Grand Gulf Nuclear Station Emergency Plan

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GRAND GULF NUCLEAR STATION

EMERGENCY PLAN

RECORD OF REVISION

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Keep this sheet in the front of your copy of the GGNS Emergency Plan as a record of incorporation of periodic revisions and changes.

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1.0 DEFINITIONS

This section provides definitions which include various terms that are unique or given connotations that differ from normally accepted usage. The list below includes terms used throughout this Emergency Plan along with the definitions that are applied to these terms.

1.1 Accident - An unintentional or unexpected event resulting in radiological exposure or physical injury to individuals and/or physical damage to property.

1.2 Activation - Actions taken to staff and setup an emergency facility for operation. Includes notification of emergency personnel, equipment setup and equipment operability testing.

1.3 Affected Persons - Individual(s) who have been radiologically exposed or physically injured as a result of an accident to a degree requiring special attention, e.g., protective actions, decontamination, first aid, or medical services.

1.4 Alarm - An indication of abnormal plant conditions and/or equipment status.

1.5 Alert - An emergency classification in which 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 Hostile Action. Any releases are expected to be limited to small fractions of the Environmental Protection Agency (EPA) Protective Action Guideline exposure levels.

1.6 Annual - As used for scheduling purposes, means that the event will be scheduled no later than 12 months after the previous event's original schedule date. If the event is not completed within 15 months of the previous events original schedule date, it will be considered late. This definition does not apply to ERO Training. ERO Training frequency is described and defined in Training & Qualifications procedure TQ-110.

1.7 Assessment Action - Those actions taken during or after an accident to obtain and process

information that is necessary to make decisions to implement specific emergency measures.

1.8 Augmentation – Actions taken to support onshift personnel prior to emergency facilities becoming fully operational.

1.9 CDE -Committed Dose Equivalent

1.10 Control Room - The location at the GGNS from which the reactor and most of its auxiliary systems are normally controlled.

1.11 Control Room Personnel - Shift Manager, Senior Reactor Operator (SRO), Reactor Operators (RO), Auxiliary Operators, and Shift Technical Advisor (STA).

1.12 Corrective Actions - Those emergency measures taken to lessen the severity of or terminate an emergency situation at or near the source of the problem in order to prevent or control a release of radioactive material or to minimize the damage to plant equipment, e.g., shutting down equipment, firefighting, repair and damage control.

1.13 County - Claiborne County or Tensas Parish; same as "local."

1.14 Design Basis Accident (DBA) - One of the most important parts of the site criteria is the requirement to identify the worst case accident based on detailed analysis of hypothesized accidents. As part of the Final Safety Analysis Report (FSAR), the licensee is required to assume a fission product release from the core based upon a major accident, hypothesized for purposes of site analysis, or postulated from considerations of possible accident hazards not exceeded by those from any accident considered credible.

1.15 Decontamination - The removal of surface radioactive material from individuals, equipment, surfaces, food stuffs, etc.

1.16 Emergency - A sudden, urgent, usually unforeseen occurrence or occasion requiring immediate action. It may result from accidental causes, natural causes, or malicious

man-made actions. There are four classes of emergencies considered: Unusual Event, Alert, Site Area Emergency, and General Emergency.

1.17 Emergency Action Levels (EAL) - Radiological dose rates, specific contamination levels of airborne, waterborne, or surface-deposited concentrations of radioactive materials; or specific instrument indications (including their rates of change) that are used as thresholds for initiating such specific emergency measures as designated for a particular class of emergency, initiating a notification procedure, or initiating a particular protective action.

1.18 Emergency Director - An individual designated onsite having the authority and responsibility to initiate the Emergency Plan and coordinate efforts to reduce the consequences of the event and bring it under control (Equivalent to the position of Emergency Coordinator referenced in NUREG 0654 Rev. 1). The Shift Manager will assume this responsibility at the declaration of an Emergency.

1.19 Emergency Operations Facility (EOF) - A near-site emergency center from which the offsite emergency support activities are controlled.

1.20 Emergency Plan Procedures - Procedures providing the means to implement the Emergency Plan.

1.21 Emergency Planning Zone (EPZ) - Areas designated for which planning is provided to assure that prompt and effective action is initiated to protect the public in the event of an emergency.

1.22 Emergency Preparedness Owner Controlled Area (EPOCA) – the area at the site, which is owned and controlled by the station, for which the station has the responsibility to evacuate, except for any defined areas covered by agreements with State or other governmental agencies.

1.23 Emergency Plant Manager – an individual designated the responsibility for accident mitigation at the plant.

1.24 EOF Emergency Director – an individual designated the responsibility for the total emergency response effort and is the central figure for the emergency organization. The EOF Emergency Director relieves the Shift Manager of the Emergency Director responsibilities at which time the Shift Manager resumes Control Room duties.

1.25 Exclusion Area - The area surrounding the plant owned by the reactor licensee in which he has the authority to determine all activities including exclusion or removal of persons and property from the area during accident conditions.

1.26 Fitness For Duty (FFD) - A company policy implementing requirements under 10CFR26 that provides reasonable assurance that employees and other individuals directly associated with GGNS facilities will perform their tasks in a reliable and trustworthy manner. This is accomplished in part by assuring they are not under influence of any substance, legal or illegal, or mentally or physically impaired from any cause, which in any way adversely affects their ability to safely and competently perform their duties. This policy provides measures for early detection of persons who are not fit to perform their assigned duties.

1.27 General Emergency - An emergency classification in which 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 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.

1.28 Hostile Action – An act toward the plant or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the plant staff 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 plant. Non-

terrorism based EALs should be used to address such activities, (e.g. violent acts between individuals in the owner controlled area).

1.29 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 destructions.

1.30 Ingestion Exposure Pathway – An area with a radius of about 50 miles from the reactor site. Predetermined protective action plans are in place for this EPZ and are designed to avoid or reduce dose from potential ingestion of radioactive materials. These actions include a ban of contaminated food and water.

1.31 Joint Information Center (JIC) - An area designated outside the protected area that provides a location for the media so that communication and information can be disseminated concerning plant conditions and emergency operations.

1.32 Low Population Zone (LPZ) - As defined in 10CFR100.3, the area immediately surrounding the exclusion area which contains residents, the total number and density are such that appropriate protective measures could be taken in their behalf in the event of a serious accident. The low population zone for the Grand Gulf Site is the area within a 2-mile radius from the plant.

1.33 Monitor and Prepare - A type of precautionary action intended to advise the public within the EPZ that a serious emergency at the nuclear power plant exists and that it should monitor the situation and prepare for the possibility of evacuation, Shelter In Place (SIP), or other protective actions.

1.34 Non-Essential Personnel – employees not having emergency assignments (ERO), visitors, contractors/construction personnel, and members of the public who may be in public access areas within the Exclusion Area or Emergency Preparedness Owner Controlled Area. Non-essential personnel and non-emergency personnel are equivalent and used interchangeably.

1.35 Offsite - As used for accountability purposes, any area outside the GGNS protected area. As used for plume tracking survey purposes, all areas beyond the site boundary.

1.36 Onsite - As used for accountability purposes, the area within the GGNS protected area. As used for plume tracking survey purposes, all areas external to the power block, out to and including the site boundary.

1.37 Operational - Status of an emergency facility declared by the appropriate facility manager upon determining that the facility is adequately staffed and equipment is setup and available to assume perform the emergency functions assigned to that facility.

1.38 Operations Support Center (OSC) - Location from which onsite non-control room activities are staged and implemented.

1.39 Pathway - Method by which radiological exposure is received.

1.40 Plan - The Grand Gulf Nuclear Station Emergency Plan.

1.41 Plume Exposure Pathway - The process by which a person receives exposure from direct interaction with the products of a radiological release. This includes receiving direct gamma radiation from sources external to the body, both instantaneous and short term due to being in the presence of the products of the release. It also includes direct gamma, beta, and alpha radiation from sources inside the body due to inhalation.

1.42 Plume Tracking Survey – Onsite or offsite surveys performed to support offsite dose assessments which are ultimately used to provide state and local agencies with Protective Action Recommendations.

1.43 Population-at-Risk - Those persons for whom protective actions are being or would be taken upon implementation of the plan.

1.44 Population Center - A densely populated area with 25,000 or more inhabitants.

1.45 Protective Actions - Those emergency measures taken, either in anticipation of or after a release of radioactive material has occurred, for the purpose of preventing or minimizing radiological exposure to individuals.

1.46 Protective Action Guides (PAGs) - Guidelines for protective action recommendations to state and local agencies based on predetermined projected radiological dose or dose commitment values to individuals in the general population that warrant protective action in anticipation of or following a release of radioactive material.

1.47 Protected Area - As defined in 10CFR73.2, an area encompassed by physical barriers to which access is controlled for security purposes.

1.48 Rapidly Progressing Severe Accident - A significant reactor event with immediate or near-immediate offsite consequences that is intended by the regulator to be easily recognizable. If the decision maker is not sure whether or not such an event is occurring then they should assume that a rapidly progressing severe accident is not in progress.

1.49 Recovery Action - Those actions taken after the emergency to restore the plant as nearly as possible to pre-emergency conditions.

1.50 Restricted Area - As defined in 10CFR20.1003, any area to which access is controlled by the licensee for purposes of protection of individuals from exposure to radiation and radioactive material.

1.51 Security Owner Controlled Area – SOCA. The Security area between the OCA detection fence and the protected area boundary.

1.52 SDE - Shallow Dose Equivalent

1.53 Shift Manager - The senior management representative in charge of overall plant operations during each shift.

1.54 Site Area Emergency - An emergency classification in which events are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or Hostile Action that result in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to 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.

1.55 State - The State of Mississippi or Louisiana.

1.56 Station - The Grand Gulf Nuclear Station.

1.57 Technical Support Center (TSC) - An area which accommodates personnel acting in support of the command and control functions but separate from the control room. These personnel, under the guidance of the Emergency Plant Manager, supply in-depth diagnostic and corrective engineering and radiological assistance to the plant operations staff.

1.58 TEDE - Total Effective Dose Equivalent

1.59 Unrestricted Area - As defined in 10CFR20.1003, any area to which access is not controlled by the licensee for the purpose of protection of individuals from exposure to radioactive materials.

1.60 Unusual Event - An emergency classification in which events are in process or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs. (This is the same as the Notification of Unusual Event defined in NUREG-0654; the two expressions are used interchangeably in the Plan and related procedures as appropriate.)

2.0 SCOPE AND APPLICABILITY

2.1 Criterion for Grand Gulf Nuclear Station Emergency Plan Development

The Grand Gulf Nuclear Station Emergency Plan (the Plan) has been developed in accordance with NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants." The format parallels the guidance given in NRC Regulatory Guide 1.101, "Emergency Planning for Nuclear Plants," Revision 1, dated March, 1977.

2.2 Applicability of the Emergency Plan

2.2.1 General Information and Site Description

The Grand Gulf Nuclear Station is a nuclear power plant operated by Entergy Operations, Inc. An area map showing the geographical location of the facility is provided in Figure 2-1.

The design of the Grand Gulf Nuclear Station is that of a boiling water nuclear steam supply system supplied by the General Electric Company. A diagram identifying the station facilities is provided in Figure 2-2.

The plant is located in Claiborne County, Mississippi. The site is on the east bank of the Mississippi River, approximately 25 miles south, southwest of Vicksburg and 37 miles north-northeast of Natchez. The Grand Gulf Military Park borders a portion of the north side of the property, and the small community of Grand Gulf is approximately 1-1/2 miles to the north. The town of Port Gibson is about 6 miles southeast of the site. Two lakes, Gin Lake and Hamilton Lake, are located in the western portion of the site. These lakes were once the channel of the Mississippi River and average about eight to ten feet in depth.

The site and its environs consist primarily of woodlands divided between two

physiographic regions. The western half of the site is in the alluvial plain of the Mississippi River; the eastern half is in the Loess or Bluff Hills. The elevation of the site varies between 60 and 80 feet above mean sea level in the alluvial plain region, while the Loess Hills portion varies from 80 to more than 200 feet above mean sea level (MSL).

The plant site property boundary encompasses approximately 2100 acres of property that makes up the Grand Gulf Nuclear Station (GGNS) plant site. System Energy Resources, Inc. (SERI), South Mississippi Electric Power Association (SMEPA), and Entergy - Mississippi own the plant site property as noted in Section 2.1.1.2 of the GGNS FSAR.

There are no unrelated industrial, commercial, institutional or residential structures, with the exception of a Branch Office for Riverland Credit Union, located within the site boundary. Riverland Credit Union Branch Office is located in the Site Processing Facility which is inside the exclusion area.

The boundary lines of the plant exclusion area consist of semicircles drawn from the center of each containment joined by tangent straight lines. The minimum distance from each reactor to the exclusion area is 696 meters. This is the closest distance from the center of Unit 1 containment to the plant property line.

There are no railroads or waterways that traverse the site. One county road runs through the site; Bald Hill Road traverses the exclusion area and cuts through the south-southeast, south, south-southwest, and southwest sectors.

The site area is accessible by two major highways. U.S. Highway 61 and State Highway 18 connect Port Gibson (6 miles southeast of the site) with Natchez, Jackson and Vicksburg.

There are no military installations located near the site area and no known missile sites in either Mississippi or Louisiana. The nearest military facility is England Air Force Base in Alexandria, Louisiana, about 100 miles to the southwest.

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 analysis summarized in the HOLTEC Cask FSAR 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.

2.2.2 Population and Population Distribution

The individuals residing in the LPZ are distributed such that appropriate measures could be taken in their behalf in the event of a serious accident.

Figure 2-3 illustrates the LPZ and indicates population distribution within a 10-mile radius of the site. Table 2-1 lists the facilities and institutions within approximately ten miles of the GGNS which may require special consideration in preparing emergency plans.

Seasonal and peak daily transient population within the LPZ is mainly due to recreational use of the Grand Gulf Military Park, hunting and sport fishing.

The closest population center is Vicksburg, Mississippi, located approximately 25 miles north-northeast of the site, with a 1990 population of 27,496. The nearest major city is Jackson, Mississippi. Jackson is located about 55 miles east-northeast of the site and has a population of 196,637 according to a 1990 population survey. Table 2-2 shows the resident population distribution in evacuation area by sector.

2.2.3 Emergency Planning Zones

In defining the Emergency Planning Zones (EPZs), Grand Gulf Nuclear Station has taken into consideration such things as organizational capabilities, method of implementation for various emergency plans and the availability of onsite and offsite emergency facilities and equipment. EPZs are designated areas for which planning is recommended to assure that prompt and effective actions are taken to protect the public in the event of an emergency.

Two primary zones have been identified for the purpose of development and implementation of emergency planning. The first Emergency Planning Zone has a 10-mile radius. This EPZ is established in response to the possible direct exposure to the

plume. Within this zone, shelter, evacuation and consideration of prophylactic use of potassium iodide are the protective actions recommended for the general public, as necessary. The principal concern in the 10 mile EPZ is the plume exposure pathway. The counties within the 10 mile EPZ are Claiborne County and Warren County, in Mississippi, and Tensas Parish in Louisiana (refer to figure 2-4). Beyond a ten mile radius the effect of direct exposure to the plume is no longer of significant concern because the plume is sufficiently dispersed so as not to present an immediate hazard.

The second EPZ has a fifty mile radius. This EPZ is established in response to possible exposure to deposited radionuclides, whether in water or on the ground or vegetation. The principal concern in the 50 mile EPZ is the ingestion exposure pathway. This may necessitate monitoring of such pathways as crops, dairy cows, farm animals, and pastures. Those counties in Mississippi within the 50-mile EPZ include Issaquena, Sharkey, Yazoo, Warren, Madison, Hinds, Rankin, Copiah, Simpson, Lincoln, Amite, Franklin, Adams, Jefferson, Wilkinson, and Claiborne. Those parishes in Louisiana within the 50-mile EPZ include East and West Carol, Richland, Madison, Tensas, Catahoula, Concordia, Franklin, and Caldwell (refer to Figure 2-5). Figure 2-4 is a detailed 10-mile sector map.

2.3 Scope of the Emergency Plan

The principles of effective emergency preparedness incorporate not only the emergency response for systems but also include response for people. Engineered safety systems at the Station are designed to ensure that the consequences of a major malfunction are to be mitigated prior to any adverse effect on the general public or the Station. The basis for emergency planning is to provide human emergency response in much the same way as safety systems do for the physical plant.

2.3.1 Regulatory Requirements

10CFR50, "Licensing of Production and Utilization Facilities," requires that each application for a license to operate a facility include in a Final Safety Analysis Report

(FSAR), along with other information, the applicant's plans for coping with emergencies, including the items specified in 10CFR50.34, 10CFR50.47, and 10CFR Part 50, Appendix E. 10CFR100.3 "Reactor Site Criteria," in the definitions of Exclusion Area and Low Population Zone, establishes additional criteria for plans to cope with emergencies and serious accidents. Specific requirements of the Nuclear Regulatory Commission are detailed in NUREG 0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants."

2.3.2 Objectives of the Emergency Plan

The objectives of the Emergency Plan are:

a. Enable classification of the emergency
b. Assign responsibilities
c. Provide for assessment of onsite and offsite radiological conditions during and/or following an emergency.
d. Outline the most effective course of action required to safeguard the public and plant personnel in the event of an emergency.
e. Recommend implementation of any protective actions deemed appropriate.
f. Enable mitigation of the radiological consequences of an emergency, both onsite and offsite.
g. Provide for the training of all emergency organization personnel.

2.4 Emergency Plan Interrelationships

The Plan is designed to be compatible with radiological incident plans developed by local, state and Federal agencies through establishment of communication channels with these agencies, and by setting criteria for the notification of such authorities.

The Plan should not, in itself, be considered the sole working document to be used during an emergency. The purpose of the Plan is to classify emergencies according to their

severity, to assign responsibilities for actions, and to establish the lines of authority and communication so that the most effective course of action can be developed to safeguard the public and plant personnel in the event of an emergency. Detailed instructions and guidelines for emergency actions are included in various emergency procedures. The principal emergency facilities that the major groups function from, are shown in Figure 7-1, including general locations from GGNS.

2.4.1 Emergency Plan Procedures

Detailed procedures required to implement the Plan have been developed. Emergency Plan Procedures (EPPs), which direct the actions of emergency organization, are safety related and located in Volume 10 of the GGNS Plant Operating Procedures Manual. An index of these procedures is included in Appendix A. Detailed implementing procedures for emergencies considered to be special events, such as civil disturbances, bomb threats, and breaches in security are included as part of the GGNS Physical Security Plan.

Separate emergency procedures are not provided for activities already covered by plant or section operating procedures (i.e., calibration of survey instruments). The Plan incorporates certain aspects of the plant's operating procedures, radiation protection procedures, fire procedures and security procedures, where they are required for clarification.

2.4.2 Related Plans, Programs and Procedures

Several plans, programs and procedures have been developed to assure the safe operation of the Station. The Plan and Emergency Plan Procedures have been written to coordinate with these other plans, programs and procedures. During emergency situations, the coordination and utilization of all plans and procedures is essential.

The Security Plan and procedures have been coordinated with the Plan and Emergency Plan Procedures to minimize the consequences of an emergency situation. Security

Procedures contain an explanation of the duties and responsibilities for security personnel in the event of an emergency.

Provisions for radiological control at the Station have been covered in Administrative and Radiation Protection Procedures. These Procedures establish controls and protective measures to be placed on work being conducted within the Restricted Area.

A number of emergency operating procedures have been developed to control plant operation during emergency situations. These emergency operating procedures work in conjunction with the Emergency Plan Procedures and are safety related procedures.

A site fire plan for the control of fires has also been developed and procedurally implemented to assure the safe operation of the station. Fire Plan procedures are referenced in the Emergency Plan Procedures.

2.4.3 Participating Governmental Agencies

Participating governmental agencies whose plans are interrelated with this plan for action include the following:

a. Mississippi Emergency Management Agency (MEMA)

Charged with direct responsibility for the planning and coordination of the activities of State and local government agencies in the event of a radiological emergency.

b. Mississippi State Department of Health (MSDH)

Has overall responsibility to protect the public health and safety of the general populace from the hazards of radiation. The Division of Radiological Health (DRH) is that division within the MSDH which is assigned the specific responsibility with regard to the hazards of radiation.

c. Louisiana Department of Environmental Quality (LDEQ)

Has overall responsibility for planning as well as the lead technical response role in the event of a radiological emergency.

d. Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP)

Has responsibility for coordination of state agencies as well as logistical and resource support to local governments in the event of a radiological emergency.

e. Department of Energy (DOE)

The DOE, a Federal agency, provides radiological monitoring assistance. There are trained personnel on staff to provide additional expertise onsite/offsite during a radiological accident.

f. Nuclear Regulatory Commission (NRC)

The role of the NRC during a radiological emergency is that of verifying that emergency plans and procedures have been implemented, assuring that the public health and safety are protected, and conducting investigative activities associated with the incident. The NRC assists in the coordination of Federal response resources and provide to the licensee, state, and local agencies advisory assistance associated with assessing and mitigating hazards to the public. The NRC's actions are governed by NUREG-728, "NRC Incident Response Plan", and NUREG-0845, "Agency Procedures for the NRC Incident Response Plan."

g. County and Parish Emergency Services

Claiborne County in Mississippi and Tensas Parish in Louisiana are the local governmental jurisdictions within the 10 mile radius of the Grand Gulf Nuclear Station. They have developed plans to be implemented in the event of a radiological emergency. Claiborne County Civil Defense and Tensas Parish Office of Homeland Security and Emergency Preparedness have communication centers which serve as the means for notifying various support services (fire and rescue, transportation, law enforcement).

