2/L6	No	No
7	SNEO#2	Emergency Plan Table 13.3.17	90	T5/L6 T5/L9 T5/L13	No	No
8	SNEO#3	Emergency Plan Table 13.3.17	N/A	N/A	No	No
9	SNEO#4	Emergency Plan Table 13.3.17	N/A	N/A	No	No
10	SNEO#5	Emergency Plan Table 13.3.17	N/A	N/A	No	No
11	FB #1	Emergency Plan Table 13.3.17	N/A	N/A	No	No
12	FB #2	Emergency Plan Table 13.3.17	N/A	N/A	No	No
13	Chem Tech	Emergency Plan Table 13.3.17	90	T5/L12	No	Yes
14	RP#1	Emergency Plan Table 13.3.17	90	T4/L2	No	No
15	RP#2	Emergency Plan Table 13.3.17	90	T4/L1	No	No
16	Maintenance #1	Emergency Plan Table 13.3.17	90	N/A	No	No
17	Maintenance #2	Emergency Plan Table 13.3.17	90	N/A	No	No

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 1 – ON-SHIFT POSITIONS Analysis # 5 Loss of Coolant Accident						
Line #	On-shift Position	E-Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
18	Security	Security Contingency Plan / Emergency Plan Table 13.3.17	N/A	T5/L15	No	No

RBS TABLE 2 – PLANT OPERATIONS & SAFE SHUTDOWN One Unit – One Control Room Analysis # 5 Loss of Coolant Accident			
Minimum Operations Crew Necessary to Implement AOPs and EOPs or SAMGs if Applicable			
Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
1	Shift Manager	Shift Manager	Licensed Operator Training Program
2	Unit Supervisor	CRS	Licensed Operator Training Program
3	Shift Technical Advisor	Shift Manager	Licensed Operator Training Program / STA Training Program
4	Reactor Operator #1	NCO #1	Licensed Operator Training Program
5	Reactor Operator #2	NCO #2	Licensed Operator Training Program
6	Auxiliary Operator #1	SNEO #1	Non-Licensed Operator Training Program
7	Auxiliary Operator #2	N/A	N/A
8	Other needed for Safe Shutdown	N/A	N/A
9	Other needed for Safe Shutdown	N/A	N/A
10	Other needed for Safe Shutdown	N/A	N/A

Other (non-Operations) Personnel Necessary to Implement AOPs and EOPs or SAMGs if Applicable

Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
11	Mechanic	N/A	N/A
12	Electrician	N/A	N/A
13	I&C Technician	N/A	N/A
14	Other	N/A	N/A

RBS ON-SHIFT STAFFING ANALYSIS REPORT

Fire Brigade

RBS TABLE 3 – FIREFIGHTING Analysis # 5 Loss of Coolant Accident		
Line #	Performed by	Task Analysis Controlling Method
1	N/A	N/A
2	N/A	N/A
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A

This accident does not include the need for firefighting, first aid or search & rescue.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 4 – RADIATION PROTECTION AND CHEMISTRY Analysis # 5 Loss of Coolant Accident																			
LINE	Position Performing Function / Task	Performance Time Period After Emergency Declaration (minutes)*																	
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90
1	In-Plant Survey: RP#2		X	X			X	X	X	X	X	X							
2	On-site Survey: RP#1						X	X	X	X			X	X	X	X	X		
3	Personnel Monitoring:																		
4	Job Coverage:																		
5	Offsite Rad Assessment: <i>(Included in Table 5)</i>																		
6	Other site specific RP (describe):																		
7	Chemistry Function task #1 (describe)																		
8	Chemistry Function task #2 (describe)																		

*Times are estimated

RP#2 sets up control room habitability air sampler then performs surveys using RSP-0229 Attachment 1 as directed by the Shift Manager.

RP#1 performs survey onsite and then survey at site boundary as directed by the Shift Manager.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 5 – EMERGENCY PLAN IMPLEMENTATION Analysis # 5 <u>Loss of Coolant Accident</u>			
Line #	Function / Task	On-Shift Position	Task Analysis Controlling Method
1	Declare the emergency classification level (ECL)	Shift Manager	Emergency Planning Training Program / EP Drills
2	Approve Offsite Protective Action Recommendations	N/A	N/A
3	Approve content of State/local notifications	Shift Manager	Emergency Planning Training Program
4	Approve extension to allowable dose /	Shift Manager	Emergency Planning Training Program
5	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	Licensed Operator Training Program / Emergency Planning Training Program
6	ERO notification	SNEO#2	Emergency Planning Training Program
7	Abbreviated NRC notification for DBT event	N/A	N/A
8	Complete State/local notification form	Shift Manager	Emergency Planning Training Program
9	Perform State/local notifications	SNEO #2	Emergency Planning Training Program
10	Complete NRC event notification form	Shift Manager	Licensed Operator Training Program
11	Activate ERDS	N/A	N/A
12	Offsite radiological assessment	Chemistry Technician	Emergency Planning Training Program
13	Perform NRC notifications	SNEO#2	Emergency Planning Training Program
14	Perform other site-specific event notifications (e.g., Duty Plant Manager, INPO, ANI, etc.)	Shift Manager	Licensed Operator Training Program
15	Personnel Accountability	Security	Security Training Program

RBS ON-SHIFT STAFFING ANALYSIS REPORT

E. Design Basis Accident Analysis #6 – Fuel Handling Accident

1. Accident Summary

- The fuel handling accident is assumed to occur as a consequence of a failure of the fuel assembly lifting mechanism, resulting in the dropping of a raised fuel assembly onto stored fuel bundles. A variety of events which qualify for the class of accidents termed "fuel handling accidents" has been investigated. These include considerations for containment upper pool refueling operations, as well as fuel building pool activities. The accident which produces the largest number of failed spent fuel rods is the drop of a spent fuel bundle onto the reactor core when the reactor vessel head is off.
- The drop of a fuel bundle in containment over the reactor pressure vessel bounds a drop of a fuel bundle in the fuel building due to the greater drop height.

2. Accident Specific Assumptions Made

- Onsite personnel will be in accordance with the refuel outage staffing plan that includes additional SROs, ROs, SNEOs, RP Techs, and Maintenance.

RBS Technical Requirements Manual (TRM) Table 5.2.2-1 Minimum Shift Crew Composition requires an STA qualified individual be available to provide technical support to the operations crew in modes 1, 2, or 3. The Fuel Handling Accident is assumed to occur while in Mode 5, therefore the STA was not considered available for this accident. The fifth license (NCO #3) would also not be required.

3. Procedures for Accident Response

- AOP-27, Fuel Handling Mishaps
- FHP-2, Fuel Handling Platform Operation
- EIP-2-001, Classification of Emergencies
- EIP-2-002, Classification Actions
- EIP-2-006, Notifications
- EIP-2-014, Offsite Radiological Monitoring
- EIP-2-026, Evacuation, Personnel Accountability and Search and Rescue

RBS ON-SHIFT STAFFING ANALYSIS REPORT

4. Tables

RBS TABLE 1 – ON-SHIFT POSITIONS Analysis #6 – Fuel Handling Accident						
Line #	On-shift Position	E-Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1	Shift Manager	Emergency Plan Table 13.3.17	90	T2/L1 T5/L1 T5/L3 T5/L5 T5/L8 T5/L10 T5/L14	No	No
2	Control Room Supervisor	Emergency Plan Table 13.3.17	N/A	T2/L2	No	No
3	NCO #1	Emergency Plan Table 13.3.17	N/A	T2/L4	N/A	N/A
4	NCO #2	Emergency Plan Table 13.3.17	N/A	T2/L5	No	No
5	NCO #3	N/A	N/A	N/A	N/A	N/A
6	SNEO#1	Emergency Plan Table 13.3.17	N/A	T2/L6	No	No
7	SNEO#2	Emergency Plan Table 13.3.17	90	T5/L6 T5/L9 T5/L13	No	No
8	SNEO#3	Emergency Plan Table 13.3.17	N/A	N/A	No	No
9	SNEO#4	Emergency Plan Table 13.3.17	N/A	N/A	No	No
10	SNEO#5	Emergency Plan Table 13.3.17	N/A	N/A	No	No
11	FB #1	Emergency Plan Table 13.3.17	N/A	N/A	No	No
12	FB #2	Emergency Plan Table 13.3.17	N/A	N/A	No	No
13	Chem Tech	Emergency Plan Table 13.3.17	90	T5/L12	No	Yes
14	RP#1	Emergency Plan Table 13.3.17	90	T4/L2	No	No
15	RP#2	Emergency Plan Table 13.3.17	90	T4/L3	No	No
16	Maintenance #1	Emergency Plan Table 13.3.17	N/A	N/A	No	No
17	Maintenance #2	Emergency Plan Table 13.3.17	N/A	N/A	No	No
18	Security	Security Contingency Plan / Emergency Plan Table 13.3.17	N/A	N/A	No	No

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 2 – PLANT OPERATIONS & SAFE SHUTDOWN One Unit – One Control Room Analysis # 6 – Fuel Handling Accident			
Minimum Operations Crew Necessary to Implement AOPs and EOPs or SAMGs if Applicable			
Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
1	Shift Manager	Shift Manager	Licensed Operator Training Program
2	Unit Supervisor	CRS	Licensed Operator Training Program
3	Shift Technical Advisor	N/A	N/A
4	Reactor Operator #1	NCO #1	Licensed Operator Training Program
5	Reactor Operator #2	NCO #2	Licensed Operator Training Program
6	Auxiliary Operator #1	SNEO #1	Non-Licensed Operator Training Program
7	Auxiliary Operator #2	N/A	N/A
8	Other needed for Safe Shutdown	N/A	N/A
9	Other needed for Safe Shutdown	N/A	N/A
10	Other needed for Safe Shutdown	N/A	N/A

Other (non-Operations) Personnel Necessary to Implement AOPs and EOPs or SAMGs if Applicable

Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
11	Mechanic	N/A	N/A
12	Electrician	N/A	N/A
13	I&C Technician	N/A	N/A
14	Other	N/A	N/A
15	Other	N/A	N/A

RBS ON-SHIFT STAFFING ANALYSIS REPORT

Fire Brigade

RBS TABLE 3 – FIREFIGHTING Analysis # 6 – Fuel Handling Accident		
Line #	Performed by	Task Analysis Controlling Method
1	N/A	N/A
2	N/A	N/A
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A

This accident does not include the need for firefighting, first aid or search & rescue.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 4 – RADIATION PROTECTION AND CHEMISTRY Analysis #6 – Fuel Handling Accident																			
LINE	Position Performing Function / Task	Performance Time Period After Emergency Declaration (minutes)																	
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90
1	In-Plant Survey:																		
2	On-site Survey: RP#1						X	X	X	X			X	X	X	X	X		
3	Personnel Monitoring: RP2		X	X	X	X	X	X	X	X									
4	Job Coverage:																		
5	Offsite Rad Assessment: (Included in Table 5)																		
6	Other site specific RP (describe):																		
7	Chemistry Function task #1 (describe)																		
8	Chemistry Function task #2 (describe)																		

*Times are estimated

RP#1 performs onsite surveys outside at hatch and other open penetrations and survey site boundary as directed by the Shift Manager.