TABLE 2-1
PUBLIC FACILITIES AND INSTITUTIONS

Facility	Distance From Reactor Centerline (mi.)	Direction
Port Gibson Middle School	5.1	SE
Port Gibson High School	6.5	ESE
Watson Elementary School	4.1	SE
Richardson (MAP) Headstart	4.5	SE
Chamberlain-Hunt Academy	5.5	SE
Claiborne Education Foundation	5.3	SE
Alcorn State University	10.5	SSW
Patient's Choice Medical Center	5.5	SE
Claiborne County Health Center	4.9	SE
Claiborne County Courthouse	4.7	SE
Grand Gulf Military Park	1.5	N
Lake Bruin State Park	9.5	WSW
Port Gibson City Hall	5.2	SE

TABLE 2-2
Resident Population Distribution in Evacuation Area by Sector *

Sector	0-1	1-2	2-3	3-4	4-5	5-10	10-15	Total
A	0	11	0	0	0	0	0	11
B	0	0	0	0	0	0	325	325
C	0	7	0	0	24	101	422	554
D	0	1	0	35	94	125	74	329
E	0	0	0	9	17	111	247	384
F	0	5	0	0	417	821	547	1790
G	0	0	0	8	573	1992	655	3228
H	0	0	4	40	0	577	755	1376
J	0	0	0	4	0	38	426	468
K	0	0	2	0	0	2765	95	2862
L	0	0	4	0	0	74	92	170
M	0	0	0	0	0	1520	4	1524
N	0	0	0	0	0	310	7	317
P	0	0	0	0	0	1210	106	1316
Q	0	0	0	0	0	68	0	68
R	0	0	0	0	0	0	0	0

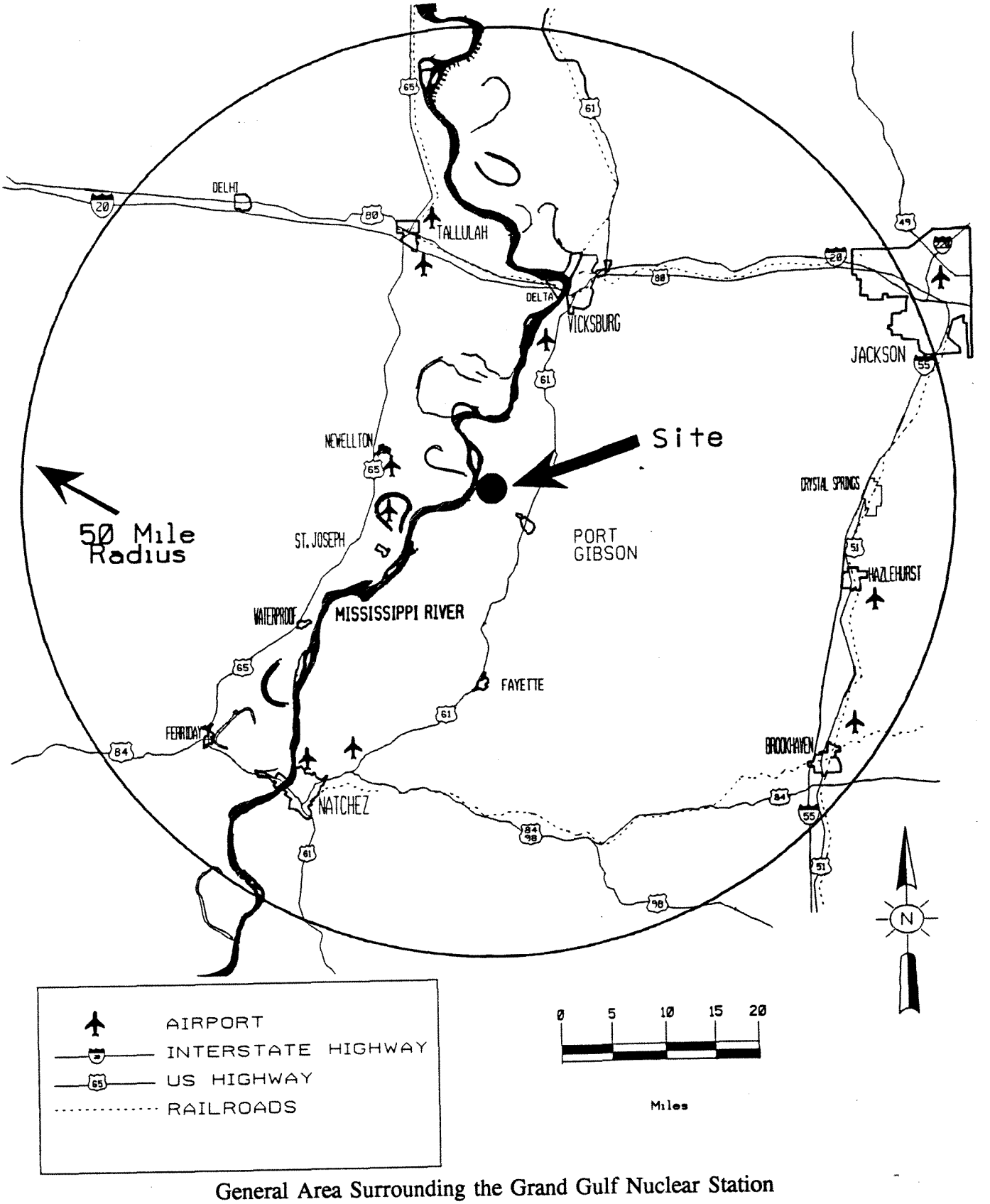
*Centerline of Sector In Degrees True North From Facility | 22 ½° Sector

Degrees True North From Facility	22 ½° Sector
0 & 360	A
22 ½	B
45	C
67 ½	D
90	E
112 ½	F
135	G
157 ½	H
180	J
202 ½	K
225	L
247 ½	M
270	N
292 ½	P
315	Q
337 ½	R

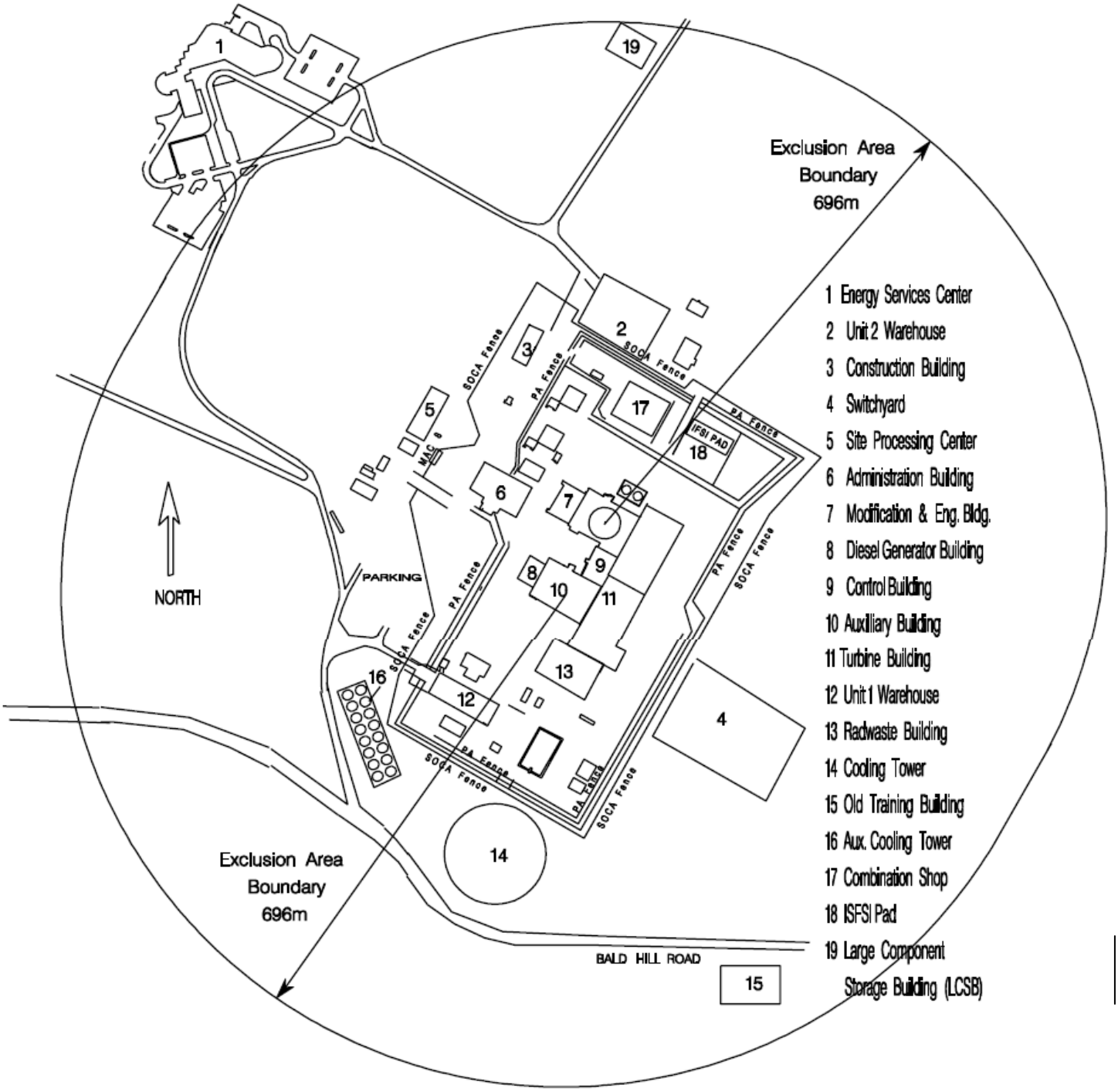
NOTES:
1. The letters I and 0 have been omitted from sector designators so as to eliminate possible confusion between letters and numbers.
2. Source of data: 2012 Grand Gulf Evacuation Time Estimate Study pages 3-6 & 3-8.

TABLE 2-3
Permanent Resident Population and Vehicles by PAS/PAA

PAS/PAA	2010 Population	2010 Resident Vehicles
1	43	24
2A	305	166
2B	151	83
3A	961	519
3B	388	209
4A	2,407	1,298
4B	453	248
5A	138	75
5B	356	193
6	2,629	1,686
7	28	15
8	126	71
9	1,185	642
10	394	214
11	1,403	755
12	-	-
TOTAL	10,967	6,198

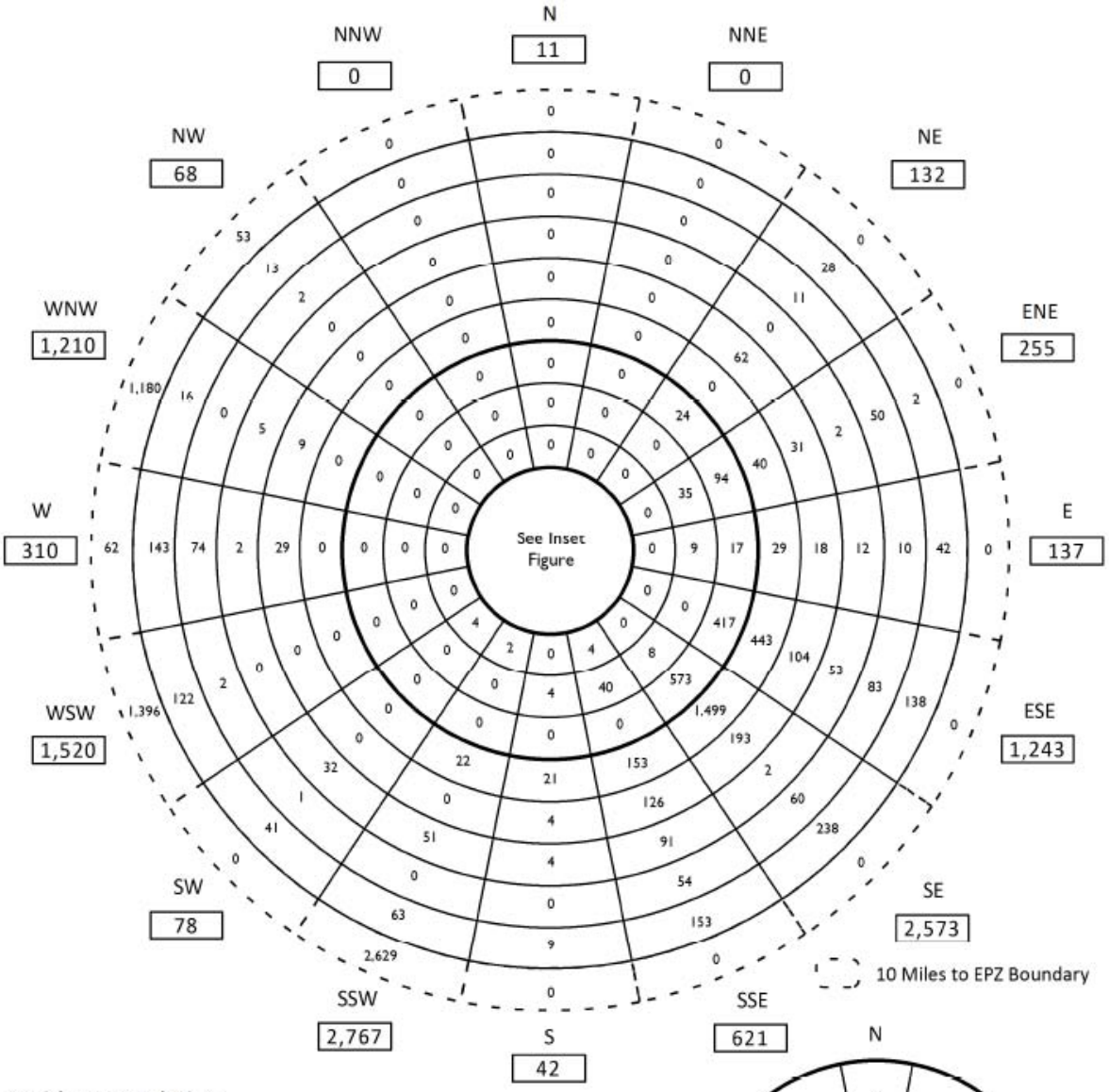


General Area Surrounding the Grand Gulf Nuclear Station
FIGURE 2-1



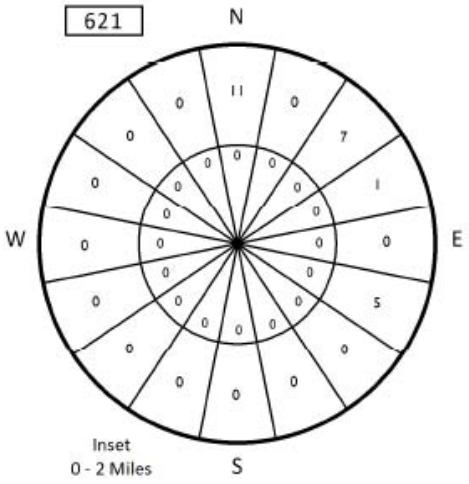
Site Layout

FIGURE 2-2

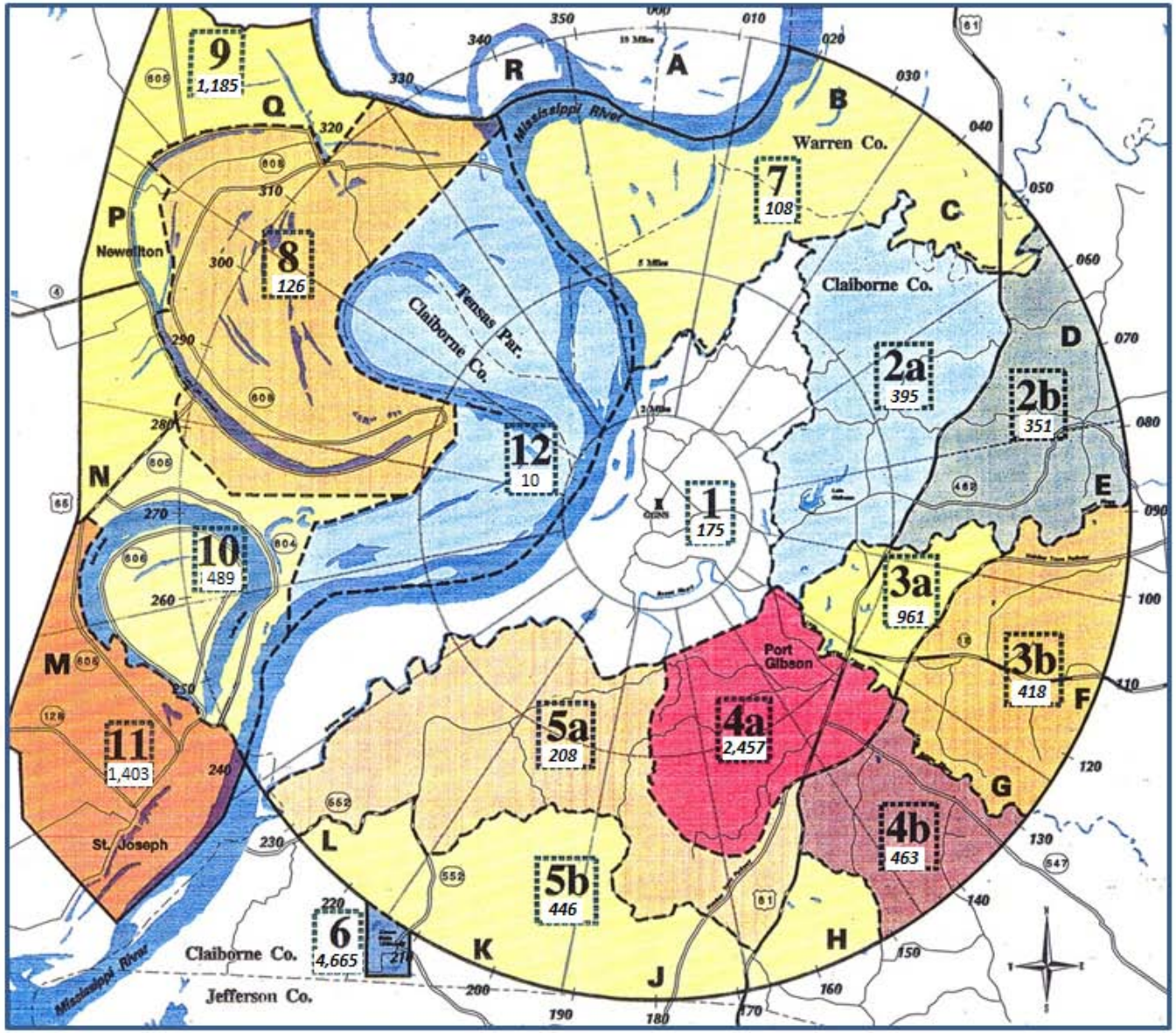


Resident Population

Miles	Subtotal by Ring	Cumulative Total
0 - 1	0	0
1 - 2	24	24
2 - 3	10	34
3 - 4	96	130
4 - 5	1,125	1,255
5 - 6	2,207	3,462
6 - 7	576	4,038
7 - 8	254	4,292
8 - 9	347	4,639
9 - 10	1,008	5,647
10 - EPZ	5,320	10,967
	Total:	10,967



Permanent Resident Population Distribution
FIGURE 2-3



LEGEND

EMERGENCY PLANNING ZONE BOUNDARY

PROTECTIVE ACTION AREA BOUNDARY

2a 366 — PROTECTIVE ACTION AREA NUMBER AND *EVACUEE POPULATION

*Combined total of both resident and transient population

Scale
1 inch equals 2.7 miles

TEN MILE EMERGENCY PLANNING ZONE

ORIGINAL MAP PRODUCED BY
M.A.R.I.S. JUNE 1993

Source of Data

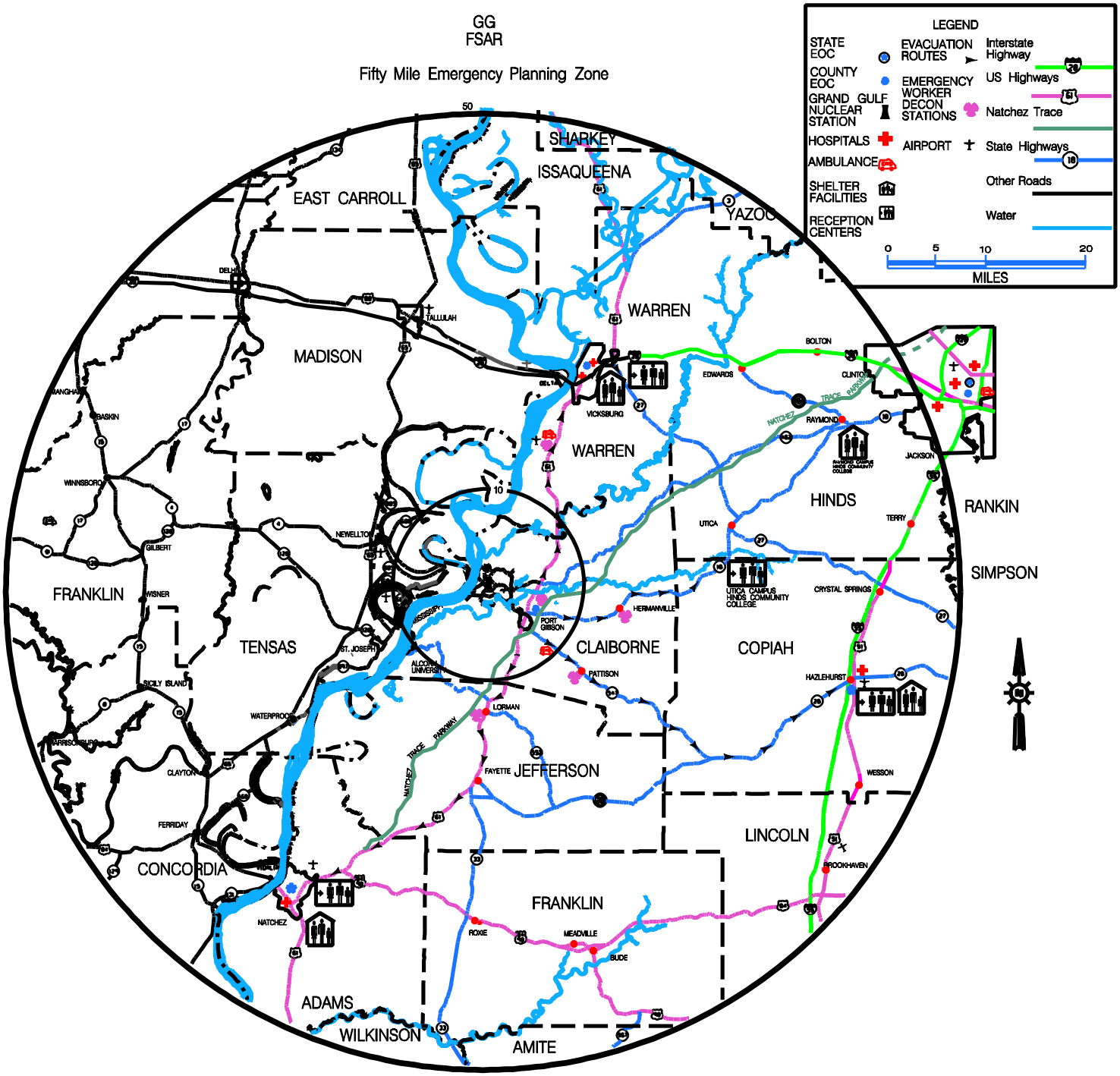
Protective Action Area Boundaries and compass rose were digitized by the MARIS Technical Center. Mississippi roads and streams data were derived from USGS 1:100,000 Digital Line Graph Files. Louisiana roads and streams were processed by the MARIS Technical Center from United States Department of Commerce, Bureau of the Census TIGER file for Tensas Parish. Population figures supplied by KLD Engineering from the 2012 GGNS Evacuation Time Estimate Study, November 2012

The information contained on this map was derived from a variety of public and private sources. The Board of Trustees of the Institutions of Higher Learning/MARIS Technical Center makes no warranties as to the completeness, accuracy, reliability or

Ten-Mile Emergency Planning Zone
FIGURE 2-4

GG
FSAR

Fifty Mile Emergency Planning Zone



3.0 SUMMARY OF EMERGENCY PLAN OF EMERGENCY PLAN OF EMERGENCY PLAN

3.1 Emergency Planning

In accordance with the requirements of 10CFR50.47 and Appendix E to 10CFR50, and supplemented by the guidance issued by the Nuclear Regulatory Commission in NUREG-0654 and other documents, the Plan and its associated Emergency Plan Procedures have been established to cope with the various types of emergencies in an orderly and effective manner.

Grand Gulf Nuclear 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 shall promptly declare the emergency condition as soon as possible following identification of the appropriate emergency classification level.

The Plan shall be implemented by the appropriate procedures in Appendix A whenever a real or potential plant emergency is identified that meets the Emergency Action Level criteria described in Section 4.0. The details of the Emergency Plan Procedures are not included herein, but the information contained within the Plan includes a description of procedures to an extent sufficient to demonstrate that the Plan provides assurance that appropriate actions can be taken by the Station and support agencies to protect Station personnel and the general public during emergencies.

The Plan establishes the concepts, evaluation and assessment criteria, and protective actions that are necessary to mitigate the consequences of any of the four classes of emergencies. The Plan also provides the necessary pre-arrangements, directions, and organizations so that all Station emergencies can be effectively resolved in order to safeguard Station personnel, property, and the general public.

3.2 Emergency Plan Steps

In general, the Plan encompasses the following:

a. Detection of the emergency
b. Classification of the emergency
c. Activation of the responding organization(s)
d. Assessment of the event
e. Initiation of corrective actions
f. Recommend initiation of protective actions
g. Aid to affected persons
h. Recovery

g. Aid to affected persons
h. Re-entry and Recovery

3.3 Emergency Direction and Assignments

At the onset of all station emergencies, the Shift Manager shall assume the position of Emergency Director and is responsible for initiating the immediate actions required to safeguard the public, onsite personnel and equipment. Utilizing the Emergency Plan Procedures, he orders the activation of the necessary portions of the Emergency Organization. Upon notification of an Unusual Event from the Shift Manager, the EOF Emergency Director may report to the plant and assume the position of Emergency Director as deemed necessary. Upon notification of an Alert or higher emergency classification, the EOF Emergency Director reports to the site and assumes the position of Emergency Director from the Shift Manager. The Shift Manager will resume control room duties upon relief by the augmenting EOF Emergency Director when the EOF is declared operational. Section 5.0 describes, in detail, the assignments and duties of key Emergency Organization Personnel.

The criteria which are to be considered for the safe operation of the plant and/or for actions during an emergency are summarized below:

a. Protection of plant personnel and the general public has the highest priority. Plant system and equipment protection is secondary.
b. Whenever there is doubt as to the classification of the emergency condition, the more conservative case shall be considered.
c. Operators are to believe and respond conservatively to all alarms. Alarms and instrumentation are only to be considered erroneous if proven so by 2 independent indications.
d. Alarms shall be promptly acknowledged and the required response action taken.
e. Indications of situations and actions taken are to be made a matter of record. Notifications to personnel and/or offsite agencies are also to be made a matter of record.

4.0 EMERGENCY CONDITIONS

4.1 Emergency Classification System

There are four classes of emergency conditions used in emergency planning. These four classes cover the entire spectrum of possible emergency situations, from minor local incidents to hypothetical major radiological emergencies, and allow for classification of an accident, notification of the appropriate offsite agencies and support groups, and the activation of emergency organizations. The system also provides for the notification and implementation of actions immediately applicable to a specific condition, and for upgrading the response to the appropriate level of classification in the event of a change in the severity of the condition. These actions are further described in Section 6.0.

Emergency Action Levels (EALs) are used to provide indication that an initiating condition exists. These levels are composed of a combination of plant parameters (such as instrument readings and system status) that can be used to give relatively quick indication to the Station operating staff of the severity of the accident situation. The purpose of the EALs is to provide the earliest possible indication of actual or potential accident situations. In most cases further assessment action is conducted both onsite and offsite before actual protective actions are initiated. EALs associated with radiological releases are related to the Environmental Protection Agency's Protective Action Guides (PAGs) summarized in EPA 400-R-92-001 "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents." A determination by the station emergency organization, along with state and local support agencies, of the potential of reaching or exceeding the PAGs is performed in accordance with dose assessment procedures in the event of a radiological release to the environment. The EALs discussed in this section are found in Table 4-1. The EALs were developed from guidance in NEI 99-01, Revision 4 "Methodology for Development of Emergency Action Levels" and from accidents analyzed in the GGNS Final Safety Analysis Report. When EALs are observed in conjunction with plant or equipment status due to planned maintenance or testing activities, an emergency condition may or may not exist and the situation must be evaluated on a case by case basis.

The four emergency classes that comprise the emergency classification system are:

a. Unusual Event
b. Alert
c. Site Area Emergency
d. General Emergency

4.1.1 Unusual Event

The Unusual Event classification is an emergency in which events are in process or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No release of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

The EALs Table 4-1, while comprehensive, are not meant to be all inclusive. The Emergency Director may declare an Unusual Event based on other plant conditions and the potential for the degradation of these conditions.

Training of the Emergency Organization members should emphasize the need to evaluate the potential for more serious plant conditions to occur at a future time.

4.1.2 Alert

The Alert classification is an emergency classification in which 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 Hostile Action. Because of the increased potential for more serious offsite consequences, the emergency organization is activated, as well as notification of key offsite authorities and the news media. The Alert class also addresses limited releases of radioactive material and therefore might require some radiological monitoring and assessment actions by the emergency organizations.

The Alert class assures that emergency personnel are readily available to respond to a change in plant conditions and to provide assessment support as required.

4.1.3 Site Area Emergency

Site Area Emergency is an emergency classification in which events are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or Hostile Action that result in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to likely failure of or; (2) prevent effective access to equipment needed for the protection of the public.

Immediate protective actions are not required upon notification of a Site Area Emergency condition; however, preliminary steps are initiated in anticipation of possible protective actions. These preliminary steps include complete activation of the emergency organization, alerting and/or mobilizing of monitoring teams, and notification of all offsite authorities and the news media. The Site Area Emergency class includes accidents which have a significant potential for the release of radioactive material.

Unlike the two previously described classes of emergencies, the Site Area Emergency is very likely to involve some radiation exposure to the near-site public. Also, many of the accidents included in this class have the potential for escalation to the General Emergency class.

4.1.4 General Emergency

The most severe emergency class used in emergency planning is the General Emergency.

General Emergency is an emergency classification in which 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 Hostile Action that results in an actual loss of physical control of the facility.

Protective actions shall be recommended upon declaration of the General Emergency, as the accidents considered could result in the exceeding of the lower limits of the PAGs. The General Emergency EALs that require dose projections offsite use actual meteorology rather than the adverse meteorology assumptions used in the Site Area Emergency action levels.

None of the accidents analyzed in the FSAR would normally be classified as a General Emergency. However, the Loss of Coolant Accident (LOCA) within the reactor coolant pressure boundary analyzed in the FSAR could lead to a General Emergency classification in a situation where there was a subsequent loss of plant safety systems leading to a possible core melt and failure of containment. Criteria to be used for declaration of a General Emergency includes core and containment status as well as actual radiation release data.

4.2 Classification of Postulated Accidents

A thorough analysis of each of the postulated accidents is included in the Grand Gulf Nuclear Station Final Safety Analysis Report (FSAR). All of the postulated accidents could be classified into one of the four emergency classes (See Table 4-2). In classifying each of the postulated accidents, the conservative assumptions used in the FSAR analysis were considered. It is possible that occurrence of some of the postulated accidents results in a classification lower in severity.

TABLE 4-1
EMERGENCY ACTION LEVELS

ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT — **Plant Modes:** [1] Power Operations [2] Startup [3] Hot Shutdown [4] Cold Shutdown [5] Refueling [D] Defueled

Radiological Effluents

GENERAL EMERGENCY

AG1 [1][2][3][4][5][D]

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

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 readings on the radiation monitors in Table R1 "GENERAL EMERGENCY" > the reading shown 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.

SITE AREA EMERGENCY

AS1 [1][2][3][4][5][D]

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

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 readings on the radiation monitors in Table R1 "SITE AREA EMERGENCY" > the reading shown 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.

ALERT

AA1 [1][2][3][4][5][D]

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

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 readings on the radiation monitors in Table R1 "ALERT" > the reading shown for ≥ 15 minutes.

OR

2. a. For liquid release SD17K606 Radwaste Effluent Radiation Monitor:
   EITHER
   VALID reading > 400 times the Hi-Hi alarm setpoint established by a current radioactivity discharge permit for ≥ 15 minutes.
   OR
   VALID reading ≥ 1E6 cpm for ≥ 15 minutes.
   OR
   b. VALID reading on any effluent monitor > 400 times the Hi-Hi alarm setpoint established by a current radioactivity discharge permit 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.

UNUSUAL EVENT

AU1 [1][2][3][4][5][D]

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

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 readings on the radiation monitors in Table R1 "UNUSUAL EVENT" > the reading shown for ≥ 60 minutes.

OR

2. VALID reading on any effluent monitor > 4 times the Hi-Hi 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	GENERAL EMERGENCY		SITE AREA EMERGENCY		ALERT		UNUSUAL EVENT	
	Computer Point	**Threshold**	**Computer Point**	**Threshold**	**Computer Point**	**Threshold**	**Computer Point**	**Threshold**
Release Point Total:	D173004 In Alarm	3.37E+02 Ci/sec	D173003 In Alarm	3.37E+01 Ci/sec	D173002 In Alarm	3.73E+00 Ci/sec	D173001 In Alarm	3.73E-02 Ci/sec
OG/Radwaste Vent								
FHA Vent								
CTMT Vent								
Turb Bldg Vent								
SBGT A/B								

TABLE 4-1
EMERGENCY ACTION LEVELS

ABNORMAL RAD LEVELS / RADIOLOGICAL EFFLUENT	Plant Modes: [1] Power Operations [2] Startup [3] Hot Shutdown [4] Cold Shutdown [5] Refueling [D] Defueled			
	GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
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 **Emergency Action Level(s):** (1 or 2) 1. A water level drop in the Upper Ctmt Pools, Aux Bldg Fuel Pools or Fuel Transfer Canal that will result in irradiated fuel becoming uncovered. **OR** 2. A VALID alarm on any of the following radiation monitors due to damage to irradiated fuel or loss of water level: Ctmt Vent ----------**(P601-19A-G9)** FH Area Vent ----------**(P601-19A-C11)** Ctmt 209 Airlock ----------**(P844-1A-A1)** Ctmt Fuel Hdlg Area ----------**(P844-1A-A3)** Aux Bldg Fuel Hdlg Area ----------**(P844-1A-A4)**	**AU2** [1][2][3][4][5][D] UNPLANNED rise in plant radiation levels **Emergency Action Level(s):** (1 or 2) 1. a. UNPLANNED water level drop in a reactor refueling pathway as indicated by water level drop in Upper Ctmt Pools, Aux Bldg Fuel Pools or the Fuel Transfer Canal, personnel observation or indication on area camera. **AND** b. VALID Area Radiation Monitor reading rise on any of the following: Ctmt 209 Airlock ---------- **(1D21K630)** Ctmt Fuel Hdlg Area ------- **(1D21K626)** Aux Bldg Fuel Hdlg Area - **(1D21K622)** **OR** ***NOTE:*** *For Control Room Envelope review Initiating Condition AA3.* 2. UNPLANNNED 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 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 **Emergency Action Level(s):** 1. Dose rate > 15 mR/hr in any of the following areas requiring continous occupancy to maintain plant safety functions: ▪ Control Room Envelope	

TABLE 4-1
EMERGENCY ACTION LEVELS

COLD SHUTDOWN/REFUELING | **Plant Modes:** [4] **Cold Shutdown** [5] **Refueling** [D] **Defueled**

Cold Shutdown/Refueling Loss of RCS/RPV Inventory

GENERAL EMERGENCY

CG1 [4] [5]

Loss of RCS inventory affecting fuel clad integrity with containment challenged

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 < - 167 in. (TAF) for ≥ 30 minutes

   AND

   b. Any containment challenge indication in Table C1

OR

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

   - Containment High Range Radiation Monitor 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

- **CONTAINMENT CLOSURE not established**
- > 2.9% hydrogen concentration inside containment
- **UNPLANNED rise in containment pressure**
- **Secondary Containment area radiation monitor reading above the value below:**

Area	Max Safe Operating Value
RHR Room A	8×10^4 mR/hr
RHR Room B	8×10^4 mR/hr
RHR HX A Hatch	8×10^4 mR/hr
RHR HX B Hatch	8×10^4 mR/hr
RCIC Room	8×10^4 mR/hr
MSL Rad Monitor	8×10^4 mR/hr
SGTS Fltr. Trn.	8×10^2 mR/hr

SITE AREA EMERGENCY

CS1 [4] [5]

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

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, RPV level < -47.6 in.

OR

2. With CONTAINMENT CLOSURE established, RPV level < -167 in. (TAF)

OR

3. RCS level cannot be monitored for ≥ 30 minutes with a loss of RCS inventory as indicated by any of the following:

   - Containment High Range Radiation Monitor 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

ALERT

CA1 [4] [5]

Loss of RCS/RPV inventory

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. Loss of RCS inventory as indicated by RPV level < -41.6 in. (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.

UNUSUAL EVENT

CU1 [4]

RCS leakage

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 > +11.4 in. (Level 3) for ≥ 15 minutes.

TABLE 4-1
EMERGENCY ACTION LEVELS

COLD SHUTDOWN/REFUELING	Plant Modes: 4 Cold Shutdown 5 Refueling D Defueled			
	GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
Refueling Loss of RCS/RPV Inventory				**CU2** 5 UNPLANNED loss of RCS/RPV inventory **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.

TABLE 4-1
EMERGENCY ACTION LEVELS

COLD SHUTDOWN/REFUELING | **Plant Modes:** [4] **Cold Shutdown** [5] **Refueling** [D] **Defueled**

Loss of Decay Heat Removal

GENERAL EMERGENCY

SITE AREA EMERGENCY

ALERT

CA3 [4] [5]

Inability to maintain plant in Cold Shutdown

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

1. An UNPLANNED event results in RCS temperature > 200 °F > 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.

UNUSUAL EVENT

CU3 [4] [5]

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

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

OR

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

TABLE 4-1
EMERGENCY ACTION LEVELS

COLD SHUTDOWN/REFUELING	Plant Modes:	4 Cold Shutdown 5 Refueling D Defueled	
GENERAL EMERGENCY	**SITE AREA EMERGENCY**	**ALERT**	**UNUSUAL EVENT**
Loss of AC Power		**CA5** 4 5 D Loss of all offsite and all onsite AC power to Div I and II ESF busses for ≥ 15 minutes **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 onsite AC power to Div I and II ESF busses for ≥ 15 minutes.	**CU5** 4 5 AC power capability to Div I and II ESF busses reduced to a single power source for ≥ 15 minutes such that any additional single failure would result in Station Blackout **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 II ESF busses reduced to a single power source for ≥ 15 minutes. **AND** b. Any additional single power source failure will result in station blackout.
Loss of DC Power			**CU6** 4 5 Loss of required DC power for ≥15 minutes **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.
Inadvertent Criticality			**CU7** 4 5 Inadvertent criticality **Emergency Action Level(s):** 1. UNPLANNED sustained positive period observed on nuclear instrumentation.

TABLE 4-1
EMERGENCY ACTION LEVELS

COLD SHUTDOWN/REFUELING	Plant Modes:	[4] Cold Shutdown [5] Refueling [D] Defueled	
GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
Loss of Communications			**CU8** [4] [5] [D] Loss of all onsite or offsite communications capabilities **Emergency Action Level(s):** (1 or 2) 1. Loss of all onsite communication methods affecting the ability to perform routine operations (See **Table C3**). **OR** 2. Loss of all offsite communication methods affecting the ability to perform offsite notifications (See **Table C4**).

Table C3 Onsite Communications Methods	**Table C4** Offsite Communications Methods
▪ Plant Radio System ▪ Plant Paging System ▪ Sound Powered Phones ▪ In-plant Telephones	▪ All telephone lines (commercial & fiber optic) ▪ Satellite telephone ▪ NRC phones (ENS, HPN, MCL, RSCL, PMCL)

TABLE 4-1
EMERGENCY ACTION LEVELS

ISFSI MALFUNCTION	Plant Modes: [1] Power Operations [2] Startup [3] Hot Shutdown [4] Cold Shutdown [5] Refueling [D] Defueled			
	GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
Cask Damage				**E-HU1** [1] [2] [3] [4] [5] [D] Damage to a loaded cask CONFINEMENT BOUNDARY **Emergency Action Level(s):** 1. Damage to a loaded cask CONFINEMENT BOUNDARY.

TABLE 4-1
EMERGENCY ACTION LEVELS

FISSION PRODUCT BARRIER DEGRADATION	Plant Modes: [1] Power Operations [2] Startup [3] Hot Shutdown			
	GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
FPB Loss / Potential Loss	**FG1** [1][2][3] Loss of ANY Two Barriers AND Loss or Potential Loss of Third Barrier **Emergency Action Level(s):** 1. Loss of ANY Two Barriers AND Loss or Potential Loss of Third Barrier.	**FS1** [1][2][3] Loss or Potential Loss of ANY Two Barriers **Emergency Action Level(s):** 1. Loss or Potential Loss of ANY Two Barriers	**FA1** [1][2][3] ANY Loss or ANY Potential Loss of EITHER Fuel Clad OR RCS **Emergency Action Level(s):** 1. ANY Loss or ANY Potential Loss of EITHER Fuel Clad or RCS	**FU1** [1][2][3] ANY Loss or ANY Potential Loss of Primary Containment **Emergency Action Level(s):** 1. ANY Loss or ANY Potential Loss of Primary Containment

TABLE 4-1
EMERGENCY ACTION LEVELS

Fission Product Barrier Matrix

Fuel Clad			
Parameter		**Loss**	**Potential Loss**
FC1	Primary Coolant Activity	Coolant activity > 300 µCi/gm dose eq. I^{131}.	None
FC2	RPV Water Level	RPV water level cannot be restored and maintained above -191 in.	RPV water level cannot be restored and maintained above -167 in. or cannot be determined.
FC3	Drywell Radiation Monitoring	Drywell radiation monitor reading > 3000 R/hr	None
FC4	ED Judgment	Any condition in the opinion of the Emergency Director that indicates a loss of the Fuel Clad Barrier.	Any condition in the opinion of the Emergency Director that indicates a potential loss of the Fuel Clad Barrier.

Table F1		
Area Temperature		
Parameter	**Alert Limit**	**SAE/GE Limit**
MSL Pipe Tunnel Temp.	185°F (P601-19A/18A-A3/A4)	250°F (E31-N604A,B,C,D,E,F)
RHR-A Equip Area Temp.	165°F (P601-20A-B1)	225°F (E31-N608A,N610A)
RHR-B Equip Area Temp.	165°F (P601-20A-B1)	225°F (E31-N608B,N610B)
RCIC Equip Area Temp.	185°F (P601-21A-G3)	212°F (E31-N602A/B)
RWCU Pmp Rm 1 Temp	170°F (P680-11A-A1)	NA
RWCU Pmp Rm 2 Temp	170°F (P680-11A-A2)	NA

Fuel Clad		
Area Radiation Level		
Parameter	**Alert Limit**	**SAE/GE Limit**
RHR Room A Rad	10^2 MR/HR (P844-1A-D4)	8 x 10^4 MR/HR
RHR Room B Rad	10^2 MR/HR (P844-1A-D4)	8 x 10^4 MR/HR
RHR HX A Hatch Rad	10^2 MR/HR (P844-1A-C4)	8 x 10^4 MR/HR
RHR HX B Hatch Rad	10^2 MR/HR (P844-1A-C4)	8 x 10^4 MR/HR
RCIC Room Rad	10^2 MR/HR (P844-1A-D4)	8 x 10^4 MR/HR

Reactor Coolant System			
Parameter		**Loss**	**Potential Loss**
RC1	Drywell Pressure	Drywell pressure > 1.39 psig with indications of a reactor coolant leak in the drywell.	None
RC2	RPV Water Level	RPV water level cannot be restored and maintained above -167 in. or cannot be determined.	None
RC3	RCS Leak Rate	1. a. UNISOLABLE MSL break as indicated by the failure of both MSIVs in any one line to close **AND** High MSL flow (P601-19A-E1) annunciator **OR** High Steam Tunnel Temperature (P601-19A-E3) annunciator **OR** Direct report of steam release. **OR** b. Indication of an UNISOLABLE feedwater, RWCU or RCIC break. **OR** 2. Emergency RPV depressurization is required.	1. RCS leakage > 50 gpm inside the drywell. **OR** 2. UNISOLABLE RCS leakage outside Primary Containment as indicated by any Area Temperature or Area Radiation level > Alert Value in Table F1.
RC4	Drywell Radiation Monitoring	Drywell radiation monitor reading > 100 R/hr with indications of a leak in the drywell.	None
RC5	ED Judgment	Any condition in the opinion of the Emergency Director that indicates a loss of the RCS Barrier.	Any condition in the opinion of the Emergency Director that indicates a potential loss of the RCS Barrier.

Primary Containment			
Parameter		**Loss**	**Potential Loss**
PC1	Primary Containment Conditions	1. Rapid unexplained loss of pressure following initial pressure rise. **OR** 2. Pressure response not consistent with LOCA conditions.	1. Primary Containment pressure > 15 psig and rising. **OR** 2. a. DW H_2 concentration >9% **OR** b. Ctmt H_2 concentration in HDOL Unsafe Zone. **OR** 3. RPV pressure and suppression pool temperature cannot be maintained below the HCTL.
PC2	RPV Water Level	None	Primary Containment flooding required by: ▪ SAPs
PC3	Primary Containment Isolation Failure or Bypass	1. a. Failure of all valves In any one line to close. **AND** b. Direct downstream pathway to the environment exists after Primary Containment Isolation signal. **OR** 2. Intentional venting per EOPs or SAPs. **OR** 3. UNISOLABLE RCS leakage outside Primary Containment as indicated by any Area Temperature or Area Radiation level > SAE / GE Value in Table F1.	None

(Primary Containment Continued on next page)

TABLE 4-1
EMERGENCY ACTION LEVELS

Fission Product Barrier Matrix

Primary Containment (Cont.)			
PC4	Primary Containment **Radiation** Monitoring	None	Containment radiation monitor reading >10,000 R/hr.
PC5	ED Judgment	Any condition in the opinion of the Emergency Director that indicates a loss of the Primary Containment Barrier.	Any condition in the opinion of the Emergency Director that indicates a potential loss of the Primary Containment Barrier.

TABLE 4-1
EMERGENCY ACTION LEVELS

HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY	Plant Modes: [1] Power Operations [2] Startup [3] Hot Shutdown [4] Cold Shutdown [5] Refueling [D] Defueled			
	GENERAL EMERGENCY	**SITE AREA EMERGENCY**	**ALERT**	**UNUSUAL EVENT**
Security	**HG1** [1][2][3][4][5][D] HOSTILE ACTION resulting in loss of physical control of the facility **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.	**HS1** [1][2][3][4][5][D] HOSTILE ACTION within the PROTECTED AREA **Emergency Action Level(s):** 1. A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the GGNS security shift supervision.	**HA1** [1][2][3][4][5][D] HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat **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 GGNS 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 **Emergency Action Level(s):** (1 or 2 or 3) 1. A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the GGNS 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.
Discretionary	**HG2** [1][2][3][4][5][D] Other conditions exist which in the judgment of the Emergency Director warrant declaration of a GENERAL EMERGENCY **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.	**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 **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.	**HA2** [1][2][3][4][5][D] Other conditions exist which in the judgment of the Emergency Director warrant declaration of an ALERT **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.	**HU2** [1][2][3][4][5][D] Other Conditions exist which in the judgment of the Emergency Director warrant declaration of an UNUSUAL EVENT **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.

TABLE 4-1
EMERGENCY ACTION LEVELS

HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY — **Plant Modes:** [1] **Power Operations** [2] **Startup** [3] **Hot Shutdown** [4] **Cold Shutdown** [5] **Refueling** [D] **Defueled**

	GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
Main Control Room Evacuation		**HS3** [1][2][3][4][5][D] Control Room evacuation has been Initiated and plant control cannot be established **Emergency Action Level(s):** 1. a. Control Room evacuation has been initiated. **AND** b. Control of the plant cannot be established in accordance with 05-1-02-II-1, Shutdown from the Remote Shutdown Panel, within 15 minutes.	**HA3** [1][2][3][4][5][D] Control Room evacuation has been initiated **Emergency Action Level(s):** 1. 05-1-02-II-1, Shutdown from the Remote Shutdown Panel requires Control Room evacuation.	
Fire			**HA4** [1][2][3][4][5][D] FIRE or EXPLOSION affecting the operability of plant safety systems required to establish or maintain safe shutdown **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.	**HU4** [1][2][3][4][5][D] FIRE in any table H-2 area not extinguished within 15 minutes of detection or EXPLOSION within the PROTECTED AREA **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 duration has exceeded, or will likely exceed, the applicable time.*** 1. Fire in any Table H-2 structure or area NOT extinguished: a. Within 15 minutes of Control Room notification OR b. Within 15 minutes of verification of a Control Room FIRE alarm. **OR** 2. EXPLOSION within the PROTECTED AREA.

TABLE 4-1
EMERGENCY ACTION LEVELS

HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY	Plant Modes: [1] Power Operations [2] Startup [3] Hot Shutdown [4] Cold Shutdown [5] Refueling [D] Defueled		
	GENERAL EMERGENCY	**SITE AREA EMERGENCY**	**ALERT**	**UNUSUAL EVENT**
Toxic or Flammable Gas			**HA5** [1][2][3][4][5][D] 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 **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 the Control Room while in any operating mode or the Reactor Auxiliary Building while in modes 3, 4, or 5 ONLY 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** [1][2][3][4][5][D] Release of toxic, corrosive, asphyxiant or flammable gases deemed detrimental to NORMAL PLANT OPERATIONS **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 Local, County/Parish or State Officials for evacuation or sheltering of site personnel based on an offsite event.

TABLE 4-1
EMERGENCY ACTION LEVELS

HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY	Plant Modes: [1] Power Operations [2] Startup [3] Hot Shutdown [4] Cold Shutdown [5] Refueling [D] Defueled			
	GENERAL EMERGENCY	**SITE AREA EMERGENCY**	**ALERT**	**UNUSUAL EVENT**
Natural or Destructive Phenomena			**HA6** [1][2][3][4][5][D] Natural or destructive phenomena affecting VITAL AREAS **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: • Receipt of **EITHER** of the following indications on SH13P856: ▪ Containment Operating Basis Earthquake (P856-1A-A3) **OR** ▪ Drywell Operating Basis Earthquake (P856-1A-A5) **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 any of the Table H1 areas 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** (continued on next page)	**HU6** [1][2][3][4][5][D] Natural or destructive phenomena affecting the PROTECTED AREA **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 switches as indicated by activation of the Seismic Monitoring System: Strong Motion Accelerometer System Activation (P856-1A-A1) ▪ 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. **OR** 5. Severe weather with indication of sustained high winds ≥ 74 mph within PROTECTED AREA boundary.

TABLE 4-1
EMERGENCY ACTION LEVELS

HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY — **Plant Modes:** [1] **Power Operations** [2] **Startup** [3] **Hot Shutdown** [4] **Cold Shutdown** [5] **Refueling** [D] **Defueled**

	GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
Natural or Destructive Phenomena (cont.)			**OR** (continued from previous page) 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. **OR** 6. Severe weather with indication of sustained high winds ≥ 74 mph within 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.	

Tables

Table H1
Auxiliary Building Area Parameters

Area	Max Safe Operating Value
RHR Room A	93 FT. 6 IN. (P870-2A-E1)
RHR Room B	93 FT. 6 IN. (P870-10A-G1)
RHR Room C	93 FT. 6 IN. (P870-10A-G2)
RCIC Room	93 FT. 6 IN. (P870-2A-A1)
LPCS Room	93 FT. 6 IN. (P870-2A-F1)
HPCS Room	93 FT. 6 IN. (P870-5A-H1)

Table H2
Structures Containing Functions or Systems Required for Safe Shutdown

Unit I Containment
Unit I Auxiliary Building
Control Building
Unit 1 Turbine Building
Diesel Generator Rooms
SSW Pump & Valve Rooms

TABLE 4-1
EMERGENCY ACTION LEVELS

SYSTEM MALFUNCTION	Plant Modes: [1] Power Operations [2] Startup [3] Hot Shutdown [4] Cold Shutdown [5] Refueling [D] Defueled			
	GENERAL EMERGENCY	**SITE AREA EMERGENCY**	**ALERT**	**UNUSUAL EVENT**
Loss of AC Power	**SG1** [1][2][3] Prolonged loss of all offsite and all onsite AC power to Div I, II & III ESF busses **Emergency Action Level(s):** 1. a. Loss of all offsite and all onsite AC power to Div I, II & III ESF 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 > -167 in.	**SS1** [1][2][3] Loss of all offsite and all onsite AC power to Div I, II & III ESF busses for ≥ 15 minutes **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 & III ESF busses for ≥ 15 minutes.	**SA1** [1][2][3] AC power capability to Div I & II ESF busses reduced to a single power source for ≥15 minutes such that any additional single failure would result in station blackout **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 & II ESF busses reduced to a single power source for ≥15 minutes. **AND** b. Any additional single power source failure will result in station blackout.	**SU1** [1][2][3] Loss of all offsite AC power to Div I & II ESF busses for ≥15 minutes **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 ESF busses for ≥ 15 minutes.

TABLE 4-1
EMERGENCY ACTION LEVELS

SYSTEM MALFUNCTION	Plant Modes: [1] Power Operations [2] Startup [3] Hot Shutdown [4] Cold Shutdown [5] Refueling [D] Defueled			
	GENERAL EMERGENCY	**SITE AREA EMERGENCY**	**ALERT**	**UNUSUAL EVENT**
Failure of Reactor Protection System	**SG3** [1][2] 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 **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 ≥ 4% **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 restored and maintained > -191 in. **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] 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 **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 ≥ 4%.	**SA3** [1][2] Automatic scram fails to shutdown the reactor and the manual actions taken from the reactor control console are successful in shutting down the reactor **Emergency Action Level(s):** 1. a. An automatic scram failed to shutdown the reactor as indicated by reactor power ≥ 4% **AND** b. Manual actions taken at the reactor control console successfully shutdown the reactor as indicated by reactor power < 4%.	
Loss of DC Power		**SS4** [1][2][3] Loss of all vital DC power for ≥ 15 minutes **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.		