RP#2 assist in monitoring and decon of building evacuees at the RP decontamination station as directed by the Shift Manager.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 5 – EMERGENCY PLAN IMPLEMENTATION Analysis #6 – Fuel Handling Accident			
Line #	Function / Task	On-Shift Position	Task Analysis Controlling Method
1	Declare the emergency classification level (ECL)	Shift Manager	Emergency Planning Training Program / EP Drills
2	Approve Offsite Protective Action Recommendations	N/A	N/A
3	Approve content of State/local notifications	Shift Manager	Emergency Planning Training Program
4	Approve extension to allowable dose	N/A	N/A
5	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	Licensed Operator Training Program / Emergency Planning Training Program
6	ERO notification	SNEO#2	Emergency Planning Training Program
7	Abbreviated NRC notification for DBT event	N/A	N/A
8	Complete State/local notification form	Shift Manager	Emergency Planning Training Program
9	Perform State/local notifications	SNEO #2	Emergency Planning Training Program
10	Complete NRC event notification form	Shift Manager	Licensed Operator Training Program
11	Activate ERDS	N/A	N/A
12	Offsite radiological assessment	Chemistry Technician	Emergency Planning Training Program
13	Perform NRC notifications	SNEO#2	Emergency Planning Training Program
14	Perform other site-specific event notifications (e.g., Duty Plant Manager, INPO, ANI, etc.)	Shift Manager	Licensed Operator Training Program
15	Personnel Accountability	Security Officer	Security Training Program

RBS ON-SHIFT STAFFING ANALYSIS REPORT

F. Design Basis Accident Analysis #8 - Gaseous Radwaste System Leak or Failure / Augmented Offgas Treatment System Failure

1. Accident Summary

- A failure of the offgas system is assumed during a seismic event. It is assumed the line leading to the SJAE fails near the main condenser.
- Noble gases are released directly to the turbine building and subsequently through the ventilation system to the environment.
- The operators manually isolate the SJAE 1 hour after the break.

2. Accident Specific Assumptions Made

- Unusual event classification is made on release of 100,000 $\mu\text{Ci/sec}$ noble gas after 30 min delay. For analysis purpose, the release is assumed to begin immediately after the break.

3. Procedures for Accident Response

- AOP-005, Loss of Condenser Vacuum
- EIP-2-001, Classification of Emergencies
- EIP-2-002, Classification Actions
- EIP-2-006, Notifications
- EIP-2-014, Offsite Radiological Monitoring

RBS ON-SHIFT STAFFING ANALYSIS REPORT

4. Tables

RBS TABLE 1 – ON-SHIFT POSITIONS Analysis #8 – Gaseous Radwaste/Offgas System Failure						
Line #	On-shift Position	E-Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1	Shift Manager / Shift Technical Advisor	Emergency Plan Table 13.3.17	90	T2/L1 T2/L3 T5/L1 T5/L3 T5/L5 T5/L8 T5/L10 T5/L14	No	No
2	Control Room Supervisor	Emergency Plan Table 13.3.17	N/A	T2/L2	No	No
3	NCO #1	Emergency Plan Table 13.3.17	N/A	T2/L4	No	No
4	NCO #2	Emergency Plan Table 13.3.17	N/A	T2/L5	No	No
5	NCO #3	Emergency Plan Table 13.3.17	N/A	N/A	No	No
6	SNEO#1	Emergency Plan Table 13.3.17	N/A	T2/L6	No	No
7	SNEO#2	Emergency Plan Table 13.3.17	90	T5/L6 T5/L9 T5/L13	No	No
8	SNEO#3	Emergency Plan Table 13.3.17	N/A	N/A	No	No
9	SNEO#4	Emergency Plan Table 13.3.17	N/A	N/A	No	No
10	SNEO#5	Emergency Plan Table 13.3.17	N/A	N/A	No	No
11	FB #1	Emergency Plan Table 13.3.17	N/A	N/A	No	No
12	FB #2	Emergency Plan Table 13.3.17	N/A	N/A	No	No
13	Chem Tech	Emergency Plan Table 13.3.17	90	N/A	No	No
14	RP#1	Emergency Plan Table 13.3.17	90	T4/L1	No	No
15	RP#2	Emergency Plan Table 13.3.17	90	T4/L4	No	No
16	Maintenance #1	Emergency Plan Table 13.3.17	90	N/A	No	No
17	Maintenance #2	Emergency Plan Table 13.3.17	90	N/A	No	No
18	Security	Security Contingency Plan / Emergency Plan Table 13.3.17	90	T5/L15	No	No

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 2 – PLANT OPERATIONS & SAFE SHUTDOWN One Unit – One Control Room ANALYSIS #8 – Gaseous Radwaste/Offgas System Failure			
Minimum Operations Crew Necessary to Implement AOPs and EOPs or SAMGs if Applicable			
Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
1	Shift Manager	Shift Manager	Licensed Operator Training Program
2	Unit Supervisor	CRS	Licensed Operator Training Program
3	Shift Technical Advisor	Shift Manager	Licensed Operator Training Program / STA Training Program
4	Reactor Operator #1	NCO #1	Licensed Operator Training Program
5	Reactor Operator #2	NCO #2	Licensed Operator Training Program
6	Auxiliary Operator #1	SNEO #1	Non-Licensed Operator Training Program
7	Auxiliary Operator #2	N/A	N/A
8	Other needed for Safe Shutdown	N/A	N/A
9	Other needed for Safe Shutdown	N/A	N/A
10	Other needed for Safe Shutdown	N/A	N/A

Other (non-Operations) Personnel Necessary to Implement AOPs and EOPs or SAMGs if Applicable

Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
11	Mechanic	N/A	N/A
12	Electrician	N/A	N/A
13	I&C Technician	N/A	N/A
14	Other	N/A	N/A
15	Other	N/A	N/A

RBS ON-SHIFT STAFFING ANALYSIS REPORT

Fire Brigade

RBS TABLE 3 – FIREFIGHTING		
ANALYSIS #8 – Gaseous Radwaste/Offgas System Failure		
Line #	Performed by	Task Analysis Controlling Method
1	N/A	N/A
2	N/A	N/A
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A

This accident does not include the need for firefighting, first aid or search & rescue.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

**RBS TABLE 4 – RADIATION PROTECTION AND CHEMISTRY
Analysis #8 – Gaseous Radwaste/Offgas System Failure**

LINE	Position Performing Function / Task	Performance Time Period After Emergency Declaration (minutes)*																	
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90
1	In-Plant Survey: RP#1			X	X	X	X	X	X	X									
2	On-site Survey: _____																		
3	Personnel Monitoring: _____																		
4	Job Coverage: RP#2			X	X	X	X	X											
5	Offsite Rad Assessment: <u>(Included in Table 5)</u>																		
6	Other site specific RP (describe):																		
7	Chemistry Function task #1 (describe)																		
8	Chemistry Function task #2 (describe)																		

*Times are estimated

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 5 – EMERGENCY PLAN IMPLEMENTATION Analysis #8 – Gaseous Radwaste/Offgas System Failure			
Line #	Function / Task	On-Shift Position	Task Analysis Controlling Method
1	Declare the emergency classification level (ECL)	Shift Manager	Emergency Planning Training Program / EP Drills
2	Approve Offsite Protective Action Recommendations	N/A	N/A
3	Approve content of State/local notifications	Shift Manager	Emergency Planning Training Program
4	Approve extension to allowable dose	N/A	N/A
5	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	Licensed Operator Training Program / Emergency Planning Training Program
6	ERO notification	SNEO#2	Emergency Planning Training Program
7	Abbreviated NRC notification for DBT event	N/A	N/A
8	Complete State/local notification form	Shift Manager	Emergency Planning Training Program
9	Perform State/local notifications	SNEO #2	Emergency Planning Training Program
10	Complete NRC event notification form	Shift Manager	Licensed Operator Training Program
11	Activate ERDS	N/A	N/A
12	Offsite radiological assessment	N/A	N/A
13	Perform NRC notifications	SNEO#2	Emergency Planning Training Program
14	Perform other site-specific event notifications (e.g., Duty Plant Manager, INPO, ANI, etc.)	Shift Manager	Licensed Operator Training Program
15	Personnel Accountability	Security	Security Program

RBS ON-SHIFT STAFFING ANALYSIS REPORT

G. Design Basis Accident Analysis #9 - Liquid Radwaste System Leak or Failure

1. Accident Summary

- The design information used in the dose calculation concerning the atmospheric release due to a liquid radwaste system leak or failure is historical design information. It includes the source term from a 2-unit site and 2 regenerant evaporators which are not installed. Also the release point used in the analysis was the main plant exhaust duct instead of the radwaste building. However, the analysis is bounding for an atmospheric release due to a radioactive liquid waste system leak or failure.
- An unexpected and uncontrolled release of the radioactive liquid stored in all of the liquid radwaste system tanks. All tanks are assumed to rupture, releasing their entire contents to the radwaste building.
- FSAR atmospheric release dose- Total offsite dose at EAB is 5.1 Rem Thyroid and 4.0e-3 Rem Whole body.

2. Accident Specific Assumptions Made

- The EAL assumed for this accident is based on realistic case. An Alert level on the radwaste building effluent monitor is assumed since this is the highest EAL for a discharge from the radwaste vent.

3. Procedures for Accident Response

- ARP-LWS-187, Alarm Response Procedure
- EIP-2-001, Classification of Emergencies
- EIP-2-002, Classification Actions
- EIP-2-006, Notifications
- EIP-2-014, Offsite Radiological Monitoring
- EIP-2-026, Evacuation, Personnel Accountability and Search and Rescue

RBS ON-SHIFT STAFFING ANALYSIS REPORT

4. Tables

RBS TABLE 1 – ON-SHIFT POSITIONS Analysis #9 – Liquid Radwaste System Leak/Failure						
Line #	On-shift Position	E-Plan Reference	Augmentation Elapsed Time (min)	Role in Table # / Line #	Unanalyzed Task?	TMS Required?
1	Shift Manager / Shift Technical Advisor	Emergency Plan Table 13.3.17	90	T2/L1 T2/L3 T5/L1 T5/L3 T5/L5 T5/L8 T5/L10 T5/L14	No	No
2	Control Room Supervisor	Emergency Plan Table 13.3.17	N/A	T2/L2	No	No
3	NCO #1	Emergency Plan Table 13.3.17	N/A	T2/L4	No	No
4	NCO #2	Emergency Plan Table 13.3.17	N/A	T2/L5	No	No
5	NCO #3	Emergency Plan Table 13.3.17	N/A	N/A	No	No
6	SNEO#1	Emergency Plan Table 13.3.17	N/A	T2/L6	No	No
7	SNEO#2	Emergency Plan Table 13.3.17	90	T5/L6 T5/L9 T5/L13	No	No
8	SNEO#3	Emergency Plan Table 13.3.17	N/A	N/A	No	No
9	SNEO#4	Emergency Plan Table 13.3.17	N/A	N/A	No	No
10	SNEO#5	Emergency Plan Table 13.3.17	N/A	N/A	No	No
11	FB #1	Emergency Plan Table 13.3.17	N/A	N/A	No	No
12	FB #2	Emergency Plan Table 13.3.17	N/A	N/A	No	No
13	Chem Tech	Emergency Plan Table 13.3.17	90	T5/L12	No	Yes
14	RP#1	Emergency Plan Table 13.3.17	90	T4/L1	No	No
15	RP#2	Emergency Plan Table 13.3.17	90	T4/L2	No	No
16	Maintenance #1	Emergency Plan Table 13.3.17	N/A	N/A	No	No
17	Maintenance #2	Emergency Plan Table 13.3.17	N/A	N/A	No	No
18	Security	Security Contingency Plan / Emergency Plan Table 13.3.17	90	N/A	No	No

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 2 – PLANT OPERATIONS & SAFE SHUTDOWN One Unit – One Control Room Analysis #9 – Liquid Radwaste System Leak/Failure			
Minimum Operations Crew Necessary to Implement AOPs and EOPs or SAMGs if Applicable			
Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
1	Shift Manager	Shift Manager	Licensed Operator Training Program
2	Unit Supervisor	CRS	Licensed Operator Training Program
3	Shift Technical Advisor	Shift Manager	Licensed Operator Training Program / STA Training Program
4	Reactor Operator #1	NCO #1	Licensed Operator Training Program
5	Reactor Operator #2	NCO #2	Licensed Operator Training Program
6	Auxiliary Operator #1	SNEO #1	Non-Licensed Operator Training Program
7	Auxiliary Operator #2	N/A	N/A
8	Other needed for Safe Shutdown	N/A	N/A
9	Other needed for Safe Shutdown	N/A	N/A
10	Other needed for Safe Shutdown	N/A	N/A

Other (non-Operations) Personnel Necessary to Implement AOPs and EOPs or SAMGs if Applicable

Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
11	Mechanic	N/A	N/A
12	Electrician	N/A	N/A
13	I&C Technician	N/A	N/A
14	Other	N/A	N/A
15	Other	N/A	N/A

RBS ON-SHIFT STAFFING ANALYSIS REPORT

Fire Brigade

RBS TABLE 3 – FIREFIGHTING Analysis #9 – Liquid Radwaste System Leak/Failure		
Line #	Performed by	Task Analysis Controlling Method
1	N/A	N/A
2	N/A	N/A
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A

This accident does not include the need for firefighting, first aid or search & rescue.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

**RBS TABLE 4 – RADIATION PROTECTION AND CHEMISTRY
Analysis #9 – Liquid Radwaste System Leak/Failure**

LINE	Position Performing Function / Task	Performance Time Period After Emergency Declaration (minutes)*																	
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90
1	In-Plant Survey: RP#1		X	X	X	X	X	X	X	X									
2	On-site Survey: RP#2						X	X	X	X			X	X	X	X	X		
3	Personnel Monitoring:																		
4	Job Coverage:																		
5	Offsite Rad Assessment: <u>(Included in Table 5)</u>																		
6	Other site specific RP (describe):																		
7	Chemistry Function task #1 (describe)																		
8	Chemistry Function task #2 (describe)																		

*Times are estimated

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 5 – EMERGENCY PLAN IMPLEMENTATION Analysis #9 – Liquid Radwaste System Leak/Failure			
Line #	Function / Task	On-Shift Position	Task Analysis Controlling Method
1	Declare the emergency classification level (ECL)	Shift Manager	Emergency Planning Training Program / EP Drills
2	Approve Offsite Protective Action Recommendations	N/A	N/A
3	Approve content of State/local notifications	Shift Manager	Emergency Planning Training Program
4	Approve extension to allowable dose	N/A	N/A
5	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	Licensed Operator Training Program / Emergency Planning Training Program
6	ERO notification	SNEO#2	Emergency Planning Training Program
7	Abbreviated NRC notification for DBT event	N/A	N/A
8	Complete State/local notification form	Shift Manager	Emergency Planning Training Program
9	Perform State/local notifications	SNEO #2	Emergency Planning Training Program
10	Complete NRC event notification form	Shift Manager	Licensed Operator Training Program
11	Activate ERDS	N/A	N/A
12	Offsite radiological assessment	Chemistry	Emergency Planning Training Program
13	Perform NRC notifications	SNEO#2	Emergency Planning Training Program
14	Perform other site-specific event notifications (e.g., Duty Plant Manager, INPO, ANI, etc.)	Shift Manager	Licensed Operator Training Program
15	Personnel Accountability	Security	Security Training Program

RBS ON-SHIFT STAFFING ANALYSIS REPORT

H. Accident Analysis #11 – Aircraft Probable Threat

1. Accident Summary

- The analysis includes all emergency response actions taken prior to an aircraft impact in accordance with RG 1.214 for an aircraft threat that is greater than 5 minutes, but less than 30 minutes from the site, and considers the dispersal of the site fire brigade away from target areas for firefighting.
- The analysis does not include a scenario or response actions taken during or after a crash.

2. Accident Specific Assumptions Made

- The Shift Manager receives the call from the NRC of probable aircraft threat.
- All non-security on-shift personnel are inside the protected area fence at their normal workstation.

3. Procedures for Accident Response

- AOP-063, Aircraft Threat

RBS ON-SHIFT STAFFING ANALYSIS REPORT

4. Tables

RBS TABLE 1 – ON-SHIFT POSITIONS Analysis #11 – Aircraft Probable Threat						
Line #	On-shift Position	Basis Document	Augmentation Elapsed Time (min)	Role in Table 5 / Line #	Unanalyzed Task?	TMS Required?
1	Shift Manager / Shift Technical Advisor	Emergency Plan Table 13.3.17	90	T2/L1 T2/L3 T5/L1 T5/L3 T5/L5 T5/L8 T5/L10 T5/L14	No	No
2	Control Room Supervisor	Emergency Plan Table 13.3.17	N/A	T2/L2	No	No
3	NCO #1	Emergency Plan Table 13.3.17	N/A	T2/L4	No	No
4	NCO #2	Emergency Plan Table 13.3.17	N/A	T2/L5	No	No
5	NCO #3	Emergency Plan Table 13.3.17	90	T5/L6 T5 /L9 T5/L13	No	No
6	SNEO#1	Emergency Plan Table 13.3.17	N/A	T2/L6	No	No
7	SNEO#2	Emergency Plan Table 13.3.17	N/A	N/A	No	No
8	SNEO#3	Emergency Plan Table 13.3.17	N/A	T3/L1	No	No
9	SNEO#4	Emergency Plan Table 13.3.17	N/A	T3/L2	No	No
10	SNEO#5	Emergency Plan Table 13.3.17	N/A	T3/L3	No	No
11	FB #1	Emergency Plan Table 13.3.17	N/A	T3/L4	No	No
12	FB #2	Emergency Plan Table 13.3.17	N/A	T3/L5	No	No
13	Chem Tech	Emergency Plan Table 13.3.17	90	N/A	No	No
14	RP#1	Emergency Plan Table 13.3.17	90	N/A	No	No
15	RP#2	Emergency Plan Table 13.3.17	90	N/A	No	No
16	Maintenance #1	Emergency Plan Table 13.3.17	90	N/A	No	No
17	Maintenance #2	Emergency Plan Table 13.3.17	90	N/A	No	No
18	Security	Security Contingency Plan / Emergency Plan Table 13.3.17	90	T5/L15	No	No

RBS ON-SHIFT STAFFING ANALYSIS REPORT

Maintenance, RP, and Chemistry go to EOF

SM/STA and Communicator go to TSC. NCO #3 acting as Communicator per AOP-063.

FB goes to the FB van outside the PA

RBS TABLE 2 – PLANT OPERATIONS & SAFE SHUTDOWN One Unit – One Control Room Analysis #11 – Aircraft Probable Threat			
Minimum Operations Crew Necessary to Implement AOPs and EOPs or SAMGs if Applicable			
Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
1	Shift Manager	Shift Manager	Licensed Operator Training Program
2	Unit Supervisor	CRS	Licensed Operator Training Program
3	Shift Technical Advisor	Shift Manager	Licensed Operator Training Program / STA Training Program
4	Reactor Operator #1	NCO #1	Licensed Operator Training Program
5	Reactor Operator #2	NCO #2	Licensed Operator Training Program
6	Auxiliary Operator #1	SNEO #1	Non-Licensed Operator Training Program
7	Auxiliary Operator #2	N/A	N/A
8	Other needed for Safe Shutdown	N/A	N/A
9	Other needed for Safe Shutdown	N/A	N/A
10	Other needed for Safe Shutdown	N/A	N/A

Other (non-Operations) Personnel Necessary to Implement AOPs and EOPs or SAMGs if Applicable

Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
11	Mechanic	N/A	N/A
12	Electrician	N/A	N/A
13	I&C Technician	N/A	N/A
14	Other	N/A	N/A
15	Other	N/A	N/A

RBS ON-SHIFT STAFFING ANALYSIS REPORT

Fire Brigade

RBS TABLE 3 – FIREFIGHTING Analysis #11 – Aircraft Probable Threat			
Line #	Performed by		Task Analysis Controlling Method
1	SNEO#3		Fire Brigade Training
2	SNEO#4		Fire Brigade Training
3	SNEO#5		Fire Brigade Training
4	FB #1		Fire Brigade Training
5	FB #2		Fire Brigade Training