TABLE 4-1
EMERGENCY ACTION LEVELS

SYSTEM MALFUNCTION	Plant Modes: [1] Power Operations [2] Startup [3] Hot Shutdown [4] Cold Shutdown [5] Refueling [D] Defueled			
	GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
Loss of Annunciators / Indication		**SS6** [1][2][3] Inability to monitor a SIGNIFICANT TRANSIENT in progress **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 ≥ 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.	**SA6** [1][2][3] 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 **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 ≥ 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.	**SU6** [1][2][3] UNPLANNED loss of safety system annunciation or indication in the Control Room for ≥ 15 minutes **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.
Reactor Coolant System Leakage				**SU7** [1][2][3] RCS Leakage **Emergency Action Level(s):** (1 or 2) 1. Unidentified or pressure boundary leakage > 10 gpm. **OR** 2. Identified leakage > 35 gpm.

TABLE 4-1
EMERGENCY ACTION LEVELS

<table>
<tr><th colspan="2">SYSTEM MALFUNCTION</th><th colspan="2">Plant Modes: [1] Power Operations [2] Startup [3] Hot Shutdown [4] Cold Shutdown [5] Refueling [D] Defueled</th><th>UNUSUAL EVENT</th></tr>
<tr><td rowspan="2">Loss of Communication</td><td></td><td><u>Table S1</u>
<u>Onsite Communications Methods</u></td><td><u>Table S2</u>
<u>Offsite Communications Methods</u></td><td rowspan="2"><u>SU8</u> [1][2][3]
Loss of all onsite or offsite communications capabilities

<u>Emergency Action Level(s):</u> (1 or 2)
1. Loss of all Table S1 onsite communications methods affecting the ability to perform routine operations.
<u>OR</u>
2. Loss of all Table S2 offsite communications methods affecting the ability to perform offsite notifications.</td></tr>
<tr><td></td><td>Plant Radio System
Plant Paging System
Sound Powered Phones
In-plant Telephones</td><td>All telephone lines (commercial & fiber optic)
Satellite telephone
NRC phones (ENS, HPN, MCL, RSCL, PMCL)</td></tr>
<tr><td>Cladding Degradation</td><td></td><td></td><td><u>Table S3</u>
<u>Offgas Pre-Treatment Radiation Monitor</u>
<table><tr><th><u>Offgas Flow</u>
(cfm)</th><th><u>Radiation Monitor Limit</u>
(mr/hr)</th></tr><tr><td>0-65</td><td>1400</td></tr><tr><td>66-130</td><td>700</td></tr><tr><td>131-200</td><td>460</td></tr><tr><td>201-300</td><td>310</td></tr><tr><td>301-400</td><td>230</td></tr></table></td><td><u>SU9</u> [1][2][3]
Fuel clad degradation

<u>Emergency Action Level(s):</u> (1 or 2)
1. Offgas Pre-Treatment radiation monitor (D17R604 or 1D17K612) reading > the Table S3 Limit for the actual indicated Offgas flow indicating fuel clad degradation > T.S. allowable limits.
<u>OR</u>
2. Reactor coolant sample activity value indicating fuel clad degradation > T.S. allowable limits
▪ > 4.0 µCi/gm dose equivalent I-131.
<u>OR</u>
▪ > 0.2 µCi/gm dose equivalent I-131 for > 48 hours.</td></tr>
<tr><td>Inadvertent Criticality</td><td></td><td></td><td></td><td><u>SU10</u> [3]
Inadvertent criticality

<u>Emergency Action Level(s):</u>
1. UNPLANNED sustained positive period observed on nuclear instrumentation</td></tr>
</table>

TABLE 4-1
EMERGENCY ACTION LEVELS

SYSTEM MALFUNCTION	Plant Modes: [1] Power Operations [2] Startup [3] Hot Shutdown [4] Cold Shutdown [5] Refueling [D] Defueled			
	GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
Tech Spec Time Limit Exceeded				**SU11** [1][2][3] Inability to reach required operating mode within Technical Specification limits **Emergency Action Level(s):** 1. Plant is not brought to required operating mode within Technical Specifications LCO Action Statement Time

TABLE 4-2

Classification of FSAR Design Bases Accidents

Design Bases Accident	Classification
Seizure of one recirculation pump	Unusual Event
Recirculation pump shaft break	Unusual Event
Rod drop accident	Alert
Instrument line break	Unusual Event
Steam system pipe break outside containment	Site Area Emergency
LOCA within reactor coolant pressure boundary	Site Area Emergency
Feedwater line break outside containment	Site Area Emergency
Main condenser Off Gas treatment system failure	Site Area Emergency
Liquid radwaste tank failure	Alert
Fuel handling accident outside primary containment	Site Area Emergency
Fuel handling accident inside primary containment	Alert

Note:

This table is provided for example purposes only. Classification was determined by applying Table 4-1 EAL criteria to each FSAR Design Bases Accident. This table is not procedurally implemented.

5.0 ORGANIZATIONAL CONTROL OF EMERGENCIES

5.1 GGNS Organization

The Grand Gulf Nuclear Station operating and licensing activities are under the control of the Site Vice President. The Site Vice President reports directly to the Senior Vice President and Chief Operating Officer. The Site Vice President is also assisted by the Director, Regulatory and Performance Improvement and the General Manager, Plant Operations.

5.2 Normal Station Organization

The General Manager, Plant Operations is responsible for the overall management of the station. The operating organization is in conformance with GGNS Technical Specification 5.3.1 and includes personnel encompassing both the management and operating units. An organizational chart showing the functional levels is given in Figure 5-2. The administrative and technical support personnel staffing the GGNS organization are normally onsite daily Monday through Friday, holidays and off Fridays excluded. Plant Operations, Security, Maintenance, Chemistry, and Radiation Protection personnel are on duty 24 hours per day.

The Senior Manager, Operations; Senior Manager, Maintenance; Senior Manager, Production; Manager, Radiation Protection; and Manager Chemistry report directly to the General Manager, Plant Operations, who, in turn, reports to the Site Vice President.

Figure 5-3 indicates the emergency positions usually filled by these individuals.

5.2.1 General Manager, Plant Operations

The General Manager, Plant Operations is responsible for the technical and administrative management of the day-to-day physical operation and maintenance of the plant as carried out by the Operations, Maintenance, Radiation Protection and Chemistry Departments.

5.2.2 Senior Manager, Operations

The Senior Manager, Operations is responsible for the functional, safe and efficient day to day operation of the plant in accordance with established procedures and the Technical Specifications. He reports to the General Manager, Plant Operations and is assisted by the Operations Manager, Shift; Operations Manager, Support; and Manager, Shift Ops. Training.

5.2.3 Senior Manager, Maintenance

The Senior Manager, Maintenance is responsible for the maintenance of all plant components / equipment and plant modifications and construction. He reports to the General Manager, Plant Operations and is assisted by the Superintendents from Mechanical, Electrical, I & C, Support and FIN Teams.

5.2.4 Manager, Radiation Protection

The Manager, Radiation Protection is responsible for establishing and implementing the GGNS Radiation Protection program. The Manager, Radiation Protection reports to the General Manager, Plant Operations and is assisted by Radiation Protection Supervisors.

5.2.5 Senior Manager, Production

The Senior Manager, Production manages and directs the activities of daily maintenance scheduling, ongoing scheduling evaluations and site integrated schedule activities. He is assisted by the Superintendent, Online Maintenance Scheduling, Supervisor Planning and Outage Manager. The Senior Manager, Production reports to the General Manager, Plant Operations.

5.2.6 Manager, Training

The Manager, Training is responsible for the overall administration and documentation of the GGNS Training program. This position reports to the Director, Regulatory and Performance Improvement with a direct line of communication to the Site Vice President, and is assisted by the Training Superintendents.

5.2.7 Shift Technical Advisor

The Shift Technical Advisor (STA) provides advanced technical assistance to the operating shift complement during normal and abnormal operating conditions. During his shift, the STA is available to perform the general duties described in GGNS FSAR Section 13.1. The Shift Technical Advisor reports directly to the Shift Manager.

5.2.8 Manager, Materials, Purchasing and Contracts

The Manager Materials, Purchasing and Contracts is responsible for the coordination of Material Management, Purchasing and Contracts. Although this is a Corporate function, this position has a direct line of communication with the General Manager, Plant Operations. The Supervisor, Procurement; and Supervisor, Materials; report directly to the Manager Materials, Purchasing and Contracts.

5.2.9 Director, Regulatory & Performance Improvement

The Director, Regulatory & Performance Improvement is responsible for all licensing activities, administering the Corrective Action Program, and overseeing Emergency Preparedness activities. He reports to the Site Vice President and is assisted by the Manager, Regulatory Assurance; Manager, Performance Improvement; and Manager, Emergency Planning.

5.3 Normal Station Shift Staffing

During off-hour shifts, the plant is manned to maintain continuous operation as required by GGNS Technical Specifications.

5.4 Emergency Organization

In the event of an emergency as defined in Section 4.0, the Emergency Organization is activated. The organization has predefined primary and alternate personnel for the various positions specified to provide for an automatic manning of the Emergency Organization within the time necessary to respond to the emergency.

The Emergency Organization is shown in Figure 5-3. The prerequisites for personnel who fill the emergency positions are listed in EN-TQ-110-01. The Site Vice President, through GGNS Management, designates personnel for these emergency positions. The extent to which the Emergency Organization is activated depends upon the classification of the emergency (see Section 6.2).

5.4.1 Normal Station Shift

The initial Emergency Organization consists of the normal operating shift with the Shift Manager serving as the Emergency Director. When the designated Emergency Organization personnel are available to augment the normal shift complement, the Shift Manager is relieved as EOF Emergency Director and the organizational control of the emergency shifts from the Shift Manager to the EOF Emergency Director. Shift staffing and augmentation capabilities are shown in Table 5-1.

5.4.2 EOF Emergency Director (ED)

The ED is responsible for the direction of the total emergency response. The ED's responsibilities include:

a. Activation/operation of the EOF, assuming responsibility from the Shift Manager;
b. Classification of the emergency (non-delegable);
c. Recommend protective action recommendations (PAR's) to the offsite agencies(non-delegable);
d. Notification of the event to the offsite agencies(non-delegable);
e. Coordinate accident information with offsite governmental agencies;
f. Request assistance from offsite agencies to support recovery operations;
g. Authorize radiation exposure in excess of 10CFR limits for the EOF personnel;
h. Approve press releases (non-delegable);
i. Direct the activities of the EOF organization in support of the Technical Support Center and offsite agencies.

5.4.3 EOF Manager

The EOF Manager reports to the ED and oversees the activities in the EOF. Responsibilities include:

a. Assures timely activation of the EOF;
b. Obtains additional resources as necessary to support EOF activities;
c. Assists the Radiological Assessment Coordinator with EOF Habitability;
d. Assist offsite authorities responding to the EOF;
e. Ensures the offsite notifications are conducted within the regulatory requirements.

5.4.4 Radiological Assessment Coordinator (RAC)

The Radiological Assessment Coordinator is responsible for conducting assessment activities for offsite radiological conditions. During operation of the EOF, the Radiological Assessment Coordinator reports to the ED. Responsibilities include:

a. Direct the activities of the Dose assessment/radiological field monitoring.
b. Provide input to the ED regarding protective actions.
c. Provide radiological /radiation protection support to the EOF.
d. Keep the ED appraised of offsite radiological conditions.
e. Provide overall liaison and coordination of efforts in the area of field team data with State Radiological Personnel.
f. Contact for NRC on Health Physics Network (HPN) Line (Can be designated to a RP staff member)

5.4.5 Technical Advisor (TA)

The Technical Advisor reports to the ED. Responsibilities include:

a. Maintaining contact with the TSC and Control Room and obtains current plant status and emergency operations.
b. Monitor plant computer system parameters.
c. Recommend actions on classification of emergencies.

5.4.6 Admin. & Logistics Coordinator

The Admin. & Logistics Coordinator is responsible for providing support to the EOF Manager and the TSC Emergency Response Organization. Responsibilities include:

a. Manage logistics for supporting the onsite and offsite emergency response such as additional support personnel or equipment, meals, lodging, etc.
b. Manage 24 hr staffing for ERF's

5.4.7 Public Information Liaison

The Public Information Liaison reports to the EOF Manager and provides the primary interface between the JIC and EOF. Responsibilities include:

a. Ensuring JIC is provided with current plant status.
b. Reviews press releases and provide to the ED for approval

5.4.8 Offsite Communicator

The Offsite Communicator reports to the ED. Responsibilities include:

a. Transmitting information to the offsite agencies as required by regulations.
b. Ensuring ED approves all notification forms to State/Local agencies.

5.4.9 EOF Communicator

The EOF Communicator reports to the EOF Manager. Responsibilities include:

a. Transmitting and receiving information from onsite ERF's.
b. Reviewing plant data and ensuring the EOF is notified of changing plant conditions.

5.4.10 Lead Offsite Liaison

The Lead Offsite Liaison reports to the EOF Manager. Responsibilities include obtaining plant information and ensuring the offsite agencies located in the EOF and the offsite liaisons are briefed on the plant conditions.

5.4.11 Offsite Liaison

The Offsite Liaison reports to the Lead Offsite Liaison. Responsibilities include:

a. Obtaining plant information and ensuring the offsite agencies located in the EOC are briefed on the plant conditions.
b. Clarifying plant conditions, responding to questions, etc. for the offsite agencies.

5.4.12 Dose Assessor

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

a. Calculate offsite dose projections.
b. Provide offsite dose projection information to the RAC.

5.4.13 Offsite Team Coordinator (OTC)

The Offsite Coordinator reports to the Radiological Assessment Coordinator. Responsibilities include:

a. Maintain communications with offsite monitoring teams (OMT).
b. Direct OMT based on radiological /met information.
c. Log communications with OMT to include dose /air sample survey results,
d. Ensure radiological information is communicated to the RAC for possible modifications to the dose calculations.

5.4.14 Offsite Monitoring Team (OMT)

The Offsite monitoring team reports to the Offsite Team Coordinator (OTC). Responsibilities include:

a. Perform activities directed by the OTC to support plume tracking and measurements.
b. Monitor self reading dosimeters and report results back to the OTC.

5.4.15 Information Technology (IT) Specialist - EOF

The Information Technology (IT) Specialist reports to the Admin. & Logistics Coordinator and is responsible for monitoring facility equipment (computer related and communications) to ensure adequate operation.

5.4.16 EOF Log Keeper

The EOF Log keeper reports to the ED. Responsibilities include:

a. Maintain facility log

b. Ensure timeliness of facility briefs

c. Support the EOF Manager/ED as requested.

5.4.17 Emergency Plant Manager (EPM)

The EPM has the direct responsibility for accident mitigation at the plant and performs these duties from the Technical Support Center (TSC). The EPM reports to the EOF ED. Responsibilities include:

a. Provide information and recommendations to the ED regarding the declaration of an emergency.
b. Coordinate the activities of the CR, TSC and OSC.
c. Direct personnel assembly, accountability and evacuation of non-essential personnel.
d. Provide information and recommendations to the ED regarding plant activities.
e. Direct the organization and coordination of repair corrective action teams.
f. Initiate protective actions at the site.
g. Authorize radiation exposure in excess of 10CFR20 limits to onsite personnel.
h. Make operational decisions involving the safety of the plant and its personnel and make recommendations to the Control Room Personnel.

5.4.18 TSC Manager

The TSC Manager reports to the EPM. Responsibilities include:

a. Perform technical assessments and communicating the conclusions to the EPM.
b. Assures staffing/timely activation of the TSC.
c. Set priorities for the Engineering and Technical personnel.
d. In conjunction with the EPM, make operational decisions concerning the safety of the plant.

5.4.19 TSC Communicator

The TSC Communicator reports to the TSC Manager. Responsibilities include:

a. Maintain facility log
b. Ensure timeliness of facility briefs
c. Support the EPM/TSC Manager as requested.

5.4.20 Security Coordinator

The Security Coordinator is located in the Incident Command Post and reports to the EPM. Responsibilities include:

a. Overall coordination of the offsite assistance for the security related response.
b. Designated NIMS Liaison between the Incident Command Post and Site Organization.

5.4.21 ENS Communicator

The ENS Communicator reports to the TSC Manager. Responsibilities include:

a. Establishes and maintains communications with the NRC via the ENS phone.
b. Monitor plant computer parameters and provide plant status to the NRC as requested.

5.4.22 Maintenance Coordinator

The Maintenance Coordinator reports to the TSC Manager. Responsibilities include:

a. Communicate the request for repair and corrective teams to the OSC Work Control Coordinator.
b. Prioritizes the requests with the TSC Manager.

5.4.23 Engineering Coordinator

The Engineering Coordinator reports to the TSC Manager. He is responsible for coordinating Engineering work requests with the Engineering support team.

5.4.24 Radiological Coordinator

The Radiological Coordinator reports to the TSC Manager. Responsibilities include:

a. Radiological assessments and the development of radiological plans.
b. Keeping the TSC Manager informed of the radiological conditions.
c. Advise the TSC, OSC and EOF of changes in radiological release status.
d. Coordinate with the Security Coordinator to determine the routes to be used for evacuation of non-essential personnel and BRE's.
e. Arranging for additional radiation protection personnel, as necessary

5.4.25 Operations Coordinator

The Operations Coordinator reports to the TSC Manager. Responsibilities include:

a. Coordinate TSC efforts in determining the nature and extent of emergencies pertaining to equipment and plant facilities in support of Control Room actions.
b. Assist the EPM in evaluating changes in event classification.
c. Ensure the Control Room, TSC, and EOF is informed of significant changes in event status.
d. Coordinate operations activities outside of the Control Room with the TSC Manager and OSC Manager.

5.4.26 Engineers (Mechanical/ I&C/ Electrical)

The Engineers report to the Engineering Coordinator. The Engineers are responsible for responding to engineering requests form the Engineering Coordinator.

5.4.27 Reactor Engineer

The Reactor Engineer reports to the TSC Manager. Responsibilities include:

a. Support the TSC in calculating and tracking core reactivity (core damage assessment).
b. Assist in Severe Accident Procedure implementation.

5.4.28 OSC Manager

The OSC Manager has the overall responsibility for the activation and operation of the Operational Support Center. The OSC Manager reports to the EPM located in the TSC. Responsibilities Include:

a. Direct the activation, operation and deactivation of the OSC.
b. Ensures timely dispatching of the repair/corrective action teams, search and rescue teams, onsite monitoring teams and mobilizing other required support personnel.
c. Ensures work task priorities are being maintained.
d. Maintain OSC accountability.

5.4.29 Log Keeper OSC

The Log Keep – OSC reports to the OSC Manager. Responsibilities include:

a. Maintain facility log.
b. Ensure timeliness of facility briefs.
c. Support the OSC Manager as requested.

5.4.30 Operations Support

The Operations Support position reports to the OSC Manager and is manned by a spare Non-Licensed Operator. The Operations Support is responsible for supporting the OSC in locations of plant equipment. This position is filled as needed.

a. Supports OSC, as needed.
b. Ensures Shift Manager is informed of OSC teams and activities.
c. Identifies potential operational support needs.

5.4.31 Work Control Coordinator

The Work Control Coordinator reports to the OSC Manager. Responsibilities include:

a. Direct the formation, briefing and debriefing of repair and corrective action teams and offsite monitoring teams.
b. Maintain communications with the Maintenance Coordinator in the TSC.

5.4.32 Mechanical /I & C/ Electrical Coordinator

The Mechanical, I&C, and Electrical Coordinators report to the Work Control Coordinator. Responsibilities include:

a. Assist the conduct of the briefing and debriefing for the assigned tasks.
b. Ensures communications with repair and corrective action teams.

5.4.33 Rad Chem Coordinator

The Rad Chem Coordinator reports to the Work Control Coordinator. Responsibilities include:

a. Determining emergency radiological survey requirements.
b. Ensure use of protective clothing, respiratory protection, and access control within the plant is deemed appropriate to control personnel exposures.
c. Ensures the dispatching of the onsite monitoring teams.
d. Ensures habitability of the OSC
e. Conduct/provide assistance for the rad briefings to support the dispatching of the repair/corrective action teams and chemistry/ RP sampling.
f. Communicate rad/chemistry sample results to the TSC and CR.

5.4.34 Company Spokesperson

The Company Spokesperson is responsible for overall public information. Responsibilities include:

a. Obtain briefing from the EOF ED to ensure timely development of news releases.
b. Ensures that news media briefings are held regularly during the course of the emergency.
c. Serves as spokesperson at media briefings.

5.4.35 Technical Advisor -JIC

The Technical Advisor reports to the Company Spokesperson and is responsible for answering technical questions from the news media regarding the emergency situation.

5.4.36 JIC Manager

The JIC Manager reports to the Company Spokesperson. Responsibilities include:

a. Overall activation and operation of the Joint Information Center.
b. Notify the Corporate Emergency Center.

5.4.37 Log Keeper – JIC

The Log keeper- JIC reports to the JIC Manager. Responsibilities include:

a. Maintain facility log.
b. Support the JIC Manager as requested.

5.4.38 Inquiry Response Coordinator

The Inquiry Response Coordinator reports to the JIC Manager. Responsibilities include:

a. Ensures activation of rumor control activities for response to questions from the general public.
b. Monitor the public/media inquiry calls and track trends.

5.4.39 Press Release Writer

The Press Release Writer reports to the JIC Manager and generates press releases as directed by the JIC Manager.

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5.5 Recovery Organization

Recovery after an emergency condition is handled by the Emergency Organizations. The EOF Emergency Director and Emergency Plant Manager may relieve personnel of their emergency duties and return them to their normal responsibilities, retaining such personnel as necessary to staff a recovery organization.

The recovery organization depends upon the nature of the emergency and the situation which exists after the emergency. Specific organization structure and staffing is the responsibility of the Site Vice President at the time the recovery organization is instituted. Authority and responsibility of individuals who fill key positions in the recovery organization are the same as that held in the respective emergency organizations.

5.6 Local Services Support

The potential nature of some emergencies may warrant the utilization of offsite individuals, organizations, and agencies. As a result, local support service arrangements have been made with offsite groups to provide aid in the event of an emergency situation, including hostile action situations, at Grand Gulf. Support services encompass such things as medical assistance, fire control, evacuation, ambulance services, and law enforcement. Since it is imperative that the availability of these support agencies be on short notice, written agreements have been entered into with the organizations. The agencies, in the Letters of Agreement, have outlined their responsibilities, assuring their response to a call for aid. Copies of the appropriate Letters of Agreement have been included in Appendix D. The local services support groups are described in the following subsections.

5.6.1 Medical Support

In certain instances, medical emergencies may require the transport of an injured person from the Station to an offsite medical facility. Transportation of injured persons to the medical facility is normally provided by the regional ambulance service. In the event that these services are unavailable, provisions are in place to transport injured persons in company owned or private vehicles. Ambulances are equipped with radios to maintain communications with the hospital. The primary medical facility for injured personnel, with or without contamination, is the Patient's Choice Medical Center located in Port Gibson approximately six miles from the plant site. This hospital has agreed to accept injured personnel and/or victims of radiation-related accidents for emergency medical and surgical treatment and observation. River Region Medical Center has agreed to serve as a back-up with the same emergency medical capabilities as Patient's Choice Medical Center.

Hospital emergency kits for treatment of contaminated personnel are maintained at these facilities.

If medical treatment of the injured and/or contaminated personnel requires assistance or medical expertise beyond the capabilities of the local facilities, the patients would be transferred to a support hospital. GGNS has an agreement with The Ochsner Clinic to provide hospital and medical services for injured/ contaminated or overexposed personnel.

5.6.2 Fire Support

When it is determined by emergency management personnel that offsite fire support is needed, the Claiborne County Fire Department, located approximately six miles from the plant and available 24 hour per day, is alerted.

Notification of a need for offsite fire fighting assistance is made by means of a telephone call.

The Claiborne County Fire Department has an informal aid pact with the Port Gibson Fire Department. These two fire fighting groups have agreed, upon request, to furnish each other with fire fighting personnel, resources, and facilities and to render such fire protection services which may be necessary to suppress any fire or disaster which goes beyond the control of either of the agencies. In all cases where additional fire support groups would be brought in to assist at the Station, the Claiborne County Fire Department Fire Chief directs all offsite fire fighting personnel, while the GGNS Emergency Director retains overall responsibility for onsite emergency response. In instances where offsite fire fighting assistance is needed to fight a fire involving radioactive materials, radiological information and assistance is provided by knowledgeable members of the Emergency Organization.

5.6.3 Law Enforcement Agencies

The nature of a radiological emergency at the Grand Gulf Nuclear Station may require that the local law enforcement agencies be activated to assist in the emergency effort. Because it is essential that they be available during certain emergency situations, the Claiborne County Sheriff's Department and the Port Gibson Police Department have agreed to provide the following emergency support:

a. Controlling matters of civil disorder within Claiborne County (provided by Sheriff's Department) and within the city limits of Port Gibson (provided by Sheriff's Department and Port Gibson Police Department)
b. Communications
c. Furnishing personnel and equipment in accordance with Security Plans.
d. Controlling access to areas affected by the emergency
e. Directing area evacuation.