FB reports to the FB van outside the PA

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 4 – RADIATION PROTECTION AND CHEMISTRY Analysis #11 – Aircraft Probable Threat																			
LINE	Position Performing Function / Task	Performance Time Period After Emergency Declaration (minutes)*																	
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90
1	In-Plant Survey: <u>N/A</u>																		
2	On-site Survey: <u>N/A</u>																		
3	Personnel Monitoring: <u>N/A</u>																		
4	Job Coverage: <u>N/A</u>																		
5	Offsite Rad Assessment: <u>(Included in Table 5)</u>																		
6	Other site specific RP (describe): <u>N/A</u>																		
7	Chemistry Function task #1 (describe) <u>N/A</u>																		
8	Chemistry Function task #2 (describe) <u>N/A</u>																		

*Times are estimated

RP and Chemistry go to the EOF and assumed to stay there until directed otherwise by the SM.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 5 – EMERGENCY PLAN IMPLEMENTATION Analysis #11 – Aircraft Probable Threat			
Line #	Function / Task*	On-Shift Position	Task Analysis Controlling Method
1	Declare the emergency classification level (ECL)	Shift Manager	Emergency Planning Training Program / EP Drills
2	Approve Offsite Protective Action Recommendations	N/A	N/A
3	Approve content of State/local notifications	Shift Manager	Emergency Planning Training Program
4	Approve extension to allowable dose	N/A	N/A
5	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	Licensed Operator Training Program / Emergency Planning Training Program
6	ERO notification	NCO #3	Emergency Planning Training Program
7	Abbreviated NRC notification for DBT event	N/A	N/A
8	Complete State/local notification form	Shift Manager	Emergency Planning Training Program
9	Perform State/local notifications	NCO #3	Emergency Planning Training Program
10	Complete NRC event notification form	Shift Manager	Licensed Operator Training Program
11	Activate ERDS	N/A	N/A
12	Offsite radiological assessment	N/A	N/A
13	Perform NRC notifications	NCO #3	Emergency Planning Training Program
14	Perform other site-specific event notifications (e.g., Duty Plant Manager, INPO, ANI, etc.)	Shift Manager	Licensed Operator Training Program
15	Personnel Accountability	Security	Security Training Program

Maintenance, RP, and Chemistry go to EOF

SM/STA and Communicator go to TSC. NCO #3 acting as Communicator per AOP-063.

FB goes to the FB van outside the PA

RBS ON-SHIFT STAFFING ANALYSIS REPORT

I. Accident Analysis #12 – Control Room Evacuation and Remote Shutdown

1. Accident Summary

- A large transient fire that includes shorts and/or spurious signals produces potential LOCA pathways and/or incorrect system lineup for shutdown.
- RCIC and HPCS systems initiate on low water level which maintains reactor vessel water level and the RHR suppression pool cooling mode is used to remove the decay heat from the suppression pool if required. When reactor pressure falls below 100 psig level, the RHR shutdown cooling mode is started.

2. Accident Specific Assumptions Made

- The ATC operator will perform the immediate actions of the procedure to initiate a manual scram and verify all rods in before evacuating the control room.
- The ATC operator will stop all running feedwater and condensate pumps and depress both stop pushbuttons for Div. I D/G before evacuating the control room.

3. Procedures for Accident Response

- AOP-0031, Shutdown From Outside the Main Control Room
- EIP-2-001, Classification of Emergencies
- EIP-2-002, Classification Actions
- EIP-2-006, Notifications

RBS ON-SHIFT STAFFING ANALYSIS REPORT

4. Tables

RBS TABLE 1 – ON-SHIFT POSITIONS Analysis #12 – CR Evacuation & Remote SD						
Line #	On-shift Position	Basis Document	Augmentation Elapsed Time (min)	Role in Table 5 / Line #	Unanalyzed Task?	TMS Required?
1	Shift Manager / Shift Technical Advisor	Emergency Plan Table 13.3.17	90	T2/L1 T2/L3 T5/L1 T5/L3 T5/L5 T5/L8 T5/L10 T5/L14	No	No
2	Control Room Supervisor	Emergency Plan Table 13.3.17	N/A	T2/L2	No	No
3	NCO #1	Emergency Plan Table 13.3.17	N/A	T2/L4	No	No
4	NCO #2	Emergency Plan Table 13.3.17	N/A	T2/L5	No	No
5	NCO #3	Emergency Plan Table 13.3.17	N/A	N/A	No	No
6	SNEO#1	Emergency Plan Table 13.3.17	N/A	T2/L6	No	No
7	SNEO#2	Emergency Plan Table 13.3.17	90	T5/L6 T5 /L9 T5/L13	No	No
8	SNEO#3	Emergency Plan Table 13.3.17	N/A	T3/L1	No	No
9	SNEO#4	Emergency Plan Table 13.3.17	N/A	T3/L2	No	No
10	SNEO#5	Emergency Plan Table 13.3.17	N/A	T3/L3	No	No
11	FB #1	Emergency Plan Table 13.3.17	N/A	T3/L4	No	No
12	FB #2	Emergency Plan Table 13.3.17	N/A	T3/L5	No	No
13	Chem Tech	Emergency Plan Table 13.3.17	90	N/A	No	No
14	RP#1	Emergency Plan Table 13.3.17	90	T4/L4	No	No
15	RP#2	Emergency Plan Table 13.3.17	90	N/A	No	No
16	Maintenance #1	Emergency Plan Table 13.3.17	90	N/A	No	No
17	Maintenance #2	Emergency Plan Table 13.3.17	90	N/A	No	No
18	Security	Security Contingency Plan / E-Plan	N/A	T5/L15	No	No

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 2 – PLANT OPERATIONS & SAFE SHUTDOWN One Unit – One Control Room Analysis #12 – CR Evacuation & Remote SD			
Minimum Operations Crew Necessary to Implement AOPs and EOPs or SAMGs if Applicable			
Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
1	Shift Manager	Shift Manager	Licensed Operator Training Program
2	Unit Supervisor	CRS	Licensed Operator Training Program
3	Shift Technical Advisor	Shift Manager	Licensed Operator Training Program / STA Training Program
4	Reactor Operator #1	NCO #1	Licensed Operator Training Program
5	Reactor Operator #2	NCO #2	Licensed Operator Training Program
6	Auxiliary Operator #1	SNEO #1	Non-Licensed Operator Training Program
7	Auxiliary Operator #2	N/A	N/A
8	Other needed for Safe Shutdown	N/A	N/A
9	Other needed for Safe Shutdown	N/A	N/A
10	Other needed for Safe Shutdown	N/A	N/A

Other (non-Operations) Personnel Necessary to Implement AOPs and EOPs or SAMGs if Applicable

Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
11	Mechanic	N/A	N/A
12	Electrician	N/A	N/A
13	I&C Technician	N/A	N/A
14	Other	N/A	N/A
15	Other	N/A	N/A

RBS ON-SHIFT STAFFING ANALYSIS REPORT

Fire Brigade

RBS TABLE 3 – FIREFIGHTING Analysis #12 – CR Evacuation & Remote SD		
Line #	Performed by	Task Analysis Controlling Method
1	SNEO#3	Fire Brigade Training
2	SNEO#4	Fire Brigade Training
3	SNEO#5	Fire Brigade Training
4	FB #1	Fire Brigade Training
5	FB #2	Fire Brigade Training

RBS ON-SHIFT STAFFING ANALYSIS REPORT

**RBS TABLE 4 – RADIATION PROTECTION AND CHEMISTRY
Analysis #12 – CR Evacuation & Remote SD**

LINE	Position Performing Function / Task	Performance Time Period After Emergency Declaration (minutes)*																	
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90
1	In-Plant Survey: N/A _____																		
2	On-site Survey: <u>N/A</u>																		
3	Personnel Monitoring: <u>N/A</u>																		
4	Job Coverage: RP#1 Support FB _____		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	Offsite Rad Assessment: (Included in Table 5 _____)																		
6	Other site specific RP (describe): <u>N/A</u>																		
7	Chemistry Function task #1 (describe) <u>N/A</u>																		
8	Chemistry Function task #2 (describe) <u>N/A</u>																		

*Times are estimated

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 5 – EMERGENCY PLAN IMPLEMENTATION Analysis #12 – CR Evacuation & Remote SD			
Line #	Function / Task*	On-Shift Position	Task Analysis Controlling Method
1	Declare the emergency classification level (ECL)	Shift Manager	Emergency Planning Training Program / EP Drills
2	Approve Offsite Protective Action Recommendations	N/A	N/A
3	Approve content of State/local notifications	Shift Manager	Emergency Planning Training Program
4	Approve extension to allowable dose	N/A	N/A
5	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	Licensed Operator Training Program / Emergency Planning Training Program
6	ERO notification	SNEO#2	Emergency Planning Training Program
7	Abbreviated NRC notification for DBT event	N/A	N/A
8	Complete State/local notification form	Shift Manager	Emergency Planning Training Program
9	Perform State/local notifications	SNEO #2	Emergency Planning Training Program
10	Complete NRC event notification form	Shift Manager	Licensed Operator, Training Program
11	Activate ERDS	N/A	N/A
12	Offsite radiological assessment	N/A	N/A
13	Perform NRC notifications	SNEO#2	Emergency Planning Training Program
14	Perform other site-specific event notifications (e.g., Duty Plant Manager, INPO, ANI, etc.)	Shift Manager	Licensed Operator Training Program
15	Personnel Accountability	Security	Security Training Program

RBS ON-SHIFT STAFFING ANALYSIS REPORT

4. Tables

RBS TABLE 1 -- ON-SHIFT POSITIONS Analysis #13 -- Station Blackout						
Line #	On-shift Position	Basis Document	Augmentation Elapsed Time (min)	Role in Table 5 / Line #	Unanalyzed Task?	TMS Required?
1	Shift Manager / Shift Technical Advisor	Emergency Plan Table 13.3.17	90	T2/L1 T2/L3 T5/L1 T5/L3 T5/L5 T5/L8 T5/L10 T5/L14	No	No
2	Control Room Supervisor	Emergency Plan Table 13.3.17	N/A	T2/L2	No	No
3	NCO #1	Emergency Plan Table 13.3.17	N/A	T2/L4	No	No
4	NCO #2	Emergency Plan Table 13.3.17	N/A	T2/L5	No	No
5	NCO #3	Emergency Plan Table 13.3.17	N/A	N/A	No	No
6	SNEO#1	Emergency Plan Table 13.3.17	N/A	T2/L6	No	No
7	SNEO#2	Emergency Plan Table 13.3.17	90	T5/L6 T5 /L9 T5/L13	No	No
8	SNEO#3	Emergency Plan Table 13.3.17	N/A	N/A	No	No
9	SNEO#4	Emergency Plan Table 13.3.17	N/A	N/A	No	No
10	SNEO#5	Emergency Plan Table 13.3.17	N/A	N/A	No	No
11	FB #1	Emergency Plan Table 13.3.17	N/A	N/A	No	No
12	FB #2	Emergency Plan Table 13.3.17	N/A	N/A	No	No
13	Chem Tech	Emergency Plan Table 13.3.17	90	N/A	No	No
14	RP#1	Emergency Plan Table 13.3.17	90	T4/L1	No	No
15	RP#2	Emergency Plan Table 13.3.17	90	T4/L4	No	No
16	Maintenance #1	Emergency Plan Table 13.3.17	90	N/A	No	No
17	Maintenance #2	Emergency Plan Table 13.3.17	90	N/A	No	No
18	Security	Security Contingency Plan / Emergency Plan Table 13.3.17	N/A	T5/L15	No	No

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 2 – PLANT OPERATIONS & SAFE SHUTDOWN One Unit – One Control Room Analysis #13 – Station Blackout			
Minimum Operations Crew Necessary to Implement AOPs and EOPs or SAMGs if Applicable			
Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
1	Shift Manager	Shift Manager	Licensed Operator Training Program
2	Unit Supervisor	CRS	Licensed Operator Training Program
3	Shift Technical Advisor	Shift Manager	Licensed Operator Training Program / STA Training Program
4	Reactor Operator #1	NCO #1	Licensed Operator Training Program
5	Reactor Operator #2	NCO #2	Licensed Operator Training Program
6	Auxiliary Operator #1	SNEO #1	Non-Licensed Operator Training Program
7	Auxiliary Operator #2	N/A	N/A
8	Other needed for Safe Shutdown	N/A	N/A
9	Other needed for Safe Shutdown	N/A	N/A
10	Other needed for Safe Shutdown	N/A	N/A

Other (non-Operations) Personnel Necessary to Implement AOPs and EOPs or SAMGs if Applicable

Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
11	Mechanic	N/A	N/A
12	Electrician	N/A	N/A
13	I&C Technician	N/A	N/A
14	Other	N/A	N/A
15	Other	N/A	N/A

RBS ON-SHIFT STAFFING ANALYSIS REPORT

Fire Brigade

RBS TABLE 3 – FIREFIGHTING Analysis #13 – Station Blackout		
Line #	Performed by	Task Analysis Controlling Method
1	N/A	N/A
2	N/A	N/A
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A

This accident does not include the need for firefighting, first aid or search & rescue.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 4 – RADIATION PROTECTION AND CHEMISTRY Analysis #13 – Station Blackout																			
LINE	Position Performing Function / Task	Performance Time Period After Emergency Declaration (minutes)*																	
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90
1	In-Plant Survey: RP#1 <u>Perform applicable RSP-0229 sections</u> (Enc 5 & 15)			X	X	X	X	X	X	X	X								
2	On-site Survey:																		
3	Personnel Monitoring:																		
4	Job Coverage: RP#2 <u>Support OPS Att 5 implementation</u>									X	X	X	X	X	X				
5	Offsite Rad Assessment: <u>(Included in Table 5)</u>																		
6	Other site specific RP (describe): RP#2																		
7	Chemistry Function task #1 (describe)																		
8	Chemistry Function task #2 (describe)																		

*Times are estimated

Chemistry does not have an assigned chemistry task for SBO. Chemistry is available for dose assessment if a release occurs.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 5 – EMERGENCY PLAN IMPLEMENTATION Analysis #13 – Station Blackout			
Line #	Function / Task*	On-Shift Position	Task Analysis Controlling Method
1	Declare the emergency classification level (ECL)	Shift Manager	Emergency Planning Training Program / EP Drills
2	Approve Offsite Protective Action Recommendations	N/A	N/A
3	Approve content of State/local notifications	Shift Manager	Emergency Planning Training Program
4	Approve extension to allowable dose	N/A	N/A
5	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	Licensed Operator Training Program / Emergency Planning Training Program
6	ERO notification	SNEO#2	Emergency Planning Training Program
7	Abbreviated NRC notification for DBT event	N/A	N/A
8	Complete State/local notification form	Shift Manager	Emergency Planning Training Program
9	Perform State/local notifications	SNEO #2	Emergency Planning Training Program
10	Complete NRC event notification form	Shift Manager	Licensed Operator Training Program
11	Activate ERDS	N/A	N/A
12	Offsite radiological assessment	N/A	N/A
13	Perform NRC notifications	SNEO#2	Emergency Planning Training Program
14	Perform other site-specific event notifications (e.g., Duty Plant Manager, INPO, ANI, etc.)	Shift Manager	Licensed Operator Training Program
15	Personnel Accountability	Security	Security Training Program

RBS ON-SHIFT STAFFING ANALYSIS REPORT

K. Accident Analysis #14 – LOCA/General Emergency with Release and PAR

1. Accident Summary (Assumed for Staffing Analysis Purpose)
 - The unit is in a Site Area Emergency AS1 when the Shift Manager is given a dose assessment update that projects >1 Rem TEDE dose at the site boundary.
2. Accident Specific Assumptions Made
 - All actions for SAE are complete.
 - No transients other than LOCA are considered.
 - The ERO would be activated at an Alert or SAE. For Staffing Analysis purpose, the T=0 clock is used for the emergency plan actions to evaluate the capability to implement the GE classification, PAR and notification functions before the ERO arrives.
3. Procedures for Accident Response
 - EOP-01, RPV Control
 - EOP-02, Primary Containment Control
 - EOP-03, Secondary Containment Control
 - AOP-1, Reactor Scram
 - AOP-2, Turbine/Generator Trip
 - AOP-3, Automatic Isolations
 - RSP-0229, Radiation Protection Response to Changing Plant Conditions
 - EIP-2-001, Classification of Emergencies
 - EIP-2-002, Classification Actions
 - EIP-2-006, Notifications
 - EIP-2-014, Offsite Radiological Monitoring
 - EIP-2-007, Protective Action Recommendation
 - EIP-2-012, Radiation Exposure Control

RBS ON-SHIFT STAFFING ANALYSIS REPORT

4. Tables

RBS TABLE 1 – ON-SHIFT POSITIONS Analysis #14 – LOCA/GE with PAR						
Line #	On-shift Position	Basis Document	Augmentation Elapsed Time (min)	Role in Table 5 / Line #	Unanalyzed Task?	TMS Required?
1	Shift Manager / Shift Technical Advisor	Emergency Plan Table 13.3.17	90	T2/L1 T2/L3 T5/L1 T5/L2 T5/L3 T5/L4 T5/L5 T5/L8 T5/L10 T5/L14	No	No
2	Control Room Supervisor	Emergency Plan Table 13.3.17	N/A	T2/L2	No	No
3	NCO #1	Emergency Plan Table 13.3.17	N/A	T2/L4	No	No
4	NCO #2	Emergency Plan Table 13.3.17	N/A	T2/L5	No	No
5	NCO #3	Emergency Plan Table 13.3.17	N/A	N/A	No	No
6	SNEO#1	Emergency Plan Table 13.3.17	N/A	T2/L6	No	No
7	SNEO#2	Emergency Plan Table 13.3.17	90	T5 /L9 T5/L13	No	No
8	SNEO#3	Emergency Plan Table 13.3.17	N/A	N/A	No	No
9	SNEO#4	Emergency Plan Table 13.3.17	N/A	N/A	No	No
10	SNEO#5	Emergency Plan Table 13.3.17	N/A	N/A	No	No
11	FB #1	Emergency Plan Table 13.3.17	N/A	N/A	No	No
12	FB #2	Emergency Plan Table 13.3.17	N/A	N/A	No	No
13	Chem Tech	Emergency Plan Table 13.3.17	90	T5/L12	No	Yes
14	RP#1	Emergency Plan Table 13.3.17	90	T4/L2	No	No
15	RP#2	Emergency Plan Table 13.3.17	90	T4/L6	No	No
16	Maintenance #1	Emergency Plan Table 13.3.17	90	N/A	No	No
17	Maintenance #2	Emergency Plan Table 13.3.17	90	N/A	No	No
18	Security	Security Contingency Plan / Emergency Plan Table 13.3.17	N/A	T5/L15	N/A	N/A

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 2 – PLANT OPERATIONS & SAFE SHUTDOWN One Unit – One Control Room Analysis #14 – LOCA/GE with PAR			
Minimum Operations Crew Necessary to Implement AOPs and EOPs or SAMGs if Applicable			
Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
1	Shift Manager	Shift Manager	Licensed Operator Training Program
2	Unit Supervisor	CRS	Licensed Operator Training Program
3	Shift Technical Advisor	Shift Manager	STA Training Program / Licensed Operator Training Program
4	Reactor Operator #1	NCO#1	Licensed Operator Training Program
5	Reactor Operator #2	NCO #2	Licensed Operator Training Program
6	Auxiliary Operator #1	SNEO #1	Non-Licensed Operator Training Program
7	Auxiliary Operator #2	N/A	N/A
8	Other needed for Safe Shutdown	N/A	N/A
9	Other needed for Safe Shutdown	N/A	N/A
10	Other needed for Safe Shutdown	N/A	N/A

Other (non-Operations) Personnel Necessary to Implement AOPs and EOPs or SAMGs if applicable

Line #	Generic Title/Role	On-Shift Position	Task Analysis Controlling Method
11	Mechanic	N/A	N/A
12	Electrician	N/A	N/A
13	I&C Technician	N/A	N/A
14	Other	N/A	N/A
15	Other	N/A	N/A

RBS ON-SHIFT STAFFING ANALYSIS REPORT

Fire Brigade

RBS TABLE 3 – FIREFIGHTING Analysis #14 – LOCA/GE with PAR		
Line #	Performed by	Task Analysis Controlling Method
1	N/A	N/A
2	N/A	N/A
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A

This accident does not include the need for firefighting, first aid or search & rescue.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

J. Accident Analysis #13 – Station Blackout

1. Accident Summary

- At power, normal lineups and no additional events
- RCIC starts to restore level and SRVs lift in the relief mode to control pressure

2. Accident Specific Assumptions Made

- Assume the Shift Manager recognizes power cannot be restored within 15 minutes after the loss before the 15 minute SBO EAL period has expired.