5.7 Coordination with Governmental Agencies

The close coordination between the local, State, and Grand Gulf Nuclear Station Emergency Plans serves to better ensure the safety and health of the general public. It also enables all emergency organizations to participate in the emergency effort with a minimum of confusion and hesitation. All participating agencies must have a clear picture of their responsibilities during an emergency effort, including hostile actions, which is provided for in their respective emergency plans and procedures.

Figure 5-5 depicts the interrelationships among some of the various state and federal organizations which may respond to an emergency at GGNS. The Federal Response Management Organization is shown in Figure 5-6.

5.7.1 Mississippi Emergency Management Agency (MEMA) and Mississippi State Department of Health/Division of Radiological Health (DRH)

The Mississippi Emergency Management Agency is the designated State authority and as such, has the responsibility for the general planning and coordination of the State of Mississippi's response to nuclear plant accidents as detailed in the "Mississippi Radiological Emergency Preparedness Plan, Volume III, to the Mississippi Comprehensive Emergency Management Plan". Some of the functions of MEMA are (1) development and maintenance of State Plans and Procedures, (2) operation of the State Emergency Operation Center (EOC), (3) notification and warning in coordination with the Mississippi Highway Safety Patrol and the operators of fixed nuclear facilities, (4) communications, (5) assist local governments in the development and maintenance of plans and procedures, (6) public information, (7) training, (8) providing personnel for the Radiological Emergency Response Teams and (9) providing continuity of technical, administrative, and material resources. A letter (see Appendix D) from the Governor of Mississippi which implements the Mississippi Radiological Emergency Plan is a commitment from all state agencies to perform their functions delineated in the State plan as required by Mississippi law.

The Mississippi State Department of Health/Division of Radiological Health is charged with the responsibility to protect the public health and safety of the general populace from the hazards of radiation. With respect to radiological hazards resulting from incidents involving fixed nuclear facilities, the functions of DRH include (1) act as lead agency for technical response, (2) accident assessment, (3) provide personnel and equipment for the Radiological Emergency Response Team, (4) advise State and local officials on implementation of protective actions based on accident assessment, (5) establish radiological exposure controls, (6) access/egress and reentry criteria, (7) Laboratory services, (8) coordinate offsite decontamination activities.

5.7.2 Louisiana Department of Environmental Quality (LDEQ) and Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP)

The Secretary of the Louisiana Department of Environmental Quality under Act 97 of 1983 (L.R.S. 30:2001 et. seq.), also known as the Louisiana Environmental Quality Act, and specifically L.R.S. 30:2109, has the authority to develop and implement a statewide radiological emergency preparedness plan and coordinate the development of specific emergency plans for nuclear power facilities, including planned protective action for the population and the establishment of appropriate boundaries for which planning for nuclear emergencies is undertaken; to respond to any emergency which involves possible or actual release of radioactive material; to coordinate offsite decontamination efforts; to issue relocation and evacuation recommendations; and to otherwise protect the public welfare and safety in any manner deemed necessary and appropriate. As a result, the "Louisiana Peacetime Radiological Response Plan," which includes Attachment 2 for the Grand Gulf Nuclear Station, has been developed. Federal, State and local agencies are notified as required to provide assistance in evaluating the radiological hazard and providing implementation of appropriate protective actions in accordance with this plan. The Secretary of the LDEQ or his designee is responsible for notifying the public that a radiological incident has occurred and for providing an evaluation of the incident in terms of public health. If protective actions are indicated, specific guidance can be provided and the information released.

The Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) is responsible for coordinating all emergency actions of the various State and local agencies in the event that evacuation is necessary. Local law enforcement agencies, rescue squads, medical facilities and other parish and municipal agencies provide assistance pursuant to their agreements with local civil defense organizations as delineated in the local civil defense plans. The GOHSEP immediately notifies LDEQ in the event of a radiological emergency. A letter (see Appendix D) from the Governor of Louisiana to implement the Louisiana Peacetime Radiological Response Plan is a commitment from all State agencies to perform their functions as delineated in the State plan as required by Louisiana law.

5.7.3 Port Gibson/Claiborne County Civil Defense

The Port Gibson/Claiborne County Civil Defense Director is the designated County authority and as such, has executive authority and responsibility for the planning and coordination of the County's emergency response. The Director has delegated responsibilities and tasks to the local support agencies and has established operating procedures to implement the "Port Gibson/Claiborne County - Radiological Emergency Preparedness Plan." Upon notification of a major emergency at the Grand Gulf Nuclear Station, the Civil Defense Director, as a primary duty, provides direction within the County boundaries. This duty includes, if required, the coordination with other agencies to inform the public in affected portions of the County to take protective actions.

The Port Gibson/Claiborne County Civil Defense Director is responsible for activation of the Claiborne County Emergency Operations Center (EOC).

5.7.4 Tensas Parish Office of Homeland Security and Emergency Preparedness

The President of the Tensas Parish Police Jury as the Chief Executive of Tensas Parish is responsible by law for emergency preparedness operations. The Emergency Preparedness Coordinator acts as his Chief of Staff and ensures continuity of resources for sustained emergency operations. The Emergency Preparedness Coordinator is responsible for initiating the manning of the Tensas Parish Emergency Operations Center and for coordinating the involved agencies during the course of the radiological emergency as detailed in the "Tensas Parish Radiological Emergency Implementing Plan for Grand Gulf Nuclear Station."

5.7.5 Nuclear Regulatory Commission (NRC)

The United States Nuclear Regulatory Commission, Region IV, dispatches an Initial Response Site Team (IRST) to GGNS upon declaration of a Site Area Emergency or General Emergency and may dispatch the team upon declaration of an Alert. Members of the team are assigned to the TSC, EOF and ENMC. Primary functions of the IRST are:

a. Oversee licensed activities to ensure a reasonable effort is being made to mitigate the accident.
b. Evaluate protective actions taking place and make an independent evaluation of recommended protective actions.
c. Evaluate direction being given to reactor operators to bring the plant to a stable condition, and
d. Oversee GGNS's ability to provide information to the news media and the public concerning information about the status of the plant and the offsite consequences.

The IRST has the capability to arrive at GGNS in approximately 4 - 6 hours. Once notified, the plant shall maintain an open continuous communication channel with the NRC Operations Center via the NRC Emergency Notification System until terminated by the NRC Operations Center. The NRC Operations Center can be activated within 15 - 30 minutes during normal working hours and within 1 - 2 hours after normal working hours.

5.7.6 Department of Energy (DOE)

The Department of Energy assists during an emergency by providing monitoring assistance through their Radiological Assistance Plan (RAP) and Interagency Radiological Assistance Plan (IRAP) when requested in support of state and local monitoring operations. In addition, the Emergency Director may also request this assistance. Some of the specialized equipment and services that DOE can provide are: alpha detection equipment, low energy gamma detectors and special aircraft monitoring. The Department of Energy can also assist in the radiation monitoring of food, water, livestock, and agricultural products. When deemed necessary, the DOE makes available special aerial radiological surveys and meteorological services. The estimated arrival time to the GGNS area for the DOE Region III Oak Ridge Operations team is 12 hours.

5.7.7 Institute of Nuclear Power Operations (INPO)

The Institute of Nuclear Power Operations provides emergency response as requested by GGNS. INPO can provide assistance in the following areas:

a. Location of sources of emergency manpower and equipment
b. Analysis of the operational aspects of the event
c. Organization of industry experts who could advise GGNS on technical matters.
d. INPO may be contacted by means of its 24-hour telephone number in the event of a radiological emergency at GGNS.

5.7.8 U.S. Coast Guard.

The U.S. Coast Guard has jurisdiction over the traffic on the Mississippi River. Upon notification by the Mississippi State Emergency Management Agency of an emergency requiring traffic exclusion, the Captain of the Port exercises his authority to control marine traffic through the establishment of a safety zone in the immediate area.

5.8 Contractor Assistance

GGNS has made provisions with General Electric (NSSS Supplier), to provide both routine and emergency technical assistance and support in accordance with GE Services Letter GE-SIL-324.

5.9 Support for Federal Response

Office and communications facilities are provided for responding NRC personnel within the TSC, EOF, and JIC, and for responding DOE personnel within the EOF. Additional State and County (Parish) resources available to support the Federal response, such as air fields, emergency operations centers, and communications capabilities are described in Grand Gulf Nuclear Station Supporting Emergency Response Plans.

TABLE 5-1

SHIFT STAFFING AND AUGMENTATION CAPABILITIES

Major Functional Area	Emergency Tasks	Position Title or Expertise	Location	On Shift (e)	Capability for Additions 90 Min(h)
Plant Operations and Assessment of Operational Aspects	Emergency Direction and Control (f)	Shift Manager (SRO)	CR	1	--
		Emergency Director	CR/EOF	--	1(g)
		Control Room Supervisor (SRO)	CR	1	--
		Nuclear Operator A (RO)	CR	3(i)	-
		Auxiliary Operator (AO)	CR	3	--
	Firefighting, firefighting communications	Shift Personnel (Operations)	CR	5(a)	Provided by Claiborne County / Port Gibson
	Technical Support and Core/Thermal Hydraulics(d)	Shift Technical Advisor	CR	1(c)	--
	Core/Thermal Hydraulics	Reactor Engineers/SRO/STA	TSC/CR	--	1(g)
Notification/ Communication	Offsite Notifications (State, Local, Federal) and maintain communications, Notification of Plant On-Call emergency personnel	Communicator	CR/EOF	2	2(g)
Radiological Accident Assessment and Support of Operational Accident Assessment	EOF Direction and Control	Senior Management	EOF	--	1
	Offsite Dose Assessment	Radiological Assessment	CR/EOF	1(a)	1(g)
	Chemistry/Radio-Chemistry	Chemist	OSC	1	1
Plant System Engineering	Technical Support	Electrical	TSC/OSC	--	1
		Mechanical	TSC/OSC	--	1
Repair and Corrective Actions		Mechanical Maintenance	OSC	1(a)	2
		Radwaste Operator	OSC	1(a)	1
		Electrical Maintenance/ I&C Maintenance	OSC	2	--
		Electrical Maintenance	OSC	--	2
		I&C Maintenance	OSC	--	1

TABLE 5-1

SHIFT STAFFING AND AUGMENTATION CAPABILITIES

Major Functional Area	Emergency Tasks	Position Title or Expertise	Location	On Shift (e)	Capability for Additions 90 Min(h)
Radiation Protection	-Access Control -HP coverage for repair, corrective actions, search and rescue/first-aid, and firefighting -Personnel monitoring -Dosimetry -Surveys (offsite, onsite, and in-plant surveys on as needed basis only)	Health Physicist	EOF/OSC	2	11(b)
Rescue / First aid		Rescue and First Aid	OSC	2(a)	Provided by Claiborne County / Port Gibson
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 GGNS Technical Specification.
(d) Core/Thermal Hydraulics is part of normal STA duties as listed in the Updated Final Safety Analysis Report and Technical Specifications.
(e) 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.
(f) Overall direction of facility response is assumed from the Shift Manager (SRO) by the Emergency Director. Upon relief, the Shift Manager (SRO) resumes plant operational duties.
(g) These personnel will report and augment shift personnel as soon as possible without delay but no later than 75 minutes.
(h) If personnel are onsite they will report and augment the onshift personnel as soon as possible without delay, but no later than 45 minutes. Offsite personnel will report to their assigned facility as soon as possible without delay, but no later than 90 minutes.
(i) The role of the third RO may be fulfilled using an AO as allowed by TRM based upon GGNS on-shift staffing analysis.