3. Procedures for Accident Response

- AOP-0050, Station Blackout
- EIP-2-001, Classification of Emergencies
- EIP-2-002, Classification Actions
- EIP-2-006, Notifications
- EIP-2-026, Evacuation, Personnel Accountability and Search and Rescue

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 4 – RADIATION PROTECTION AND CHEMISTRY
Analysis #14 – LOCA/GE with PAR

LINE	Position Performing Function / Task	Performance Time Period After Emergency Declaration (minutes)*																	
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90
1	In-Plant Survey: RP#1 _____																		
2	On-site Survey: <u>RP#1</u> onsite & SB surveys				X	X	X	X	X	X				X	X	X	X		
3	Personnel Monitoring: _____																		
4	Job Coverage: ____																		
5	Offsite Rad Assessment: <u>See Table 5</u>																		
6	Other site specific RP (describe): RP#2 <u>Go to OSC assume Rad/Chem Coordinator Role</u>		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7	Chemistry Function task #1 (describe) _____																		
8	Chemistry Function task #2 (describe) _____																		

*Times are estimated

Chemistry does not have an assigned chemistry task for LOCA. Chemistry is available for dose assessment.

RBS ON-SHIFT STAFFING ANALYSIS REPORT

RBS TABLE 5 – EMERGENCY PLAN IMPLEMENTATION Analysis #14 – LOCA/GE with PAR			
Line #	Function / Task*	On-Shift Position	Task Analysis Controlling Method
1	Declare the emergency classification level (ECL)	Shift Manager	Emergency Planning Training Program / EP Drills
2	Approve Offsite Protective Action Recommendations	Shift Manager	Emergency Planning Training Program
3	Approve content of State/local notifications	Shift Manager	Emergency Planning Training Program
4	Approve extension to allowable dose	Shift Manager	Emergency Planning Training Program
5	Notification and direction to on-shift staff (e.g., to assemble, evacuate, etc.)	Shift Manager	Licensed Operator Training Program / Emergency Planning Training Program
6	ERO notification	N/A	N/A
7	Abbreviated NRC notification for DBT event	N/A	N/A
8	Complete State/local notification form	Shift Manager	Emergency Planning Training Program
9	Perform State/local notifications	SNEO #2	Emergency Planning Training Program
10	Complete NRC event notification form	Shift Manager	Licensed Operator Training Program
11	Activate ERDS	N/A	N/A
12	Offsite radiological assessment	Chemistry Technician	Emergency Planning Training Program
13	Perform NRC notifications	SNEO#2	Emergency Planning Training Program
14	Perform other site-specific event notifications (e.g., Duty Plant Manager, INPO, ANI, etc.)	Shift Manager	Licensed Operator Training Program
15	Personnel Accountability	Security	Security Training Program

RBS ON-SHIFT STAFFING ANALYSIS REPORT

VIII. APPENDIX C – TIME MOTION STUDIES SUPPORTING THE STAFFING ANALYSIS

A. None

1. See Section II.C.1 for the exception taken for the Chemistry Technician to perform dose assessment. No Time Motion Study or corrective action required

IX. OVERLAP OF TASKS ACTIVITIES OR OTHER CONFLICTS IDENTIFIED

A. Overlap Requiring Compensatory Measures

1. None

X. CORRECTIVE ACTIONS

A. Corrective Actions and Compensatory Measures

1. None

RBS ON-SHIFT STAFFING ANALYSIS REPORT

XI. REFERENCES

- NEI 10-05, Rev 0, *Assessment of On-Shift Emergency Response Organization Staffing and Capabilities*
- NSIR DPR-ISG-01, *Interim Staff Guidance – Emergency Planning for Nuclear Power Plants*
- NUREG-0654, *Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants.*
- RBS Emergency Plan, Rev 37

XII. STAFFING ANALYSIS TEAM

- Fred Guynn, Entergy ECH Sr Project Manager, EP
- Myra Jones, Contractor CMCG
- Troy D. Burnett, RBS Manager – EP
- Steven Carter, RBS Operations Shift Manager
- Dan Heath, RBS Radiation Protection
- John Frederickson, RBS Chemistry
- Erich Weinfurter, RBS Ops/STA Training

RBG-47811

50.54(q) Screening

SHEET 1 OF 4

Procedure/Document Number: N/A	Revision: 043 / 1
Equipment/Facility/Other: River Bend Station	
Title: River Bend Station Emergency Plan / On Shift Staffing Analysis	

Part I. Description of Activity Being Reviewed (This is generally changes to the emergency plan, EALs, EAL bases, etc. – refer to step 3.0[6]):

Changes made to the River Bend Station Emergency Plan Revision 043 / On Shift Staffing Analysis Revision 1 include the following:

- 1) Use of a dual role OSM/STA in lieu of a separate STA and OSM in On Shift Staffing Analysis Revision 1.
- 2) Reassigning the responsibility for completion of the State/Local notification form, NRC event notification form and abbreviated NRC notification for the DBT event from the STA to the dual role OSM/STA in the On Shift Staffing Analysis Revision 1.
- 3) The RBS Emergency Plan table 13.3-17 requires two personnel on-shift to provide first aid support activities. The On Shift Staffing Analysis has been revised to reflect the use of two on-shift personnel instead of specifically assigning it to security.
- 4) Update Tables 13.3-7 and 13.3-9 of the Emergency Plan to reflect change in the On Shift Staffing analysis in change 3 above.
- 5) EOF Communicator in EOF removed from Core/Thermal Hydraulics emergency tasks in Table 13.3-17 of the Emergency Plan
- 6) EOF Technical Advisor added to Technical Support emergency tasks in Table 13.3-17 of the Emergency Plan
- 7) Note (c) in Table 13.3-17 of the Emergency Plan changed from "... River Bend Station Technical Specification" to "...River Bend Station Technical Requirements Manual".
- 8) Updates procedure references in Tables F1 and F2 of the Emergency Plan to replace procedure EIP-2-028 Recovery with EN-EP-613 Recovery From a Declared Emergency.
- 9) Updates procedure references in Tables F1 and F2 of the Emergency Plan to replace procedure EIP-2-012 Radiation Exposure Controls with EN-EP-4ALL - Exposure Authorization and EN-EP-8ALL – KI Instructions and Briefing

Part II. Activity Previously Reviewed?

Is this activity fully bounded by an NRC approved 10 CFR 50.90 submittal or Alert and Notification System Design Report?

If YES, identify bounding source document number/approval reference and ensure the basis for concluding the source document fully bounds the proposed change is documented below:

Justification:

- 5) EOF Communicator in EOF removed from Core/Thermal Hydraulics emergency tasks in Table 13.3-17
- 6) EOF Technical Advisor added to Technical Support emergency tasks in Table 13.3-17

Changes 5 and 6 above were previously evaluated under 50.54(q) process with adoption of fleet procedure EN-EP-801 Emergency Response Organization which standardized the ERO positions concurrent with Emergency Plan revision 36 which adopted that standard ERO. The changes to Table 13.3-17 reflecting changes 5 and 6 were overlooked at that time which this corrects.

☐ Bounding document attached (optional)

☒ YES
50.54(q)(3)
Evaluation is
NOT required.
Enter
justification
below and
complete Part
VI.

☒ NO
Continue to
next part

Part III. Applicability of Other Regulatory Change Control Processes

Check if any other regulatory change processes control the proposed activity. (Refer to EN-LI-100)

APPLICABILITY CONCLUSION

- ☒ If there are no other controlling change processes, continue the 50.54(q)(3) Screening.
- ☐ One or more controlling change processes are selected, however, some portion of the activity involves the emergency plan or affects the implementation of the emergency plan; continue the 50.54(q)(3) Screening for that portion of the activity. Identify the applicable controlling change processes below.
- ☐ One or more controlling change processes are selected and fully bounds all aspects of the activity. 50.54(q)(3) Evaluation is NOT required. Identify controlling change processes below and complete Part VI.

SHEET 2 OF 4

Procedure/Document Number: N/A	Revision: 043 / 1
Equipment/Facility/Other: River Bend Station	
Title: River Bend Station Emergency Plan / On Shift Staffing Analysis	

CONTROLLING CHANGE PROCESSES

10 CFR 50.54(q)

Part IV. Editorial Change

Is this activity an editorial or typographical change such as formatting, paragraph numbering, spelling, or punctuation that does not change intent?

Justification:

Change 7) Note (c) in Table 13.3-17 changed from "... River Bend Station Technical Specification" to "...River Bend Station Technical Requirements Manual" is editorial in nature with no change in meaning or intent to reflect the fact that unit staff is in the Technical Requirements Manual...

Change 8) Updates procedure references in Tables F1 and F2 of the Emergency Plan to replace procedure EIP-2-028 Recovery with EN-EP-613 Recovery From a Declared Emergency.

Change 9) Updates procedure references in Tables F1 and F2 of the Emergency Plan to replace procedure EIP-2-012 Radiation Exposure Controls with EN-EP-4ALL - Exposure Authorization and EN-EP-8ALL - KI Instructions and Briefing

☐ YES

50.54(q)(3)
Evaluation is
NOT required.
Enter
justification and
continue to next
part or
complete Part
VI as
applicable.

☒ NO

Continue to next
part

Procedure/Document Number: N/A	Revision: 043 / 1
Equipment/Facility/Other: River Bend Station	
Title: River Bend Station Emergency Plan / On Shift Staffing Analysis	

Part V. Emergency Planning Element/Function Screen (Associated 10 CFR 50.47(b) planning standard function identified in brackets) Does this activity affect any of the following, including program elements from NUREG-0654/FEMA REP-1 Section II?	
1. Responsibility for emergency response is assigned. [1]	<input type="checkbox"/>
2. The response organization has the staff to respond and to augment staff on a continuing basis (24/7 staffing) in accordance with the emergency plan. [1]	<input type="checkbox"/>
3. The process ensures that on shift emergency response responsibilities are staffed and assigned. [2]	<input checked="" type="checkbox"/>
4. The process for timely augmentation of onshift staff is established and maintained. [2]	<input type="checkbox"/>
5. Arrangements for requesting and using off site assistance have been made. [3]	<input type="checkbox"/>
6. State and local staff can be accommodated at the EOF in accordance with the emergency plan. [3]	<input type="checkbox"/>
7. A standard scheme of emergency classification and action levels is in use. [4]	<input type="checkbox"/>
8. Procedures for notification of State and local governmental agencies are capable of alerting them of the declared emergency within 15 minutes after declaration of an emergency and providing follow-up notifications. [5]	<input type="checkbox"/>
9. Administrative and physical means have been established for alerting and providing prompt instructions to the public within the plume exposure pathway. [5]	<input type="checkbox"/>
10. The public ANS meets the design requirements of FEMA-REP-10, Guide for Evaluation of Alert and Notification Systems for Nuclear Power Plants, or complies with the licensee's FEMA-approved ANS design report and supporting FEMA approval letter. [5]	<input type="checkbox"/>
11. Systems are established for prompt communication among principal emergency response organizations. [6]	<input type="checkbox"/>
12. Systems are established for prompt communication to emergency response personnel. [6]	<input type="checkbox"/>
13. Emergency preparedness information is made available to the public on a periodic basis within the plume exposure pathway emergency planning zone (EPZ). [7]	<input type="checkbox"/>
14. Coordinated dissemination of public information during emergencies is established. [7]	<input type="checkbox"/>
15. Adequate facilities are maintained to support emergency response. [8]	<input type="checkbox"/>
16. Adequate equipment is maintained to support emergency response. [8]	<input type="checkbox"/>
17. Methods, systems, and equipment for assessment of radioactive releases are in use. [9]	<input type="checkbox"/>
18. A range of public PARs is available for implementation during emergencies. [10]	<input type="checkbox"/>
19. Evacuation time estimates for the population located in the plume exposure pathway EPZ are available to support the formulation of PARs and have been provided to State and local governmental authorities. [10]	<input type="checkbox"/>
20. A range of protective actions is available for plant emergency workers during emergencies, including those for hostile action events.[10]	<input type="checkbox"/>

SHEET 4 OF 4

Procedure/Document Number: N/A	Revision: 043 / 1
Equipment/Facility/Other: River Bend Station	
Title: River Bend Station Emergency Plan / On Shift Staffing Analysis	

21. The resources for controlling radiological exposures for emergency workers are established. [11]	<input type="checkbox"/>
22. Arrangements are made for medical services for contaminated, injured individuals. [12]	<input type="checkbox"/>
23. Plans for recovery and reentry are developed. [13]	<input type="checkbox"/>
24. A drill and exercise program (including radiological, medical, health physics and other program areas) is established. [14]	<input type="checkbox"/>
25. Drills, exercises, and training evolutions that provide performance opportunities to develop, maintain, and demonstrate key skills are assessed via a formal critique process in order to identify weaknesses. [14]	<input type="checkbox"/>
26. Identified weaknesses are corrected. [14]	<input type="checkbox"/>
27. Training is provided to emergency responders. [15]	<input type="checkbox"/>
28. Responsibility for emergency plan development and review is established. [16]	<input type="checkbox"/>
29. Planners responsible for emergency plan development and maintenance are properly trained. [16]	<input type="checkbox"/>

APPLICABILITY CONCLUSION

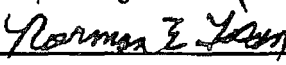
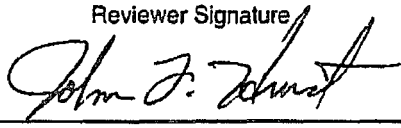
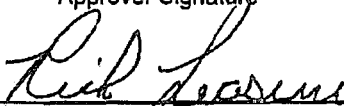
☐ If no Part V criteria are checked, a 50.54(q)(3) Evaluation is NOT required; document the basis for conclusion below and complete Part VI.

☒ If any Part V criteria are checked, complete Part VI and perform a 50.54(q)(3) Evaluation.

BASIS FOR CONCLUSION

Items 1,2, and 3: 10 CFR 50.47 (b) Emergency Planning standard 2 is identified in Part V of this form is affected. A 50.54 (q) (3) evaluation will be performed to determine if the effectiveness of the emergency plan is reduced and prior NRC approval is required

Part VI. Signatures:

Preparer Name (Print) Norman E Tison	Preparer Signature 	Date: 10/23/2017
(Optional) Reviewer Name (Print) N/A	Reviewer Signature N/A	Date: N/A
Reviewer Name (Print) John F Hurst Nuclear EP Project Manager	Reviewer Signature 	Date: 10/23/2017
Approver Name (Print) Rick Leasure Manager, Emergency Planning or designee	Approver Signature 	Date: 10/23/2017

Procedure/Document Number: N/A	Revision: 043 / 1
Equipment/Facility/Other: River Bend Station	
Title: River Bend Station Emergency Plan / On Shift Staffing Analysis	

Part I. Description of Proposed Change:

Changes made to the River Bend Station On Shift Staffing Analysis Revision 1 include the following:

- 1) Use of a dual role OSM/STA in lieu of a separate STA and OSM in the On Shift Staffing Analysis.
- 2) Reassigning the responsibility for completion of the State/Local notification form, NRC event notification form and abbreviated NRC notification for the DBT event from the STA to the dual role OSM/STA in the On Shift Staffing Analysis.
- 3) The RBS Emergency Plan table 13.3-17 requires two personnel on-shift to provide first aid support activities. The On Shift Staffing Analysis has been revised to reflect the use of two on-shift personnel instead of specifically assigning it to security.
- 4) Update Tables 13.3-7 and 13.3-9 of the Emergency Plan to reflect change in the On Shift Staffing analysis in change 3 above.

Part II. Description and Review of Licensing Basis Affected by the Proposed Change:

An LRS Autonomy 50.59 search of the Emergency Plan, Safety Evaluation Reports and USAR using key words "On Shift Staffing Analysis" "Shift Technical Advisor" and "Dual Role Shift Technical Advisor" did not return any hits relevant to the proposed change to the On Shift Staffing Analysis.

Part III. Describe How the Proposed Change Complies with Relevant Emergency Preparedness Regulation(s) and Previous Commitment(s) Made to the NRC:

10 CFR 5047(b)(2) - Onsite Emergency Organization

- The process ensures that onshift emergency response responsibilities are staffed and assigned.
- The process for timely augmentation of onshift staff is established and maintained.

Changes 1 and 2: The Shift Technical Advisor (STA) position at RBS is normally filled by an individual with the title STA as noted in the staffing table located in Section II.A of the On Shift Staffing Analysis. The RBS Technical Requirements Manual (TRM) Table 5.2.2-1, Minimum Shift Crew Composition allows for the STA position to be filled by an on-shift shift manager (OSM) or Senior Reactor Operation (SRO) provided the individual meets the STA qualifications for the dual role position and five (5) licensed operators are on shift. NRC Generic Letter 86-04, "Policy Statement on Engineering Expertise On-Shift" and NEI 10-05 state that it is acceptable for the STA position to be filled by an STA qualified individual already serving in another on-shift role (dual-role individual). Additionally, the required fifth license would be available to assist in performing actions as directed by the CRS. The On Shift Staffing Analysis Rev. 1 was performed assuming the STA role was filled by the OSM with the addition of the fifth licensed operator as required by the RBS TRM. As stated in NEI 10-05, use of a dual role individual is an acceptable collateral duty assignment in an on shift staffing analysis.

Change 3: First Aid: In accordance with NEI 10-05 section 2.6, the On Shift Staffing Analysis Rev. 1 also included a review of first aid response. Per the guidance of NUREG-0654, Table B-1, first aid may be performed by shift personnel assigned other functions. Additionally, two on-shift personnel per shift are trained in first aid and CPR. Personnel assigned to first aid team will continue to be trained to the level required by the Emergency Plan. First aid response is considered an acceptable collateral duty per the guidance of NEI 10-05 in an on shift staffing analysis

Change 4 updates Tables 13.3-7 and 13.3-9 of the Emergency Plan to reflect change in the On Shift Staffing Analysis in change 3 above.

Previous NRC Commitments: The Licensing Research System was reviewed for potential NRC commitment changes as a result of this revision. This change does not affect any previous commitments made to the NRC.

Procedure/Document Number: N/A	Revision: 043 / 1
Equipment/Facility/Other: River Bend Station	
Title: River Bend Station Emergency Plan / On Shift Staffing Analysis	

Part IV. Description of Emergency Plan Planning Standards, Functions and Program Elements Affected by the Proposed Change:

10 CFR 5047(b)(2) - Onsite Emergency Organization

- The process ensures that onshift emergency response responsibilities are staffed and assigned.
- The process for timely augmentation of onshift staff is established and maintained.

Sections IV A 2.a c IV A 3 and IV C of Appendix E to 10 CFR 50 provide supporting requirements. Informing criteria appear in Section 1 B of NUREG-0654 and the licensee's emergency plan.

Part V. Description of Impact of the Proposed Change on the Effectiveness of Emergency Plan Functions:

The required number of personnel on shift is unchanged from the number required in On Shift Staffing Analysis Rev. 0.

Changes made to the On Shift Staffing Analysis include use of a dual role OSM/STA in lieu of a separate STA and OSM. River Bend Station Technical Requirements Manual (TRM) allows for the use of a dual role STA/OSM with the addition of a fifth license. Use of the dual role OSM/STA and the fifth license has been added to the tables throughout the On Shift Staffing Analysis Rev. 1. Additional changes include reassigning the responsibility for completion of the State/Local notification form, NRC event notification form, and abbreviated NRC notification for the DBT event from the STA to the dual role OSM/STA. The RBS Emergency Plan table 13.3-17 requires two personnel on-shift to provide first aid support activities. First aid activities are considered an acceptable collateral duty per NEI 10-05. The report has been revised to reflect the use of two on-shift personnel instead of specifically assigning it to security.

The proposed changes to the River Bend Station Emergency Plan continue to meet the planning standards outlined in 10 CFR 50.47(b)(2). The effectiveness of the emergency plan is not reduced and the Emergency Plan changes can be incorporated without prior NRC approval.

Part VI. Evaluation Conclusion

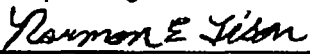
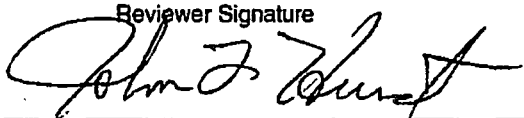
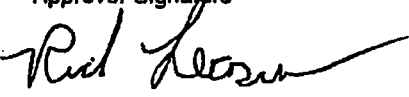
Answer the following questions about the proposed change.

1. Does the proposed change comply with 10 CFR 50.47(b) and 10 CFR 50 Appendix E?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
2. Does the proposed change maintain the effectiveness of the emergency plan (i.e., no reduction in effectiveness)?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
3. Does the proposed change constitute an emergency action level scheme change?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
If questions 1 or 2 are answered NO, or question 3 answered YES, reject the proposed change, modify the proposed change and perform a new evaluation or obtain prior NRC approval under provisions of 10 CFR 50.90. If questions 1 and 2 are answered YES, and question 3 answered NO, implement applicable change.	