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FIGURE 5-1

NORMAL STATION ORGANIZATION

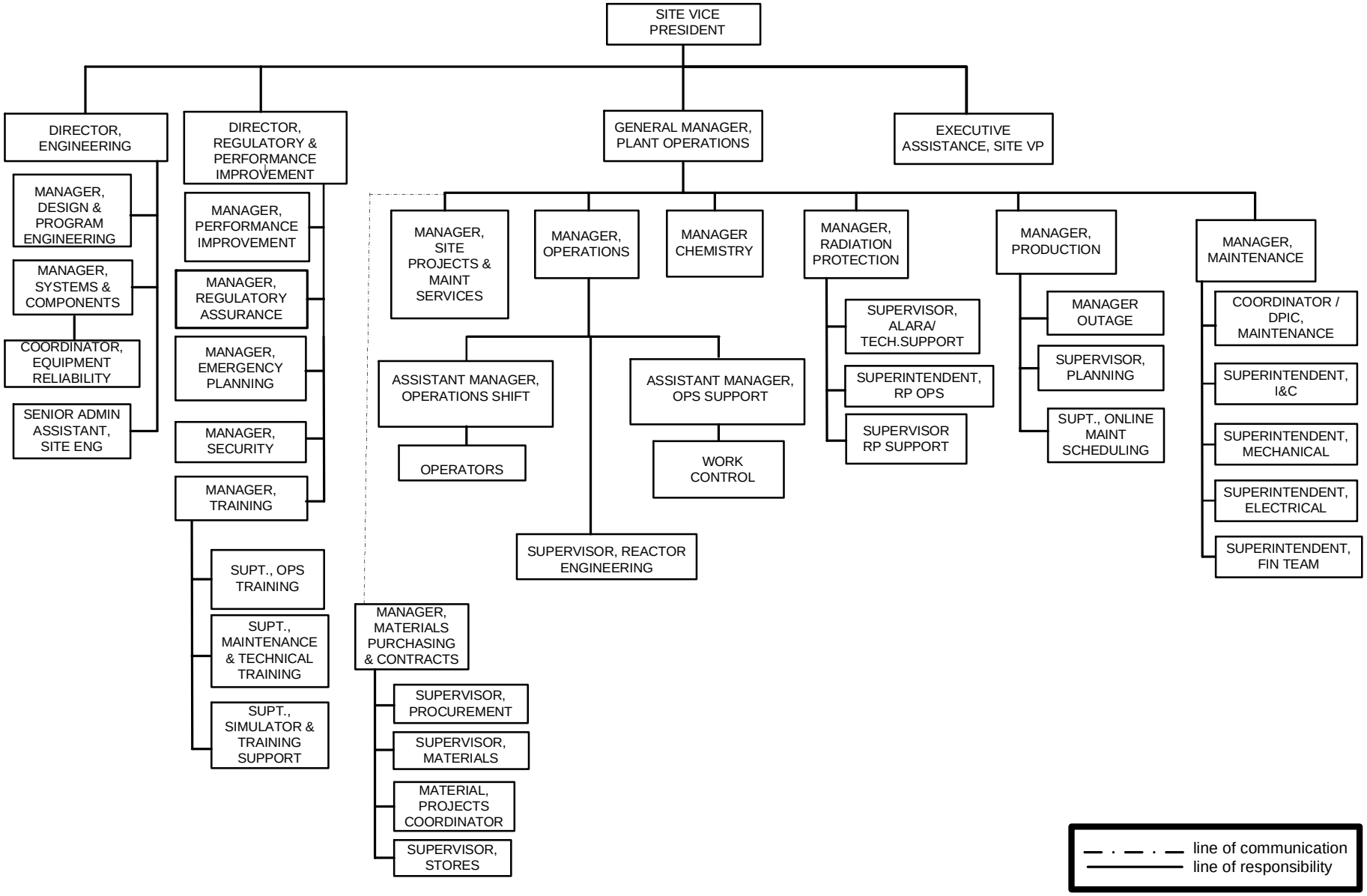


FIGURE 5-2

GG

FSAR

EMERGENCY ORGANIZATION

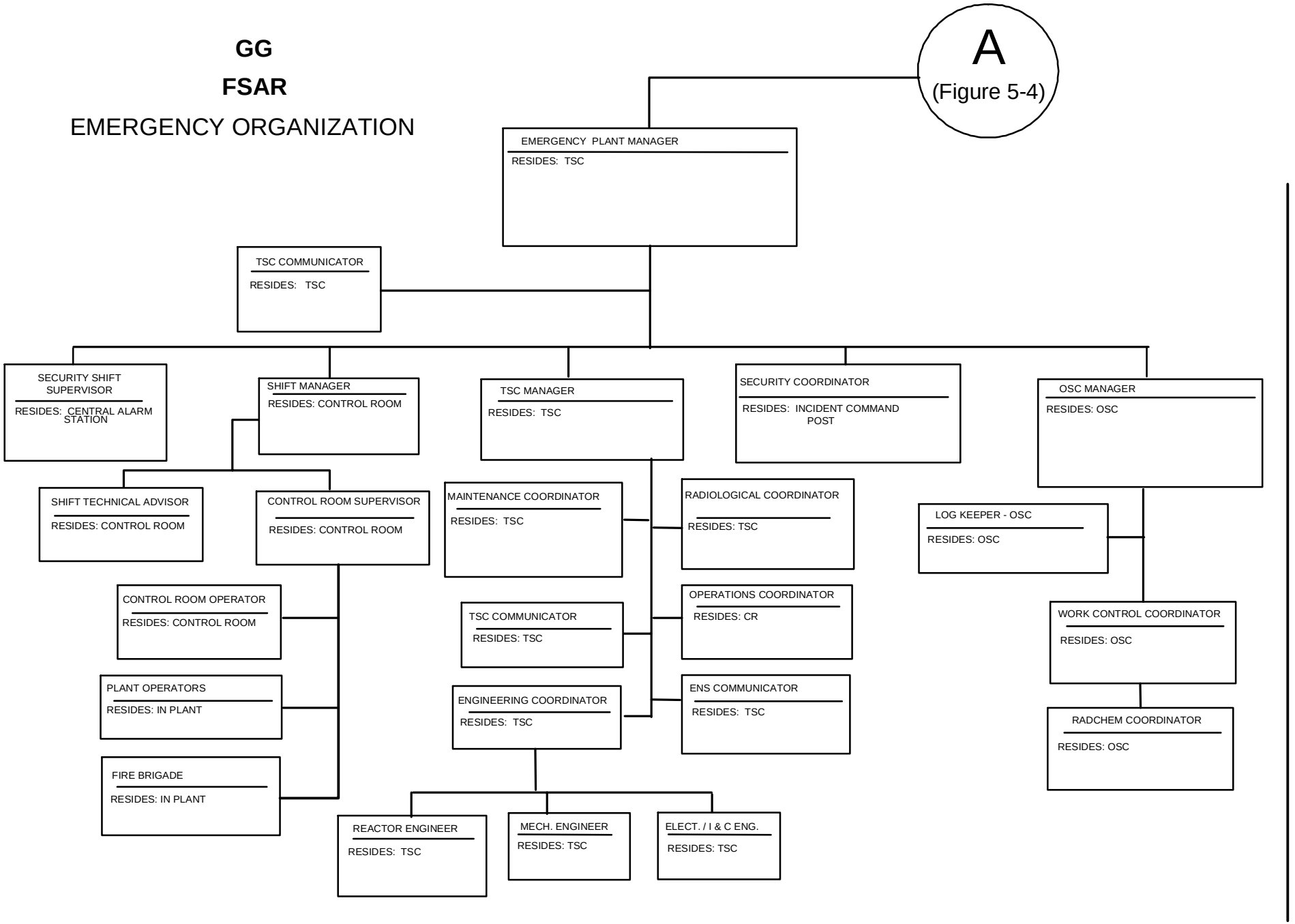


FIGURE 5-3

EMERGENCY ORGANIZATION

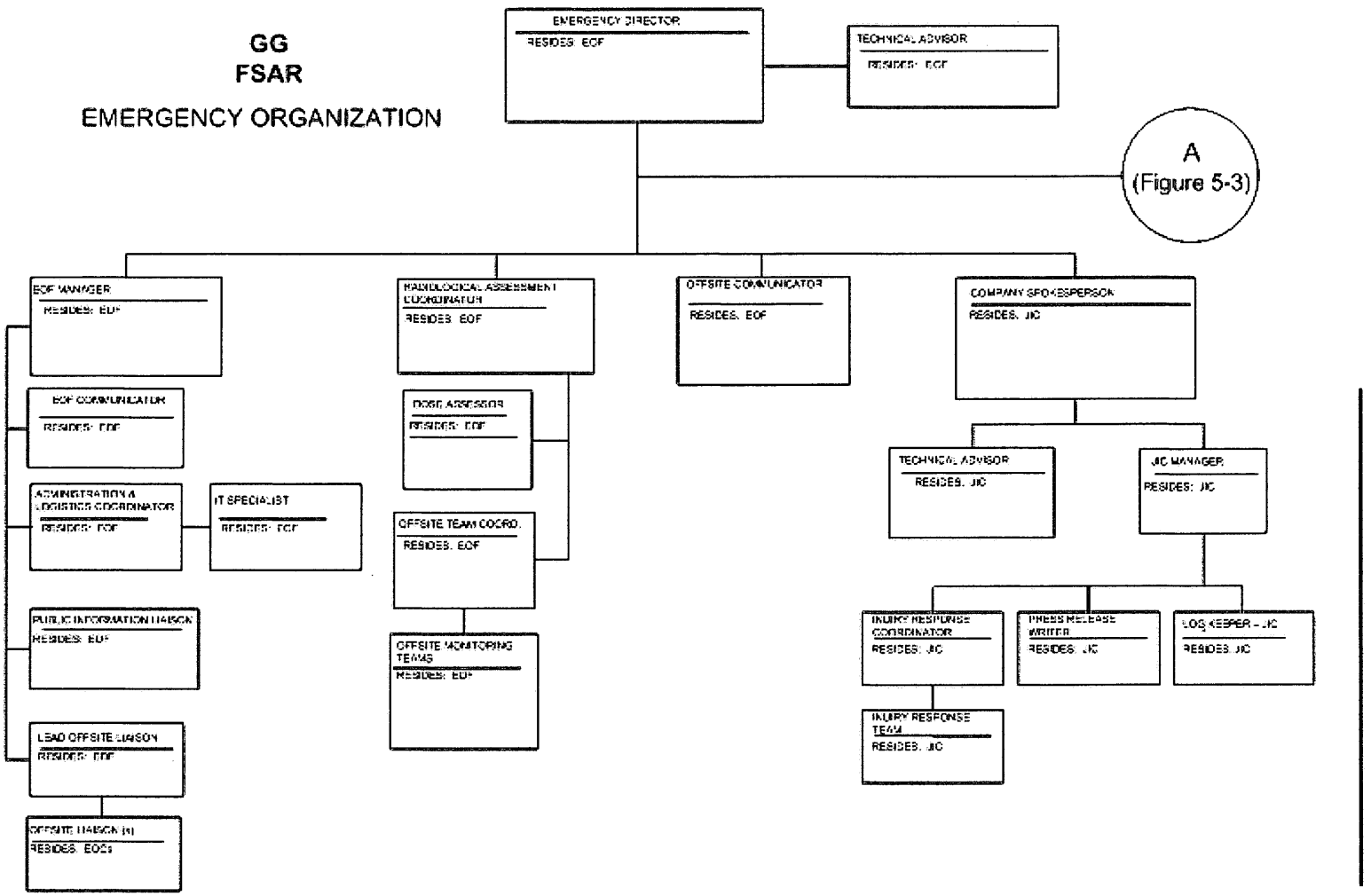


FIGURE 5-4

INTERRELATIONSHIPS OF EMERGENCY RESPONSE ORGRANIZATION

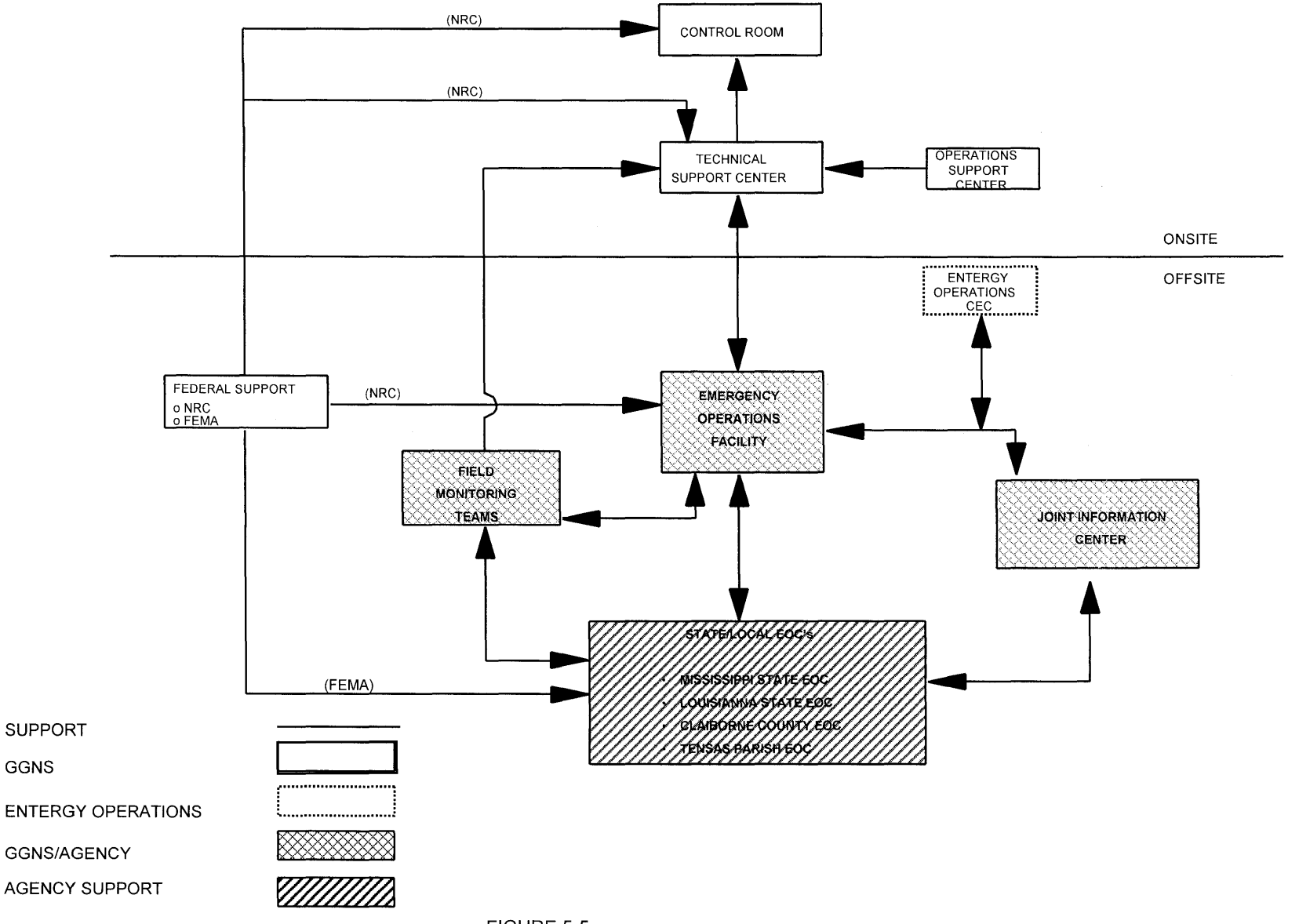


FIGURE 5-5

FEDERAL RESPONSE MANAGEMENT DIAGRAM

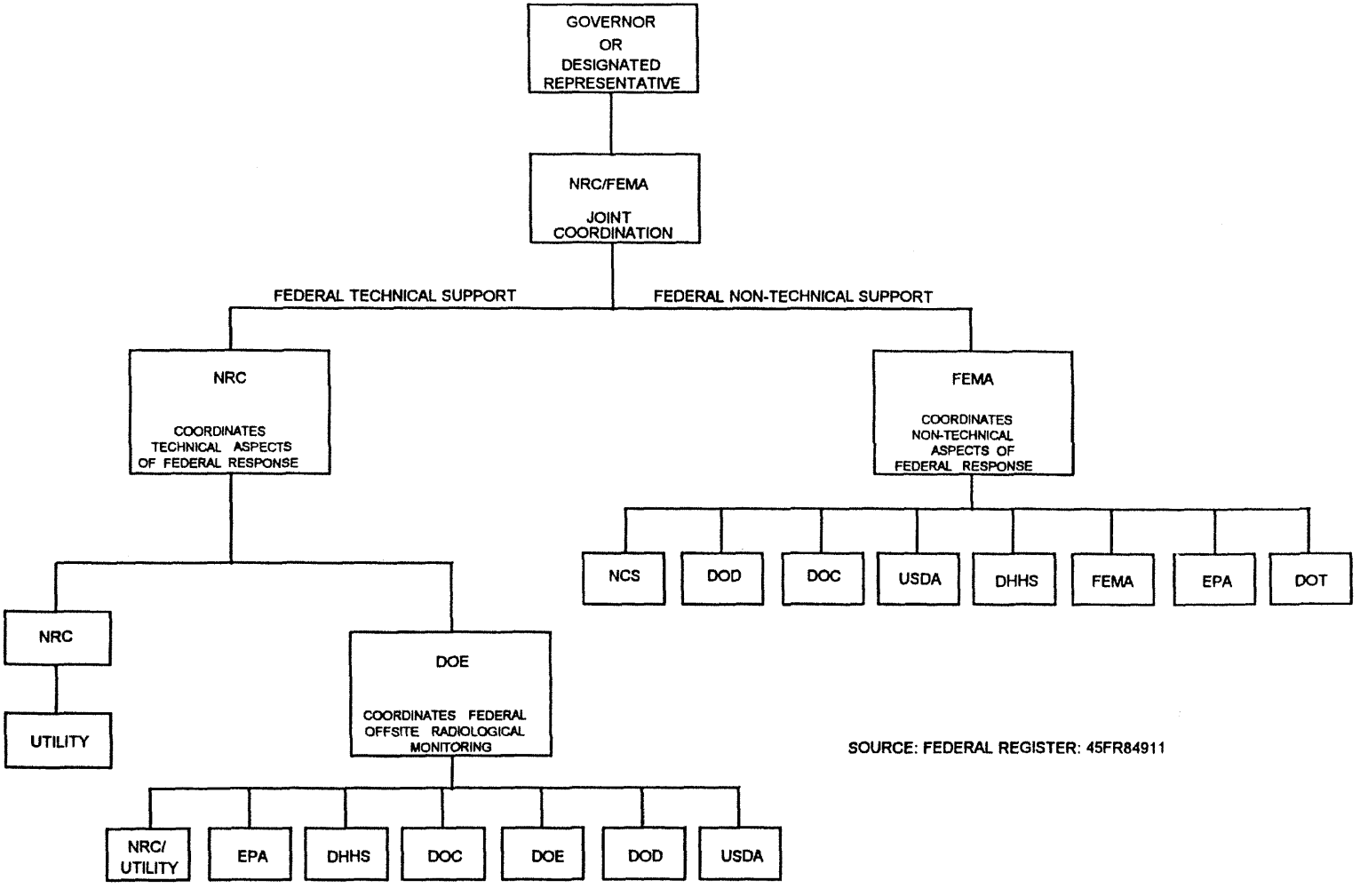


FIGURE 5-6

6.0 EMERGENCY MEASURES

6.1 Initiating Emergency Measures

Emergency measures must be taken in response to an emergency condition. Upon recognizing and officially declaring that one of the four classes of emergencies exists, the emergency organization is activated. Once activation has taken place, assessments of the condition are made, corrective and protective actions are taken and aid to affected persons is administered as required.

6.1.1 Emergency Suspension of Normal Quality Assurance Procedures and Administrative Controls, License Conditions, and Technical Specifications

Should emergency circumstances require, reasonable actions that depart from normal Quality Assurance Procedures, Administrative Controls, License Conditions or Technical Specifications may be taken when this action is immediately needed to protect the public health and safety. These action may only be taken if no action consistent with normal Quality Assurance Procedures, Administrative Controls, License Conditions and Technical Specifications that can provide adequate or equivalent protection is immediately apparent. At a minimum, approval by a licensed senior reactor operator is required before any such action may be taken.

6.1.2 Suspension of Normal Emergency Actions for Security Emergencies

The Emergency Director and Emergency Plant Manager, upon the Emergency Director's evaluating and classifying a security emergency into any of the four emergency classifications discussed in 4.0, should only activate those personnel and facilities necessary to mitigate the emergency situation. This is the only exception to the personnel and facility activations described in the Plan and related implementing procedures; it is permitted because of the potential risk to personnel which a security emergency may present.

6.2 Activation of Emergency Organization

The initial step in declaring an emergency is to recognize that an unusual condition exists or has the potential for existing. The Emergency Action Levels, as specified in Section 4.0, provide the criteria for determining when an abnormal situation exists that requires the declaration of an emergency and the subsequent activation of the applicable portions of the Emergency Organization.

6.2.1 Control Room Operators

Normally, initial recognition of conditions requiring emergency actions occurs in the Control Room. Sometimes these conditions are signaled by alarms or instrument readings. If control room operators, or any other shift personnel, recognize an unusual condition or occurrence, it is their responsibility to immediately notify the Shift Manager.

6.2.2 Shift Manager

Upon notification of a real or potential emergency condition, the Shift Manager is responsible for determining whether or not the declaration of an emergency is required. If it is, he is then responsible for the activation of the Plan and assuming the role of Emergency Director. If a specific action level has been reached or exceeded, he declares the appropriate emergency classification.

The Shift Manager takes the following actions to ensure the safety of plant personnel and the general public and the safe operation of the plant.

1. Classify the emergency and make the required notifications
2. Perform assessment actions
3. Perform any other emergency actions as appropriate.

6.2.3 Shift Technical Advisor

The Shift Technical Advisor advises and assists the Shift Manager on matters pertaining to the safe operation of the plant.

6.2.4 Emergency Director

The Plan is activated with the declaration of an emergency. The Shift Manager continues as the Emergency Director until properly relieved by the EOF Emergency Director. The Emergency Director shall ensure that notification is initiated within 15 minutes of an emergency declaration.

Primary	Secondary
1. (a) Mississippi Emergency Management Agency	(b) Mississippi Hwy Patrol
2. (a) Governor's Office of Homeland Security and Emergency Preparedness	(b) Louisiana Dept. of Envir. Quality
3. (a) Claiborne County Sheriff's Dept	(b) Claiborne County Civil Defense
4. (a) Tensas Parish Sheriff's Dept	

An example of the form that is used for Emergency Notification is shown in Figure 6-2 and included as part of the Emergency Preparedness Forms Control Process. Copies of this notification form are available in the appropriate emergency centers. The phone number is included on the form so states may call back to verify the authenticity of the accident.

In accordance with 10CFR50.72 the NRC Operations Center shall be notified by telephone immediately after notification of the appropriate state and local agencies and not later than one hour after the declaration of one of the Emergency Classes.

Upon arrival in the EOF, the EOF Emergency Director assumes the position of Emergency Director in accordance with Emergency Plan Procedures.

The Emergency Director evaluates the accident conditions and verifies that the correct emergency classification has been declared. He then activates the appropriate portions of the Emergency Organizations if that has not already been done by the Shift Manager. In any case, the Emergency Plant Manager is notified.

If an Unusual Event has been declared, those members of the operating shift needed to handle the emergency are activated. If the Emergency Director feels there is a reasonable possibility of escalation of the emergency to a higher classification, applicable portions of the Emergency Organization are activated.

If an Alert, Site Area Emergency or General Emergency has been declared, the entire Emergency Organization is activated.

6.3 Assessment Actions

Continuous assessment throughout the course of an emergency is necessary to effectively coordinate and direct the elements of the Emergency Organization. The initial assessment actions are dictated, in part, by the Emergency Action Level that has been reached or exceeded.

6.3.1 Assessment Actions During Unusual Events

An Unusual Event condition requires basic emergency assessments. Attention must be paid to parameters that may indicate a possible worsening of conditions, (i.e. radioactive releases).

6.3.2 Assessment Actions During Alerts

The existence of an Alert condition requires the following assessment actions as applicable.

a. Increased surveillance of applicable in-plant instrumentation.
b. Visual observation of the affected plant area.
c. Onsite and offsite radiological monitoring if a radioactive release has taken place or is suspected.
d. Determination of offsite doses if applicable.

6.3.3 Assessment Actions During Site Area Emergencies

In the event of a Site Area Emergency, assessment activities are more extensive than for an Alert. In addition to the activities that would be carried out during an Alert, the following activities would be performed as appropriate:

a. Monitor Meteorological data.
b. Dispatch radiological monitoring teams to offsite locations downwind of a release in conjunction with state radiological monitoring efforts.
c. Assess Offsite radioiodine thyroid doses.
d. Assess Offsite whole body dose.

6.3.4 Assessment Actions During General Emergencies

In the event of a General Emergency, all assessment activities described for a Site Area Emergency will be conducted. Assessment of onsite and offsite exposures are performed regularly to determine if and when site or public sheltering and evacuations may be required; and the results, including methods and assumptions, are communicated to offsite officials.

6.4 Corrective Actions

Corrective Actions are performed by plant personnel who are technically trained and capable of implementing the station's Plan and procedures.

6.5 Protective Actions

The protective actions to be implemented onsite are the responsibility of GGNS, while the States of Mississippi and Louisiana and the counties within the 10-mile EPZ are responsible for providing offsite protective actions. The states are specifically responsible for protective actions for the 50-mile ingestion pathway EPZ. 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

6.5.1 Protective Cover, Evacuation, Personnel Accountability

a. Grand Gulf Nuclear Station

1. When an Alert, Site Area Emergency or General Emergency is declared, all personnel in the protected area are advised of the emergency classification by use of the public address system. If a site evacuation is ordered, the evacuation siren is sounded over the public address system in the protected area followed by an evacuation announcement and any special instructions. Non-essential personnel will evacuate immediately upon being notified.

2. Emergency personnel not assigned to the Control Room, Technical Support Center, Central Alarm Station, and Secondary Alarm Station, report to the Operations Support Center for accountability. Non-emergency personnel are accounted for as they exit the protected area through Security Island. GGNS Security is responsible for performing an accountability survey of personnel in the protected area. It is anticipated that accountability and identification of missing persons can

be accomplished in approximately 30 minutes. This information is reported to the Emergency Plant Manager.

3. GGNS employees, contract personnel and visitors outside of the Protected Area, but within the Emergency Preparedness Owner Controlled Area are notified promptly of a site evacuation and given instructions by public address systems, telephone or security personnel equipped with portable PA systems. Non-essential personnel will evacuate immediately upon being notified. GGNS Security checks to ensure that all persons located in the Emergency Preparedness Owner Controlled Area were notified and evacuated as directed, and report the results to the Emergency Plant Manager. Security will complete the checks as soon as possible but not to exceed 2 hours under most conditions.

4. Persons outside the Emergency Preparedness Owner Controlled Area, but in public access areas or passing through the site are notified of an emergency classification by the Alert Notification System activated by local authorities.

5. All site personnel are trained on site evacuation routes, escorted by someone who has been trained or receive a map which gives instructions and routes off of the site. Site evacuation instructions and routes are specified in the evacuation announcement. Non-essential personnel are expected to evacuate GGNS property in the same vehicles which were used for initial access.

6. Emergency situations, as discussed in this section, include natural events as well as radiological incidents. The procedures to be followed in these evacuations are included in the Emergency Plan Procedures. Provisions are made for consideration of weather conditions, traffic or radiological impediments to evacuation.

b. Offsite Areas

The administration of protective actions for persons residing offsite is the responsibility of the States of Mississippi and Louisiana. Mississippi's responsibility is outlined in the "Mississippi Emergency Operations Plan" and Louisiana's responsibility is outlined in the "Louisiana Peacetime Radiological Response Plan." These plans are implemented in addition to the county or parish emergency plans. The county and parish within the 10-mile EPZ surrounding the Station are responsible for developing and submitting emergency plans which are coordinated with those of the States and Station. GGNS provides protective action recommendations to the state/local civil defense agencies. The minimum standard PAR for a General Emergency is to evacuate the 2 mile radius and 5 miles downwind, monitor and prepare the remainder of the 10 mile EPZ, and consideration of the use of potassium iodide in accordance with State Plans. (Source: NUREG 0654 FEMA Rep 1, Rev 1, Supplement 3 “Guidance for Protective Action Strategies”.) Evacuation will be recommended for 5 - 10 miles in the down wind sectors, if dose projections or actual field measurements correspond to radiation levels to the public that exceed the EPA Protective Action Guides (PAG's). Sheltering may be recommended instead of evacuation when appropriate. Recommendations are based upon emergency classification and projected dose to the public, and are consistent with EPA PAGs and FDA guidance. The Protective Actions Guides are summarized in Table 6-1. The methodology normally used for determining appropriate protective action recommendations is described in the Emergency Plan Procedures. Warning and/or advising the population-at-risk of an impending emergency is the responsibility of the counties or parishes affected. These counties or parishes are also responsible for the preparation and dissemination of informational material concerning protective actions for the general public. Written messages for emergency dissemination to the public have been prepared by the State of Mississippi with supporting information provided by GGNS. These prepared messages are documented in the Mississippi Emergency Operations Plan, Volume II, Part 3, Radiological Emergency Response Plan,

Appendix 1 to Annex G - Public Information. Figure 2-5 shows the evacuation centers within the 50-mile EPZ.

6.6 Contamination Control Measures

A monitoring and decontamination station is established at the Emergency Operations Facility (EOF) when directed by the Emergency Director. Emergency Organization personnel perform monitoring and decontamination in accordance with plant procedures.

When a site evacuation is ordered, non-essential personnel will be routed, as necessary, to evacuation/decontamination centers established by the state/local governments.

Onsite contamination control measures are implemented in Plant Administrative Procedures and other lower level procedures. Plant procedures are designed to meet the requirements of 10CFR20, Appendix B.

Contamination control for offsite areas is provided for by the States of Mississippi and Louisiana. Guidelines are provided through the emergency response plans of those two states.

6.7 Aid to Affected Personnel

This section of the plan describes measures which are used to provide necessary assistance if individuals are injured and/or radiologically exposed or contaminated.

6.7.1 Emergency Personnel Exposure

Although an emergency situation transcends the normal requirements for limiting exposure, there are suggested levels of exposure acceptable in emergencies.

Three categories of risk versus benefit must be considered:

a. Saving of human life and reduction of injury
b. Protection of health and safety of the public and
c. Protection of property

In certain emergency situations, the acceptance of above normal radiation exposure may be warranted.

The following are exposure guidelines for individuals inclusive of support personnel and Entergy employees:

a. Support personnel are restricted to GGNS administrative limits and are equipped with appropriate dosimetry. In situations where it appears that the administrative limits may be exceeded, the individuals are relieved of duties involving additional radiation exposure.

b. Guidance for Emergency worker exposure is given in the following table, which represents those extensions of GGNS administrative exposure limits for which authorization, by the Emergency Director or Emergency Plant Manager, is required prior to the exposure being received:

Guidance on Dose Limits for Workers Performing Emergency Services

DOSE LIMITS (TEDE)	ACTIVITY	CONDITIONS
> 5 up to 10 Rem	Protecting Valuable Property	Lower dose not practicable
> 10 up to 25 Rem	Life saving or Protection of large populations	Lower dose not practicable
> 25 Rem	Life saving or Protection of large populations	Only on a voluntary basis to persons fully aware of the risks involved

Source: EPA 400-R-92-001 "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents" Table 2-2

Provisions have been made for 24-hour-per-day capability to determine the doses received by emergency personnel. Specific emergency procedures have been written for the issuance of permanent record dosimetry devices (or systems) and self reading dosimeters to emergency personnel. These procedures also provide instructions on how often to read dosimeters and keeping appropriate dose records.

The Emergency Director or Emergency Plant Manager may also authorize the use of radioprotective drugs for thyroid protection. Emergency personnel would take a pre-measured dose of the drug (such as KI tablets). These drugs are made available in the Control Room, Operations Support Center, Technical Support Center, Emergency Operations Facility, and the RCA entrance.

6.7.2 Decontamination and First Aid

Onsite personnel decontamination stations for emergency conditions are fully equipped with decontamination material and portable first aid kits. The primary decontamination center is located on the 133 foot level of the Unit II Turbine Building in the Radiation Protection Access Control Area. Alternate facilities are the showers in the Maintenance Shop (adjacent to the Administration Building) or EOF. The decontamination centers have provisions for disrobing, collecting contaminated clothing, showering of contaminated personnel, and clean clothing.

All personnel exiting from the controlled access area at Grand Gulf are monitored for contamination. The instruments used for this monitoring procedure are portal monitors and portable contamination survey instruments.

In situations when the portal monitors and/or the portable contamination survey instruments detect contamination, preventive measures must be initiated to mitigate the possibility of the spread of contamination.

The most effective measure for the decontamination of the hands and other parts of the body is thorough washing of the affected areas. A member of the Health Physics Section is to supervise any decontamination effort.

First Aid Courses are conducted for selected members of the Emergency Organization. Personnel trained in first aid/CPR are available on each shift to administer first aid as required.

6.7.3 Medical Transportation

Transportation of injured persons from GGNS to the medical facility is normally provided by regional ambulance service in accordance with Letter(s) of Agreement (See Appendix D). In the event that these services are unavailable, provisions are in place to transport injured persons in company owned or private vehicles. Ambulance service can be requested by the local hospitals or GGNS. The ambulance maintains radio communications with the hospital while in transit. GGNS uses telephone communication to contact the hospital, thereby maintaining indirect communications with the ambulance.

6.7.4 Medical Treatment

In the event of a serious accident at Grand Gulf requiring medical treatment, Claiborne County Medical Center has agreed to provide the required assistance. The hospital is equipped to handle contaminated injuries as well as injuries not related to contamination or over exposure. The River Region Medical Center and the Claiborne County Medical Center have emergency plans for the decontamination and treatment of the radioactively contaminated patient. Appendix B includes a list of typical equipment located at the hospitals.

River Region Medical Center and The Ochsner Clinic provide backup medical services if the Claiborne County Medical Center is unable to provide the required services. Letters of Agreement (Appendix D) have been obtained to document these arrangements.

TABLE 6-1

*** Protective Actions Guides for the Early Phase of a Nuclear Incident**

Projected Dose [1] or Classification	Protective Action Recommendation
• TEDE 1,000 to 5,000 mRem • CDE (Thyroid) 5,000 to 25,000 mRem • SDE (Skin Dose) 50,000 to 250,000 mRem	• Evacuation. • Sheltering may be considered if benefit outweighs 'cost' of evacuation • Sheltering up to 10,000 mRem may be justified for special populations
• General Emergency Classification	• Consider prophylactic use of potassium iodide in accordance with State Plans.

Note 1 - Dose that can be avoided if the protective action is implemented.
Source: 1) EPA 400-R-92-001 "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents" Table 2-1
2) Food and Drug Administration Guidance, December 2001, "Potassium Iodide as a Thyroid Blocking Agent in Radiation Emergencies"

FIGURE DELETED

FIGURE 6-1

Example of the GGNS Emergency Notification Form

Grand Gulf Emergency Notification Form

1. THIS IS GRAND GULF NUCLEAR STATION WITH MESSAGE NUMBER

2. Message was sent at _____ from the Control Room at phone number

3. A(n) _____ has been Declared as of _____ on _____ due to _____
   EAL# _____

4. EAL Description:_____

5. Recommended Protective Actions:_____

6. Reactor was shutdown as of _____ on _____

7. Current Meteorological data is:
   Wind Direction from __ degrees at ____ MPH
   Affected Sectors: _____
   Stability Class: _____
   Precipitation: _____

8. Current Release Conditions are as follows:
   A RELEASE is occurring BELOW federally approved operating limits.

   Release started at ___on ____. Release stopped at ___on ____. Release duration was _ hours.

9. Type of Release is as follows:_____

10. Release rates are as follows:
    Noble gases _____ Ci/sec - Iodines _____ Ci/sec

11. ESTIMATE OF PROJECTED OFF-SITE DOSE
    A. Projections for hours based on Plant Data

Dose Metric	Site Boundary	2 miles	5 miles	10 miles

12. Approved by: _____

FIGURE 6-2

7.0 EMERGENCY RESPONSE FACILITIES AND EQUIPMENT

7.1 Facilities and Equipment and Equipment and Equipment

Emergency planning requires the preinstallation of both facilities and equipment that allows the emergency organization to perform the following actions:

a. Assess the extent of the emergency
b. Perform the proper corrective actions to mitigate the effects of the emergency
c. Perform actions to protect onsite and offsite personnel
d. Provide information to offsite support agencies
e. Perform the proper recovery actions

Emergency facilities have been established by GGNS and offsite support agencies. Figure 7-1 identifies these facilities and their locations.

7.2 Control Room

The Control Room contains those controls, instruments and communications equipment necessary for operation of the plant under both normal and emergency conditions. The ventilation system, shielding, and structural integrity are designed and built to permit continuous occupancy during postulated accidents. During emergencies, the Control Room will provide for the classification, accident assessment, notification, and dose assessment functions if these functions are unavailable at the EOF or when being relocated to the Backup EOF.

7.3 Emergency Response Facilities

7.3.1 Technical Support Center (TSC)

The Technical Support Center (Figure 7-2) provides an area outside the Control Room that can accommodate management, engineering personnel and the NRC acting in support of the command and control function during emergency conditions and the emergency recovery operations. The TSC personnel primarily assist in accident assessment, provide

advice to the control room and communicate with Emergency Operations Facility (EOF) personnel regarding plant conditions and actions. Communications are also provided with the Control Room and OSC.

The TSC area contains approximately 2,250 square feet. The TSC area is large enough to accommodate 25 people, including five NRC personnel, as well as furnishings, data displays, plant reference material, and communications equipment. The TSC is located directly above and overlooking the Control Room on the mezzanine level (EL 177') of the control building. The control building which houses the TSC is designed Safety Class 3. The control building structure is seismic Category I, and is designed to withstand tornadoes and extreme wind phenomena. The TSC is habitable to the same degree as the Control Room for all postulated accident conditions and is served by the Control Room ventilation system. The Backup TSC is located in the Maintenance & Engineering Building.

Emergency lighting is powered by the ESF AC buses, with backup emergency lighting provided by battery pack lighting units.

The TSC may be activated at any time, and shall be activated at an Alert, Site Area Emergency, or General Emergency. Once activated the TSC shall become operational as soon as possible (without delay) after declaration of any of these emergency classifications. When facility staffing can be accomplished with onsite personnel, it is the goal to become operational within 45 minutes. Otherwise offsite personnel shall provide shift augmentation in 75 minutes and be fully operational in 90 minutes.

A set of drawings and other records are accessible to the TSC personnel under emergency conditions. The documents include but are not limited to: Plant Technical Specifications, Plant Operating Procedures, Emergency Operating Procedures, and hard copies(stick file)

of P&ID's, architectural, electrical one lines, electrical schematics, logic diagrams, and loop diagrams. Radiation Control and Chemistry procedures to be used during an emergency situation are also available.

A Plant Display System (PDS) and a Safety Parameter Display System (SPDS) are provided to supply data which enable TSC personnel to evaluate the status of the plant and radiological and meteorological conditions. Status boards are used to display data needed in the TSC to analyze plant conditions.

A computer based system designed to provide atmospheric dispersion and radiological dose assessments of radioactive materials released from GGNS during emergency conditions is available.

7.3.2 Operations Support Center (OSC)

The OSC (Figure 7-3) provides an area for operations, maintenance, health physics, and chemistry personnel to assemble and be assigned to duties in support of emergency operations.

The location of the OSC is the Maintenance Shop of the GGNS Administration Building. In addition, an in-plant staging area is located at the Radiation Protection Access Control Area of the Unit II Turbine Building to which certain individuals are assigned in the event of an emergency. Other shift personnel and additional support personnel assemble at the OSC to provide assistance as necessary. A radio control console located in the maintenance area provides communications with the Control Room, TSC and EOF.

The OSC is required to be activated at the declaration of an Alert, Site Area Emergency, and General Emergency. Once activated, the OSC shall become operational as soon as possible (without delay) after declaration of any of these emergency classifications. When facility staffing can be accomplished with onsite personnel, it is the goal to become operational within 45 minutes. The backup OSC is located in the Control Building(Elevation 148').

7.3.3 Emergency Operations Facility (EOF)

The EOF (Figures 7-4 and 7-5) provides a location from which evaluation and coordination of all licensee activities related to an emergency is carried out. The EOF has the capability to obtain and display plant data and radiological information. The facility provides classification, accident assessment, notification, dose assessment, information to offsite groups, assesses the impact of the emergency offsite and provides the necessary support to assist the Emergency Organization.

The location for the EOF is in the Energy Services Center approximately 0.6 miles from the GGNS site. Figure 7-6 indicates the location of the EOF in relation to the plant. The EOF has a protection factor of 50 and its own ventilation system. The EOF contains the key technical personnel of the Emergency Organization. Space and communications are provided for federal, State, and local representatives at the EOF. The EOF provides a base of operation for Offsite Monitoring Teams and is the central point for the receipt of field monitoring data.

The EOF may be activated at any time, and shall be activated at an Alert, Site Area Emergency, and General Emergency declaration. Once activated, the EOF shall become operational as soon as possible (without delay) after declaration of any of these emergency classifications. When facility staffing can be accomplished with onsite personnel, it is the goal to become operational within 45 minutes. Otherwise offsite personnel shall provide shift augmentation in 75 minutes and be fully operational in 90 minutes.

7.3.4 Backup Emergency Operations Facility (BEOF)

The BEOF (Figure 7-7) is located at the Entergy Mississippi Baxter Wilson Steam Electric Station in Vicksburg, MS. In the unlikely event that the EOF had to be evacuated, the key EOF

personnel evacuate the area and relocate to the BEOF in accordance with Emergency Plan Procedure EN-EP-609. The BEOF is seventeen miles from the reactor. It is outside the ten mile EPZ but close enough to that responders can travel quickly to the site when it is deemed accessible by appropriate authorities.

The Control Room is notified of the situation and certain emergency response functions are transferred to the Control Room upon deactivation of the EOF. Once activated, the BEOF establishes communications with the Control Room.

The BEOF contains the following:

- Communications equipment that allows contacting the other Emergency Response Facilities, Federal, State and local officials as well as the capability of making Emergency Notifications.
- Equipment necessary to perform radiological assessment and communicate with field monitoring teams.
- Capability to access plant drawings and procedures and computer links to the site.
- Capability to access plant data systems and perform event classification.

7.3.5 Media Centers

GGNS utilizes the Joint Information Center (JIC) in Pearl, Mississippi as an information center during an emergency. The Joint Information Center (Figure 7-9) is the principle location for disseminating information about the emergency, arranges for timely exchange of information among designated GGNS, state, local, and federal spokespersons, media monitoring activities, responding to public and media inquires during emergencies, and performing rumor control function. Press conferences are held periodically, and equipment and facilities are available to support timely communication and information dissemination concerning plant conditions.

The Joint Information Center is activated at an Alert, Site Area Emergency and General Emergency.

7.3.6 Alternate Facilities

In the event that primary and back-up facilities are unavailable at GGNS there is an alternate facility available for the ERO

a. The Muster/Staging area is located at the Baxter Wilson Steam Electric Station (BWSES)in Vicksburg, Mississippi approximately 17 miles from Grand Gulf. This facility, which is co-located with the BEOF, is intended to host GGNS personnel, ERO, Security, RP etc., while preparing for reentry to the plant
b. The Alternate TSC is located next to the Staging/Muster area at BWSES in the Vicksburg Area Engineering Office. This office building has phones, a copier, a FAX and various computers, plotters and printers available.

7.4 County and State Emergency Centers

7.4.1 Claiborne County Emergency Operations Center

The Claiborne County Emergency Operations Center is located in the Port Gibson/Claiborne County Civil Defense Office in Port Gibson. The center is equipped with communications to the Control Room, TSC, EOF, the State Emergency Operations Center in Jackson and State supporting agencies. Functionally, the center coordinates all local emergency operations.

7.4.2 Mississippi State Emergency Operations Center

The State Emergency Operations Center (EOC) is located in Pearl Mississippi, approximately 60 miles from the site. The center has supplies and equipment to support state emergency operations activities, including communication links with other emergency operations centers. During an emergency, representatives from appropriate state agencies and GGNS assemble in the State EOC to coordinate response efforts.

7.4.3 Tensas Parish Emergency Operations Center

The Tensas Parish Emergency Operations Center is located adjacent to the Tensas Parish Sheriff's Office.

The center is equipped with communications to the Technical Support Center, Control Room, Emergency Operations Facility, Mississippi State Emergency Operations Center, the Louisiana State Emergency Operations Center (in Baton Rouge) and with Louisiana state supporting agencies. Functionally, the Tensas Parish EOC acts in parallel to the Claiborne County, Mississippi EOC and coordinate local emergency operations.

7.4.4 Louisiana State Emergency Operations Center

The LDEQ and GOHSEP representatives report to the Louisiana Emergency Operations Center in Baton Rouge, approximately 125 miles from the site, in the event of a nuclear emergency which requires activation of State resources. The center has equipment and supplies to support state emergency operations activities including communications links with other emergency centers.

7.5 Communications Systems

The communications systems are designed to ensure the reliable, timely flow of information and action directives between all parties having jurisdiction and a role to play in the mitigation of emergencies at GGNS. Reliability is provided via (1) extensive redundancy, (2) dedicated communication equipment to preclude delays due to system overload, and (3) routine use and testing of many of the systems, which lowers the probability of undetected system failures.

Timeliness of information flow is achieved by (1) prompt notification, (2) predefined lines of communications, (3) predefined emergency action levels and (4) predefined levels of

authority and responsibility. The GGNS communications network is formulated around this basic concept and is designed to channel information directly to the key parties having closely related functions, thus eliminating errors often associated with second hand information. By providing well defined and dedicated communications links, better accident management from physically separate control and support centers can be achieved. Provisions are made for State representatives to call and verify the authenticity of the accident and obtain additional information. The essential communications links are manned continuously and are periodically tested to assure availability. Figure 7-12 shows the communications interfaces between the onsite and offsite emergency facilities.

7.5.1 Telephone System

GGNS maintains telephone communication with the entire Entergy Corporation system via a Company-owned fiber-optic transmission system. Access to this mode of transmission is made via the plant telephone system. The GGNS plant telephone system also provides communications among the CR, TSC, OSC, EOF, JIC and public.

7.5.2 Plant Paging System & Sound Powered Phones

The plant paging system links together permanent plant structures, including the TSC and OSC, through a network of phone stations and speakers. Sound powered phones are provided in the TSC and OSC to enable direct communication with the Control Room and all areas of the plant containing sound powered outlet boxes. Amplified headsets are provided in high noise areas to ensure adequate communications capability with the Control Room.

7.5.3 Emergency Communications Equipment

a. Dedicated Communication Links

The following dedicated telephone and/or system links are established to provide a continuous (24 hour) means of communication during an emergency situation.

1. GGNS ORO Notification System An internet based notification system to connect the facilities listed in Table 7-1. The GGNS ORO Notification System is used for initial notification and ongoing communications to the locations listed in Table 7-1 for the duration of the emergency. Utilization of this system by GGNS activates the emergency response network by notifying each location simultaneously. The GGNS Operational Hotline (OHL) is used as a back-up to the ORO Notification System.

2. NRC Emergency Telecommunication System – Consists of the following dedicated Federal Telephone System circuits to provide direct communication with the NRC Operations Center, Bethesda, MD:

   a. Emergency Notification System (ENS) - is used to provide initial notification to, and ongoing communication with, NRC personnel in an emergency. The ENS is available in the Control Room, TSC, and EOF.

   b. Health Physics Network (HPN) - is used to provide requested radiological data to the NRC in an emergency. The HPN is available in the TSC and EOF.

   c. Reactor Safety Counterpart Link (RSCL) - is used by the NRC Site team and NRC Base Team to conduct internal NRC discussions on plant parameters without interfering with exchange of information between GGNS and NRC. This link may be used for discussions with the NRC Reactor Safety

personnel and GGNS plant Management. The RSCL is available in the TSC and EOF.

d. Protective Measures Counterpart Link (PMCL) - is used by the NRC Site team and NRC Base Team to conduct internal NRC discussions on radiological releases and meteorological conditions, and the need for protective actions without interfering with the exchange of information between GGNS and NRC. This link may also be used for discussions with NRC Protective Measures personnel and GGNS plant management. The PMCL is available in the TSC and EOF.

e. Emergency Response Data System (ERDS) - is used to transmit raw reactor parametric data from GGNS balance of plant computer to the NRC Operations Center. The ERDS is activated by GGNS at an Alert or higher declaration. The ERDS is available in the GGNS Control Room.

f. Management Counterpart Link (MCL) - is used for any internal discussion between NRC Executive Team Director and NRC Director of Site Operations or GGNS site management. The MCL is available in the TSC and EOF.

g. Operational Counterpart Link (OCL) or Local Area Network (LAN) Access - is used by the NRC Base Team and NRC Site Team to access products and services provided on the NRC Operations Center's local area network. The OCL is available in the TSC and EOF.

3. The GGNS Computerized Emergency Notification System is used to notify GGNS emergency response personnel upon declaration of an emergency.

a. The GGNS Computer Notification System is a hosted system that is a robust notification system that allows the ERO to be notified via a number of modalities (i.e. telephone, pager, SMS text, email, etc.) This system utilizes two data centers for all its productions systems in an Active-Active configuration. Data is continuously replicated between the two separate sites, and each site is capable of providing a full range of services. If service is disrupted at either site, all traffic is dynamically rerouted to the other site so that systems remain constantly available.

b. The GGNS Computer Notification System is activated using any internet connected computer or touch tone telephone. Use of a password guards against unintended activation. The password is readily available to the control room operating staff.

c. The GGNS Computer Notification System can be activated for any emergency classification. On call or alternate emergency response personnel will be notified to fill required response positions.

b. UHF Radios

1. Radios to connect the following facilities:

   a. Control Room/TSC/EOF/CAS/SAS

   b. Tensas Parish Sheriff Department

   c. Claiborne County Sheriff Department

The above mentioned UHF radio system serves as an alternate means of communications to notify local authorities of an emergency at GGNS.

2. UHF radios connect the Onsite and Offsite Monitoring Teams with the OSC and EOF respectively.

3. UFH radios are issued to OSC Emergency Response Team to connect them to the OSC.

c. Alarms

A number of warning devices are used onsite to indicate unsafe or emergency conditions.

1. Local Inplant Radiation Alarms.
2. Fire Alarm.
3. Site Evacuation Alarm.

7.5.4 Alert Notification System

An Alert Notification System has been provided that meets the design objectives of NUREG-0654, Appendix 3. The basic system consists of 43 sirens located in Claiborne County and Tensas Parish. Institutions located in the 10-mile EPZ are supplied with tone activated receivers which supplement the siren system. Port Gibson/Claiborne County Civil Defense and Tensas Parish Office of Homeland Security and Emergency Preparedness are responsible for activating the portion of the system within their respective jurisdictions. In the event of a failure of the Alert Notification System the EPZ population will be notified by route alerting in accordance with state emergency plans. Additional alert notification details are addressed in local and state emergency plans, the GGNS Emergency Public Information publication, and the Alert Notification System Final Report. Figure 7-13 indicates the siren locations for the 10-mile EPZ.

As discussed in Section 8.7, an effort is made to provide information to the transient population concerning protective measures. The means of notifying the transient population is the Alert Notification System.

7.6 Assessment Facilities

7.6.1 Onsite Systems and Equipment

a. Control Room Parameters

Appropriate parameters indicative of the status of the reactor and various plant systems are displayed in the control room.

The safety related control room display instrumentation that can be used to assess the condition of the plant is discussed in GGNS FSAR Section 7.5.

b. Area Radiation Monitoring System

The area radiation monitoring system detects and measures gamma radiation levels at various locations. It also provides audible and visual alarms in areas monitored and in the control room, if gamma radiation exceeds a specified limit. It provides visual indication in the area monitored and at a control room annunciator if there is a malfunction in any area monitor.

The containment area radiation monitors also provide information that can be used to determine the source term of a fission product release in the containment. An Emergency Plan Procedure contains guidance for the conversion of containment area radiation monitor readings in mR/hr or R/hr to offsite exposure.

Each area radiation monitoring channel consists of a detector and a local alarm unit at a remote location and an indicator and trip unit in the control room. A control room channel is provided with a detector in the control room. The area radiation monitor provided in the control room has no local alarm unit since the control room annunciator system provides alarms to the operators.

The following general areas are monitored by the Area Radiation Monitoring System:

1. Control Room
2. Radwaste building
3. Auxiliary building
4. Fuel storage and handling area

5. Various valve operating stations
6. Containment
7. Drywell
8. Various Sampling rooms
9. Turbine building
10. Radwaste Solidification Areas

c. Process and Effluent Radiation Monitoring Systems.

The main objective of required radiation monitoring systems is to initiate appropriate protective action to limit the potential release of radioactive materials from the primary and secondary containment if predetermined radiation levels are exceeded in major process/effluent streams. An additional objective is to have radiation monitoring systems available during all operating and emergency conditions to provide control room personnel with an indication of the radiation levels in the major process/effluent streams and alarm annunciation if high radiation levels are detected.

Certain effluent radiation monitoring systems also provide information that can be used to determine the source term of an unplanned radioactive release. They are used to correlate the activity levels in an effluent stream along with system flow rates to determine release rates in Ci/sec. Using the determined release rates and the appropriate meteorological stability class, radiation dose projections can be estimated for various distances from the site.

Emergency Plan Procedures include guidance for the determination of release rates and dose projections when the effluent monitors are off scale or inoperable.

The radiation monitoring systems (RMS) provided to meet these objectives are:

1. Main Steam Line RMS
2. Containment and Drywell Ventilation Exhaust RMS
3. Auxiliary Building Fuel Handling Area Ventilation Exhaust RMS
4. Auxiliary Building Fuel Handling Area Pool Sweep Exhaust RMS
5. Turbine Building Ventilation Exhaust RMS
6. Radwaste Building Ventilation Exhaust RMS
7. Standby Gas Treatment System RMS

d. Fire Protection

The fire protection system consists of an outside yard loop with three fire pumps and one jockey fire pump, hydrants, sprinkler systems, deluge CO_2 systems, Halon systems, standpipe hose stations, portable fire extinguishers, ionization smoke detectors, heat sensors, alarm systems, fire barriers, two fire water storage tanks and associated piping, valves and instrumentation.

Three redundant 50 percent capacity pumps (1 electric and 2 diesel driven) and closed-loop piping ensure delivery of extinguishing water with one pump and one leg of the piping loop out of service.

Fire and smoke detection systems are provided for the switchgear areas, battery rooms, control room, cable penetration areas, and other areas, based on the results of the fire hazards analysis included in the FSAR. In addition, a GGNS-owned fire truck is maintained onsite. The fire truck may be taken offsite for various reasons (i.e. training, vehicle maintenance, etc.).

e. Geophysical Monitoring

1. Seismic Monitoring

Activation of any accelerometer causes an audible and visual annunciation in the control room to alert the plant operator that an earthquake has occurred. This annunciation is set to occur at 0.01 g vertical acceleration in the Horizontal or Vertical directions as detected at the Containment Basemat or Drywell, and may include other areas as determined by system requirements. The accelerometers trigger the initiation of the strong-motion accelerometers recording system at horizontal or vertical acceleration levels slightly higher than the expected background level, including induced vibrations from sources such as traffic, elevators, people, and machinery.

System equipment includes:

a. Six triaxial time/history strong-motion accelerometers (SMA)
b. Seven triaxial peak-recording accelerographs
c. Recording and playback equipment

A cabinet located in the Control Room houses the recording, and calibration unit that is used in conjunction with the SMA sensors to produce a playback record of the earthquake. It also contains the audible and visual annunciators wired to display initiation of the time/history recorder, and the power supply components for all equipment contained within the cabinet and in the field. Equipment is installed in the cabinet for data analysis.

Should the GGNS seismic monitoring system fail, backup seismic information would be obtained through a coordinated effort with the

Mississippi Bureau of Geology. That agency receives seismic information from Memphis, Tennessee, Panola County, Mississippi, and Mobile, Alabama. The Mississippi Bureau of Geology would be requested to obtain real-time seismic information and to relay this information by telephone to GGNS. Although these seismic monitoring stations are located some distance from GGNS, because of the sophistication of the detection equipment, they should be able to keep the GGNS site informed of any seismic activity within the state of Mississippi.

2. Meteorological Monitors

The onsite meteorological tower, located approximately 5,300 feet northwest of the control building is 162 feet high and has the following instruments installed:

Surface	Tipping bucket rain gauge
	Delta Temperature translator
	(utilizes 33 and 162 foot temperature sensors)
33 feet	Wind speed sensor
	Wind direction sensor
	Temperature sensor
	Relative Humidity
162 feet	Wind speed sensor
	Wind direction sensor
	Temperature sensor

The meteorological system utilizes local digital storage modules and Plant Data System digital storage.

GGNS also utilizes a back-up meteorological system which provides meteorological information to the control room, if the primary meteorological system fails. The instrumentation on the backup system is listed below:

33 feet	Wind speed sensor
	Wind direction sensor
	Temperature Sensor

In the unlikely event that both the primary and backup meteorological systems were inoperable, the tertiary means of obtaining wind speed and direction data would be through the National Weather Service or the U.S. Corps of Engineers, Waterways Experiment Station.

An Uninterruptible Power Supply (UPS) is utilized to power the meteorological system instrumentation and components to ensure that a 90% data recovery is achieved. All components of the UPS/Back- up Power Supply are located at the Meteorological Station.

f. Hydrological Monitors

A groundwater level monitoring program is established to provide data on the seasonal fluctuations of the regional groundwater operations to define the zone of depression caused by plant pumping operations and to monitor the level of the perched groundwater table at the plant site. In the event that GGNS personnel were unable to conduct the hydrological sampling program, this information could be supplied by the U.S. Geological Survey, which monitors groundwater levels in the town of Port Gibson.

g. In-Plant Airborne Iodine Monitoring

In reference to Section 7.6.3.1 of GGNS Technical Requirements Manual, a program is established which ensures the capability to accurately determine the airborne iodine concentration in vital areas under accident conditions. This program includes the following:

1. Training of personnel
2. Procedures for Monitoring, and
3. Provisions for maintenance of sampling and analysis equipment.

7.6.2 Offsite Monitoring Equipment and Facilities

GGNS has been conducting and continues to conduct an environmental radiological monitoring program for the Station.

The ongoing objectives of the program are:

a. To determine whether any statistically significant increase occurs in the concentration of radionuclides in critical pathways.
b. To detect any buildup of long-lived radionuclides in the environment.
c. To detect any change in ambient gamma radiation levels.
d. To verify that radioactive releases are within allowable limits and that plant operations have no detrimental effect on the health and safety of the public or on the environment.
e. To fulfill the radiological environmental surveillance requirements of the GGNS Technical Specifications.

The monitoring program provides the following: (1) the gathering of data on environmental radiation levels and the Station's degree of influence on these levels; (2) checks for specific radioisotopes to detect their introduction into the surroundings; (3)

a background for a continually developing program of radiological assessment.

Ambient radiation is measured by dosimeters of legal record (DLR). These DLRs are installed at various onsite and offsite locations. The locations have been selected based on available meteorological data, prevailing wind direction and population concentration. During normal operating conditions, quarterly measurements of the environmental dose rates are made. During an emergency, incremental and time integrated dose measurements can be made by selective and periodic changing of DLRs. The locations of existing environmental monitoring stations are given in the GGNS Technical Requirements Manual. Environmental monitoring stations have been located to ensure compliance with the NRC Radiological Assessment Branch Technical Positions for the Environmental Radiological Surveillance Program.

7.6.3 Radiological Assessment Laboratories

The GGNS Chemistry Department has isotopic analysis capability available for onsite radiological analysis.

The Mississippi State Department of Health Laboratory, located in Jackson, MS, would be setup to receive samples in the event of a Site Area Emergency or General Emergency. They could be expected to be ready within 1 to 2 hours of notification. This laboratory has the capability to measure beta-gamma emitters, including radioiodine in environmental samples (soil, vegetation, water, and air). Data from this laboratory may be provided to each agency's representative in the Emergency Operations Facility by radio communications established by each agency or by normal phone communications with the Mississippi State Department of Health or Louisiana Department of Environmental Quality. Additional mobile laboratories with similar capabilities are available from DOE, Region III, Oak Ridge, TN (estimated response time 12 hours) and EPA, Region IV, Montgomery, AL (estimated response time 9 hours).

7.6.4 Post-Accident Sampling Capability

Through the use of installed emergency sampling equipment, measurements and analysis can be performed onsite to assess the magnitude of the radiological hazards associated with an emergency condition. Specifically, a system is installed to obtain samples from the following locations:

a. RHR A and B
b. Containment Atmosphere
c. Suppression Pool

The offsite radiation monitoring teams have the capability to determine the extent of the radiological hazard in the environment. Environmental air samplers and portable equipment are available for the following assessment in the field within the 10-mile EPZ:

a. Beta-gamma radiation from the plume and/or ground contamination.
b. Iodine concentration and assessment of inhalation and thyroid dose by using air samplers with iodine specific cartridges and portable and fixed analyzers. The technique to be used to determine radioiodine concentrations in a radioactive plume is described in Emergency Plan Procedures. This technique allows the determination of radioiodine concentrations in the field with a minimum detectable activity of 1×10^{-7} uCi/cc in the presence of interfering noble gases and background radiation.
c. Water sampling for later analysis to assess contamination due to liquid release pathways can also be done by offsite monitoring teams.

The offsite monitoring teams dispatched from GGNS consist of 2 members. Transportation is available using designated GGNS vehicles, with normal deployment

expected to be within approximately 90 minutes following notification.

Emergency Plan Procedures have been established that relate the various measured parameters to integrated doses. Provisions have been made for estimating integrated dose from the projected and actual dose rates and for comparing these estimates with the protective action guides.

7.7 Protective Facilities

Emergency situations may arise, whether it be man-made or natural causes, which require that protective action be initiated to assure the safety of personnel. Predetermined procedures to be initiated in the event of a fire, tornado, or earthquake are contained within the plant operating procedures. An important consideration in the protection of the Grand Gulf personnel is for the immediate removal of those personnel not essential for the control of the plant. Security Personnel would be examples of those required to remain onsite. In the event of an emergency situation, the appropriate notification is made. Upon notification, all personnel onsite should either assume their prearranged emergency responsibilities or should follow instructions given over the PA system. This permits accountability of personnel before leaving the site or being assigned to an emergency team.

7.8 First Aid and Medical Facilities

First aid equipment and facilities at Grand Gulf are available to handle a wide range of emergency situations from minor first aid to transporting a seriously injured individual to an offsite medical facility. Readily available first aid is provided by Plant Staff personnel that are first aid trained. First aid kits containing items typically needed to care for minor injuries are located in the following areas:

a. Control Room
b. Maintenance Shop

c. EOF

A first aid treatment room is located in the Health Physics Access Control Area on the 93 foot level of the Control Building and is equipped with normal industrial first aid supplies.

7.9 Rescue and Damage Control Equipment

Rescue and damage control equipment consists of normal and special purpose tools and devices used in the course of maintenance and operational functions throughout GGNS. Personnel who are assigned to use rescue and damage control equipment in an emergency are familiar with the locations and use of specific equipment. To ensure that adequate supplies are available for usage during plant emergency conditions, rescue and damage control equipment is located in the Maintenance Shop. Typical supplies contained in these cabinets are listed in Appendix B. Bulky items, such as hydraulic jacks, cutting and burning rigs, and portable generators, are not stored in emergency facilities and may be obtained from maintenance control areas, the Warehouse, or Maintenance Shop.

The GGNS Maintenance and Operations Sections are responsible for inventories of tools, equipment, and vehicles assigned to their respective section. As such, during work days, Supervisors in each section may authorize the use of tools, equipment, and vehicles as the situation demands. Furthermore, the Shift Manager has immediate access to shops, tool cribs, lockers, vehicles, rescue and damage control equipment, and other material during backshifts and weekends.