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process(es). Refer to step 5.8[8].

Part VII. Signatures

Preparer Name (Print) Norman E Tison	Preparer Signature 	Date: 10/25/2017
(Optional) Reviewer Name (Print) N/A	Reviewer Signature N/A	Date: N/A
Reviewer Name (Print) John F Hurst Nuclear EP Project Manager	Reviewer Signature 	Date: 10/25/2017
Approver Name (Print) Rick Leasure Manager, Emergency Preparedness or designee	Approver Signature 	Date: 10/26/2017

Procedure/Document Number: EP-4-ALL EP-8-ALL	Revision: 3 2
Equipment/Facility/Other: River Bend Station	
Title: Exposure Authorization Form Potassium Iodide (KI) Instructions/Briefing Form	

Part I. Description of Activity Being Reviewed (event or action, or series of actions that have the potential to affect the emergency plan or have the potential to affect the implementation of the emergency plan):

Implementation of fleet Emergency Planning forms controlled under the 10 CFR 50.54(q) process replacing an existing River Bend Station Emergency Implementing Procedure EIP-2-012 Radiation Exposure Controls.

Part II. Emergency Plan Sections Reviewed (List all emergency plan sections that were reviewed for this activity by number and title. IF THE ACTIVITY IN ITS ENTIRETY IS AN EMERGENCY PLAN CHANGE OR EAL OR EAL BASIS CHANGE, ENTER THE SCREENING PROCESS. NO 10 CFR 50.54(q)(2) DOCUMENTATION IS REQUIRED.

Electronic search of the entire Emergency Plan using keywords 'exposure', 'KI', 'Potassium' and 'Potassium Iodide'. Relevant hits with this key word search of the Emergency Plan did not find any conflict with guidance contained in the Emergency Plan on use of Potassium Iodide (KI).

Specific sections of the Emergency Plan reviewed in detail listed below:

13.3.5.4.3 Contamination Control Measures

13.3.5.5.1 Emergency Personnel Exposure Criteria

13.3.6.5 First Aid and Medical Facilities

Table 13.3-10 Exposure Criteria for Emergency Workers

Part III. Ability to Maintain the Emergency Plan (Answer the following questions related to impact on the ability to maintain the emergency plan):

- Do any elements of the activity change information contained in the emergency plan (procedure section 3.0[6])?
YES ☐ NO ☒ IF YES, enter screening process for that element
- Do any elements of the activity change an emergency classification Initiating Condition, Emergency Action Level (EAL), associated EAL note or associated EAL basis information or their underlying calculations or assumptions?
YES ☐ NO ☒ IF YES, enter screening process for that element
- Do any elements of the activity change the process or capability for alerting and notifying the public as described in the FEMA-approved Alert and Notification System design report?
YES ☐ NO ☒ IF YES, enter screening process for that element
- Do any elements of the activity change the Evacuation Time Estimate results or documentation?
YES ☐ NO ☒ IF YES, enter screening process for that element
- Do any elements of the activity change the Onshift Staffing Analysis results or documentation?
YES ☐ NO ☒ IF YES, enter screening process for that element


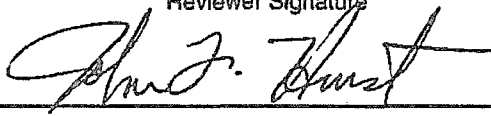
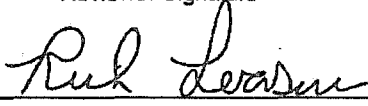
Procedure/Document Number: EP-4-ALL EP-8-ALL	Revision: 3 2
Equipment/Facility/Other: River Bend Station	
Title: Exposure Authorization Form Potassium Iodide (KI) Instructions/Briefing Form	

Part IV. Maintaining the Emergency Plan Conclusion The questions in Part II do not represent the sum total of all conditions that may cause a change to or impact the ability to maintain the emergency plan. Originator and reviewer signatures in Part IV document that a review of all elements of the proposed change have been considered for their impact on the ability to maintain the emergency plan and their potential to change the emergency plan.

1. Provide a brief conclusion that describes how the conditions as described in the emergency plan are maintained with this activity.
 2. Check the box below when the 10 CFR 50.54(q)(2) review completes all actions for all elements of the activity – no 10 CFR 50.54(q)(3) screening or evaluation is required for any element. Otherwise, leave the checkbox blank.
- ☒ I have completed a review of this activity in accordance with 10 CFR 50.54(q)(2) and determined that the effectiveness of the emergency plan is maintained. This activity does not make any changes to the emergency plan. No further actions are required to screen or evaluate this activity under 10 CFR 50.54(q)(3).

EP-4-ALL and EP-8-ALL are fleet forms which replace the River Bend Station site procedure EIP-2-012 Radiation Exposure Controls for the same purpose. EP-4-ALL and EP-8-ALL fleet forms interface with existing fleet procedures EN-EP-609, EN-EP-610 and EN-EP-611 currently listed in Appendix F of the River Bend Station Emergency Plan as Emergency Implementing Procedures. Responsibilities of EIP-2-012 procedure are still maintained with implementation of EP-4-ALL and EP-8-ALL. The ability to maintain the Emergency Plan is not affected by this change. Implementation of these fleet forms updates the listing of those procedures referenced in Appendix F - Tables F1 and F2 of the River Bend Station Emergency Plan. Updating the procedure reference is an editorial change to the emergency plan with no impact on Initiating Conditions, Emergency Action Levels or associated EAL basis.

Part V. Signatures:

Preparer Name (Print) Norman E Tison	Preparer Signature 	Date: 10/23/2017
(Optional) Reviewer Name (Print) N/A	Reviewer Signature N/A	Date: N/A
Reviewer Name (Print) John F Hurst Nuclear EP Project Manager	Reviewer Signature 	Date: 10/23/2017
Reviewer Name (Print) Rick Leasure 359 Manager, Emergency Planning or designee	Reviewer Signature 	Date: 10/23/2017

Procedure/Document Number: EN-EP-613

Revision: 0

Equipment/Facility/Other: River Bend Station

Title: RECOVERY FROM A DECLARED EMERGENCY

Part I. Description of Activity Being Reviewed (event or action, or series of actions that have the potential to affect the emergency plan or have the potential to affect the implementation of the emergency plan):

Implementation of a new fleet Emergency Planning procedure EN-EP-613, Recovery from a Declared Emergency. This procedure replaces an existing River Bend Station site procedure EIP-2-028 Recovery.

Part II. Emergency Plan Sections Reviewed (List all emergency plan sections that were reviewed for this activity by number and title. IF THE ACTIVITY IN ITS ENTIRETY IS AN EMERGENCY PLAN CHANGE OR EAL OR EAL BASIS CHANGE, ENTER THE SCREENING PROCESS. NO 10 CFR 50.54(q)(2) DOCUMENTATION IS REQUIRED.

Emergency Plan Section 13.3.8 Recovery, Appendix A, Tables F1 and F2 were reviewed.

Part III. Ability to Maintain the Emergency Plan (Answer the following questions related to impact on the ability to maintain the emergency plan):

1. Do any elements of the activity change information contained in the emergency plan (procedure section 3.0[6])?
YES ☐ NO ☒ IF YES, enter screening process for that element
2. Do any elements of the activity change an emergency classification Initiating Condition, Emergency Action Level (EAL), associated EAL note or associated EAL basis information or their underlying calculations or assumptions?
YES ☐ NO ☒ IF YES, enter screening process for that element
3. Do any elements of the activity change the process or capability for alerting and notifying the public as described in the FEMA-approved Alert and Notification System design report?
YES ☐ NO ☒ IF YES, enter screening process for that element
4. Do any elements of the activity change the Evacuation Time Estimate results or documentation?
YES ☐ NO ☒ IF YES, enter screening process for that element
5. Do any elements of the activity change the Onshift Staffing Analysis results or documentation?
YES ☐ NO ☒ IF YES, enter screening process for that element

Procedure/Document Number: EN-EP-613

Revision: 0

Equipment/Facility/Other: River Bend Station

Title: RECOVERY FROM A DECLARED EMERGENCY

Part IV. Maintaining the Emergency Plan Conclusion The questions in Part II do not represent the sum total of all conditions that may cause a change to or impact the ability to maintain the emergency plan. Originator and reviewer signatures in Part IV document that a review of all elements of the proposed change have been considered for their impact on the ability to maintain the emergency plan and their potential to change the emergency plan.

1. Provide a brief conclusion that describes how the conditions as described in the emergency plan are maintained with this activity.
 2. Check the box below when the 10 CFR 50.54(q)(2) review completes all actions for all elements of the activity – no 10 CFR 50.54(q)(3) screening or evaluation is required for any element. Otherwise, leave the checkbox blank.
- ☒ I have completed a review of this activity in accordance with 10 CFR 50.54(q)(2) and determined that the effectiveness of the emergency plan is maintained. This activity does not make any changes to the emergency plan. No further actions are required to screen or evaluate this activity under 10 CFR 50.54(q)(3).

EN-EP-613 Recovery from a Declared Emergency is new fleet procedure which replaces the River Bend Station site procedure EIP-2-028 Recovery for the same purpose. The activities covered by this procedure are after termination of a declared emergency and therefore have no impact on the site's response to a declared emergency. The ability to maintain the Emergency Plan is not affected by this change. The fleet procedure is an Emergency Plan Implementing Procedure and changes the listing of those procedures referenced in Tables F1 and F2 of the River Bend Station Emergency Plan. Updating the procedure reference is an editorial change to the emergency plan with no impact on Initiating Conditions, Emergency Action Levels or associated EAL basis. This change to the emergency plan is being tracked with WT-WTRBS-2017-00053 CA-00016. No other changes to the emergency plan are required.

Part V. Signatures:

Preparer Name (Print) Norman E Tison	Preparer Signature <i>Norman E Tison</i>	Date: 3/20/2017
(Optional) Reviewer Name (Print) N/A	Reviewer Signature N/A	Date: N/A
Reviewer Name (Print) Aaron Magee Nuclear EP Project Manager	Reviewer Signature <i>AM 1350</i>	Date: 3/20/2017
Reviewer Name (Print) John F Hurst Manager, Emergency Planning or designee	Reviewer Signature <i>John F Hurst</i>	Date: 3/20/2017