7.10 Personal Protective Equipment

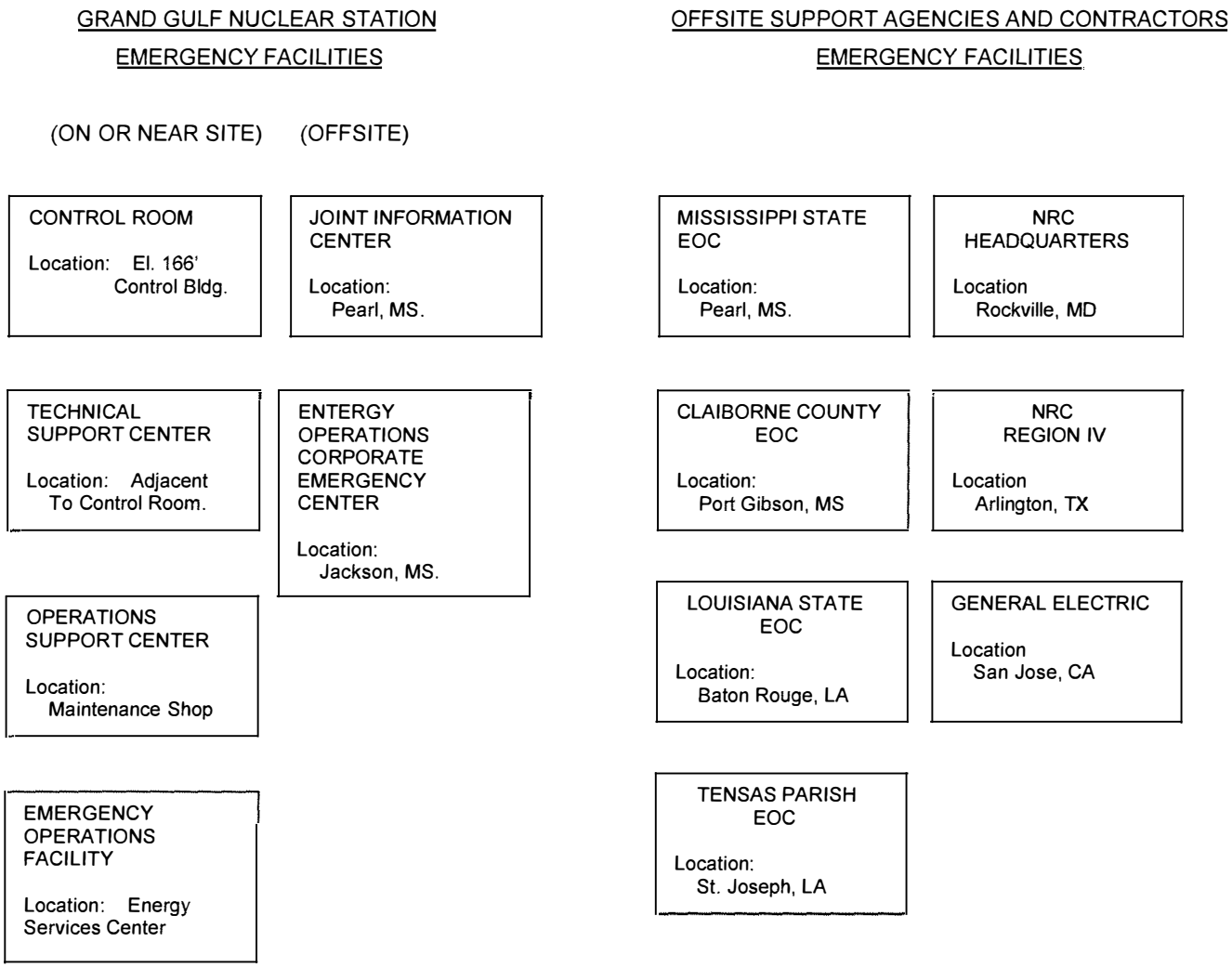
To protect personnel remaining onsite and/or arriving onsite during the emergency, quantities of personal protective equipment, including anti-contamination clothing and individual respiratory equipment are maintained on site. Protective clothing and individual respirators/

masks are stored in the emergency cabinets located in the Control Room, the TSC, the OSC, and the EOF. This equipment is inspected, inventoried, and operationally checked on at least a quarterly basis in accordance with Section 8.6.

TABLE 7-1

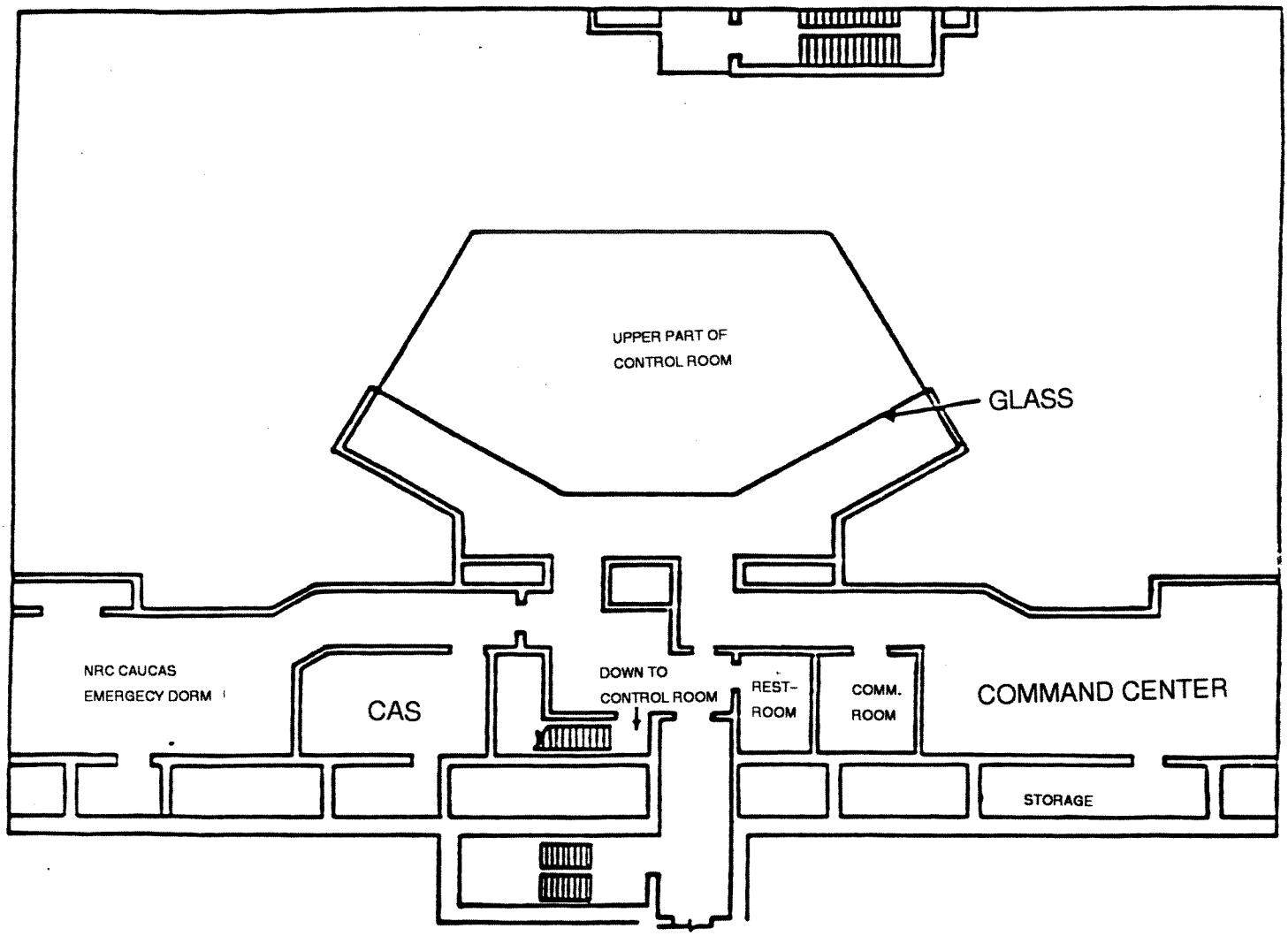
GGNS ORO NOTIFICATION SYSTEM

LOCATION	(USUAL) CONTACT	ALTERNATE
Control Room	Control Room Communicator	Control Room Operator
Emergency Operations Facility	EOF Offsite Communicator	Alt. EOF Offsite Communicator
Entergy Operations Corporate Emergency Center	Information Coordinator	Logistics Coordinator
Mississippi Emergency Management Agency	Director, MEMA	Comm. Officer, MEMA
Mississippi Highway Safety Patrol	Comm. Officer, MHP	Dispatcher, MHP
Claiborne County Civil Defense	Director, CCCD	Asst. Director, CCCD
Claiborne County Sheriff's Department	Sheriff, CCSD	Dispatcher, CCSD
Louisiana Department of Environmental Quality	Secretary of LDEQ	Radiological Emergency Planning & Response Staff
Tensas Parish Sheriff's Office	Sheriff, TPSO	Dispatcher, TPSO
Governor's Office of Homeland Security and Emergency Preparedness	Assistant Secretary, GOHSEP	Comm. Officer, GOHSEP



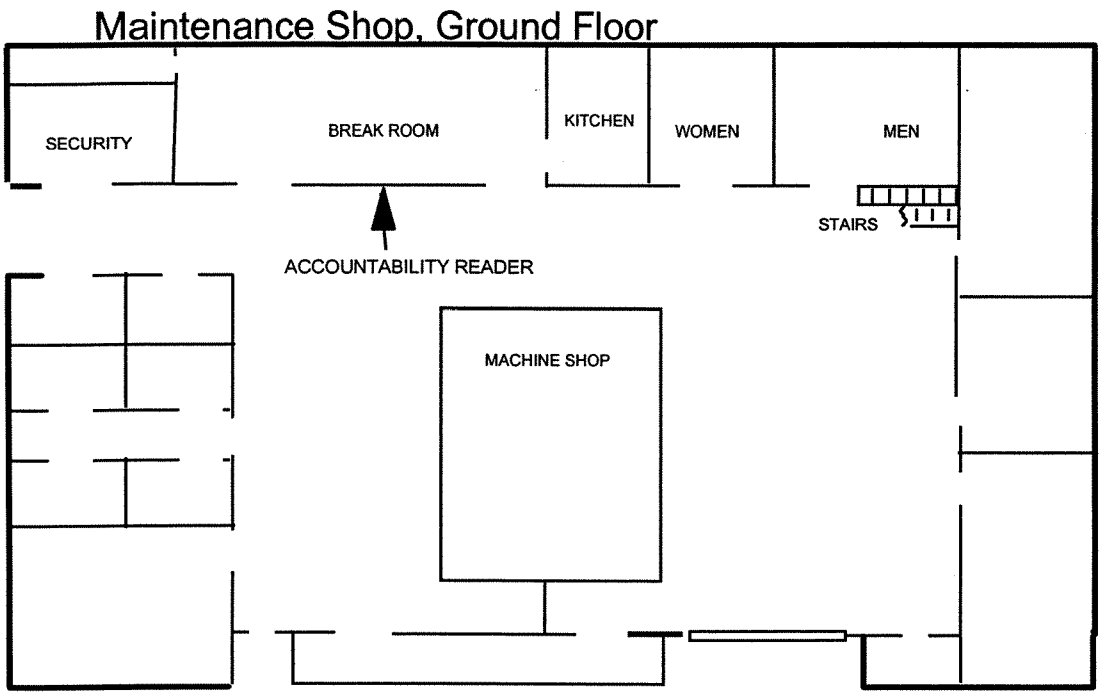
EMERGENCY FACILITIES

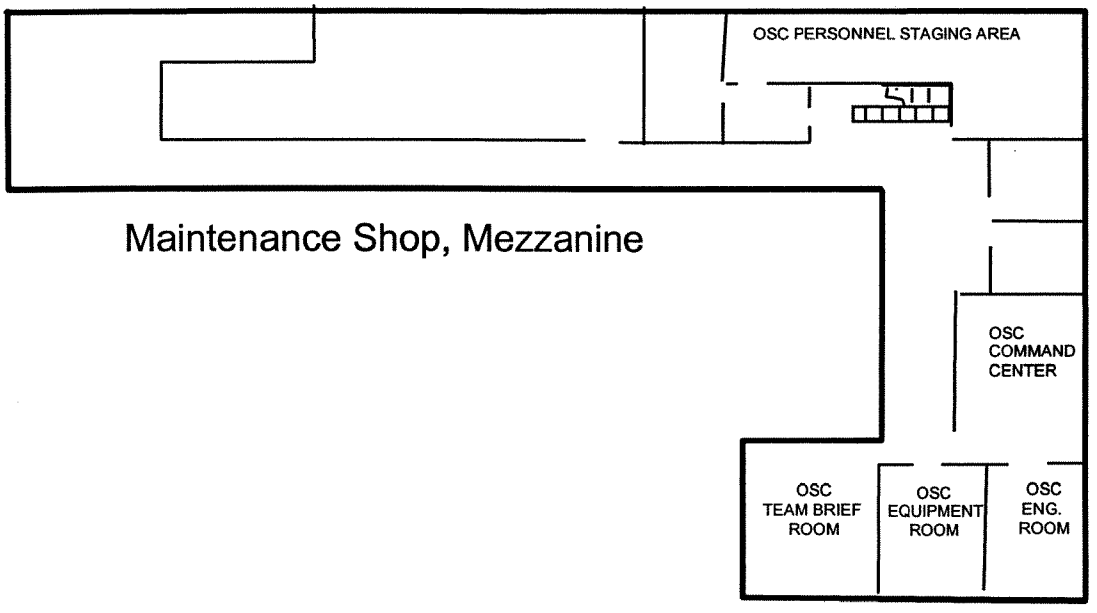
Figure 7-1



TECHNICAL SUPPORT CENTER

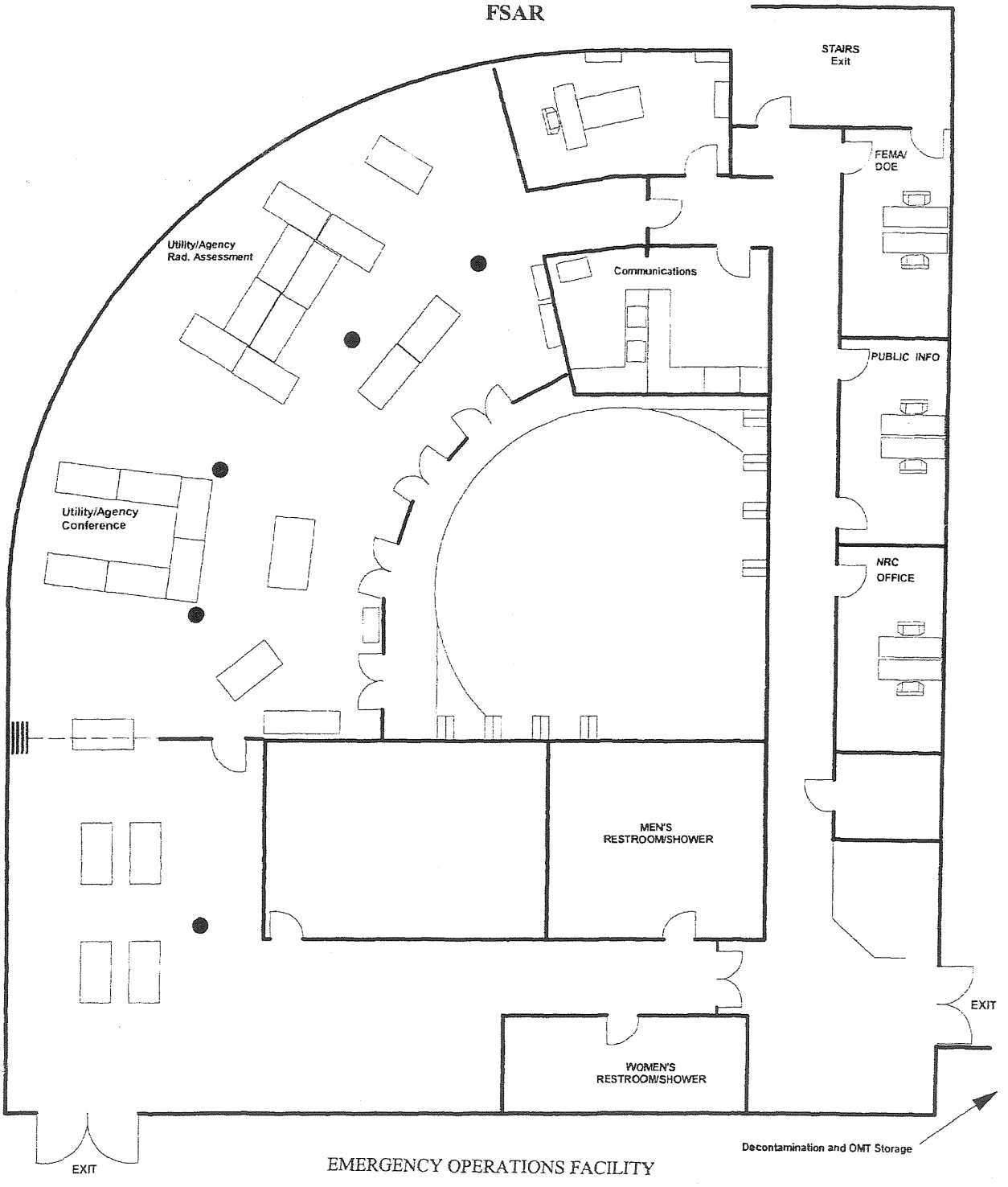
FIGURE 7-2





OPERATIONS SUPPORT CENTER

FIGURE 7-3

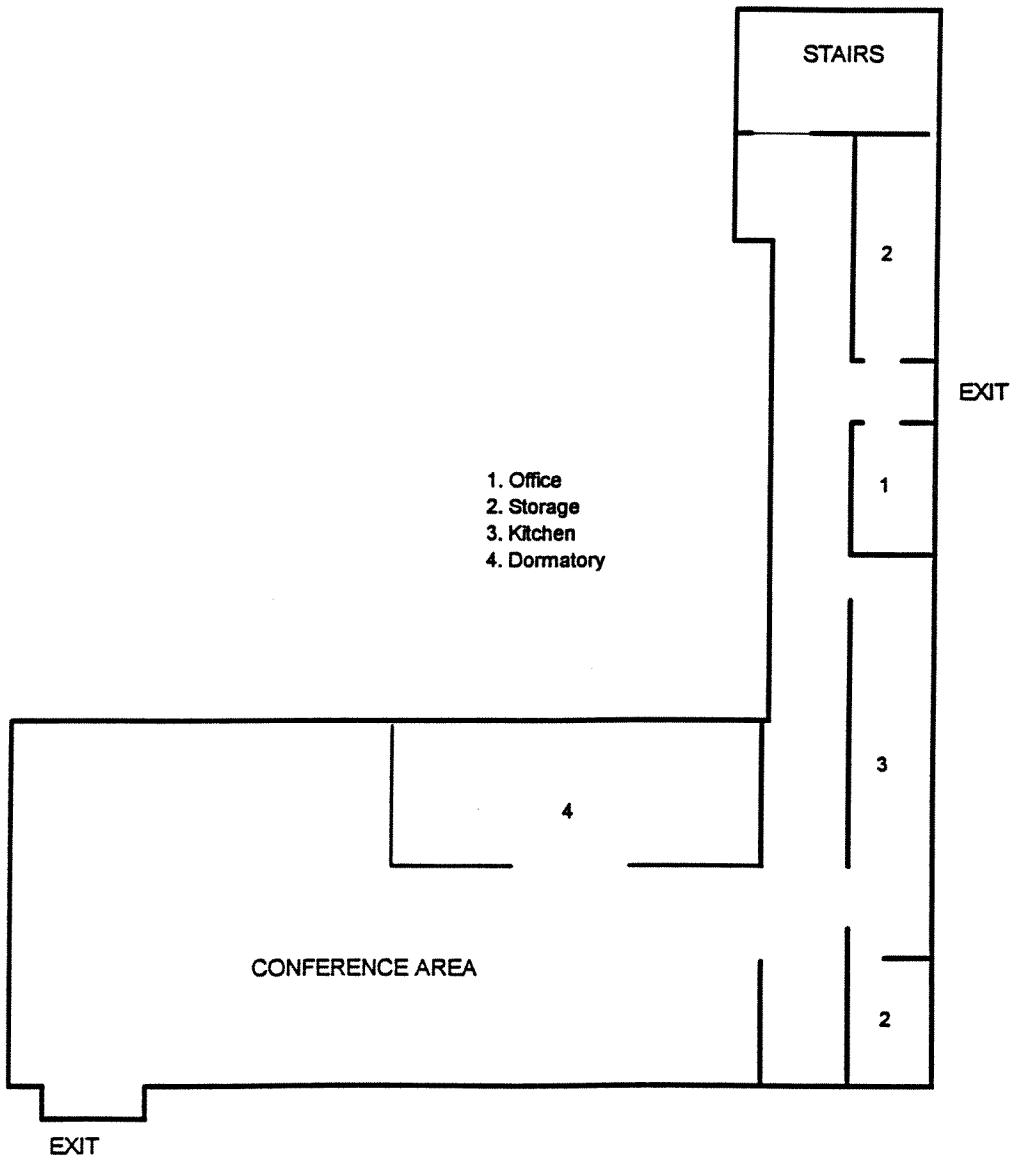


EMERGENCY OPERATIONS FACILITY

LEVEL I

FIGURE 7-4

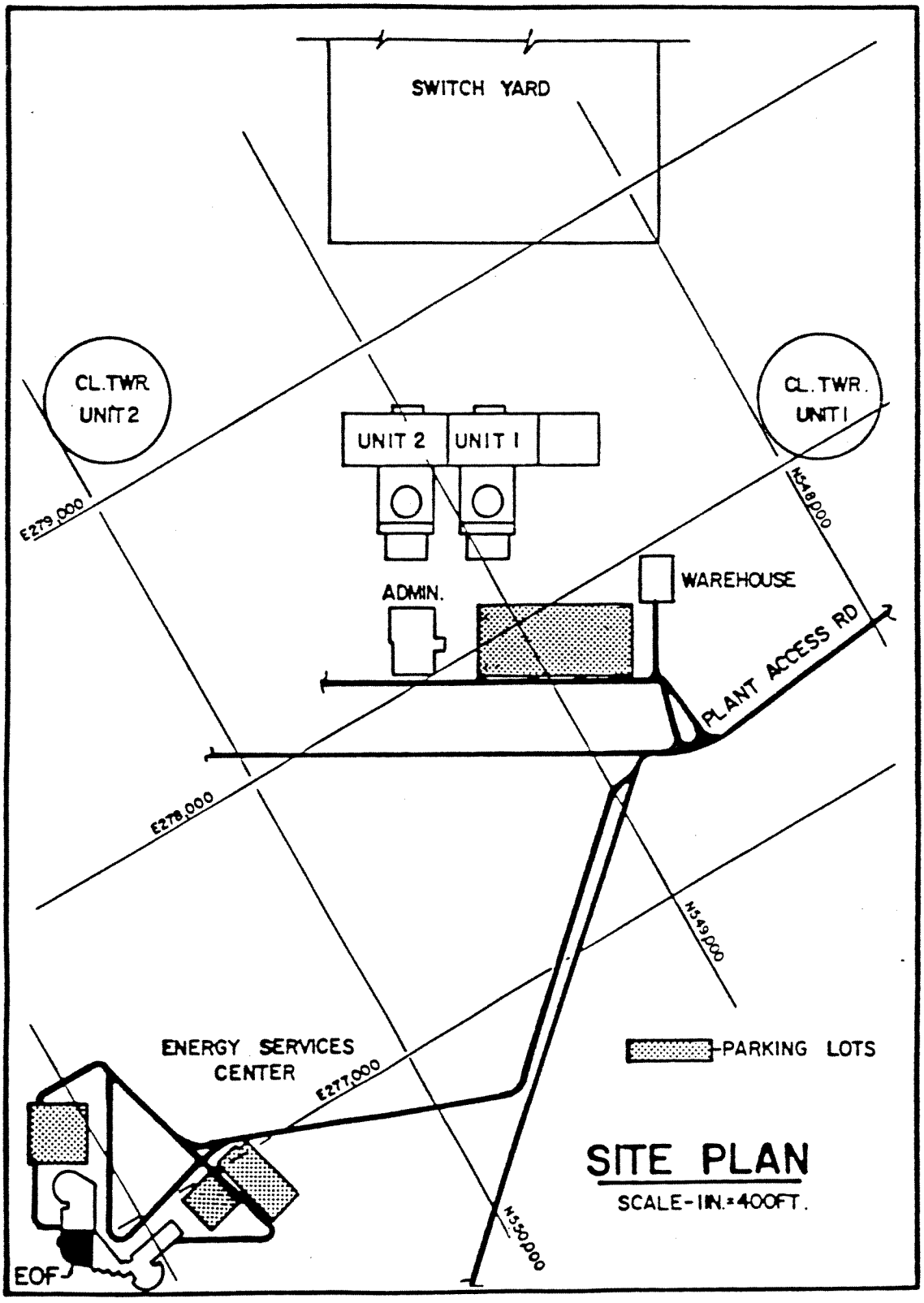
EMERGENCY OPERATIONS FACILITY



EMERGENCY OPERATIONS FACILITY

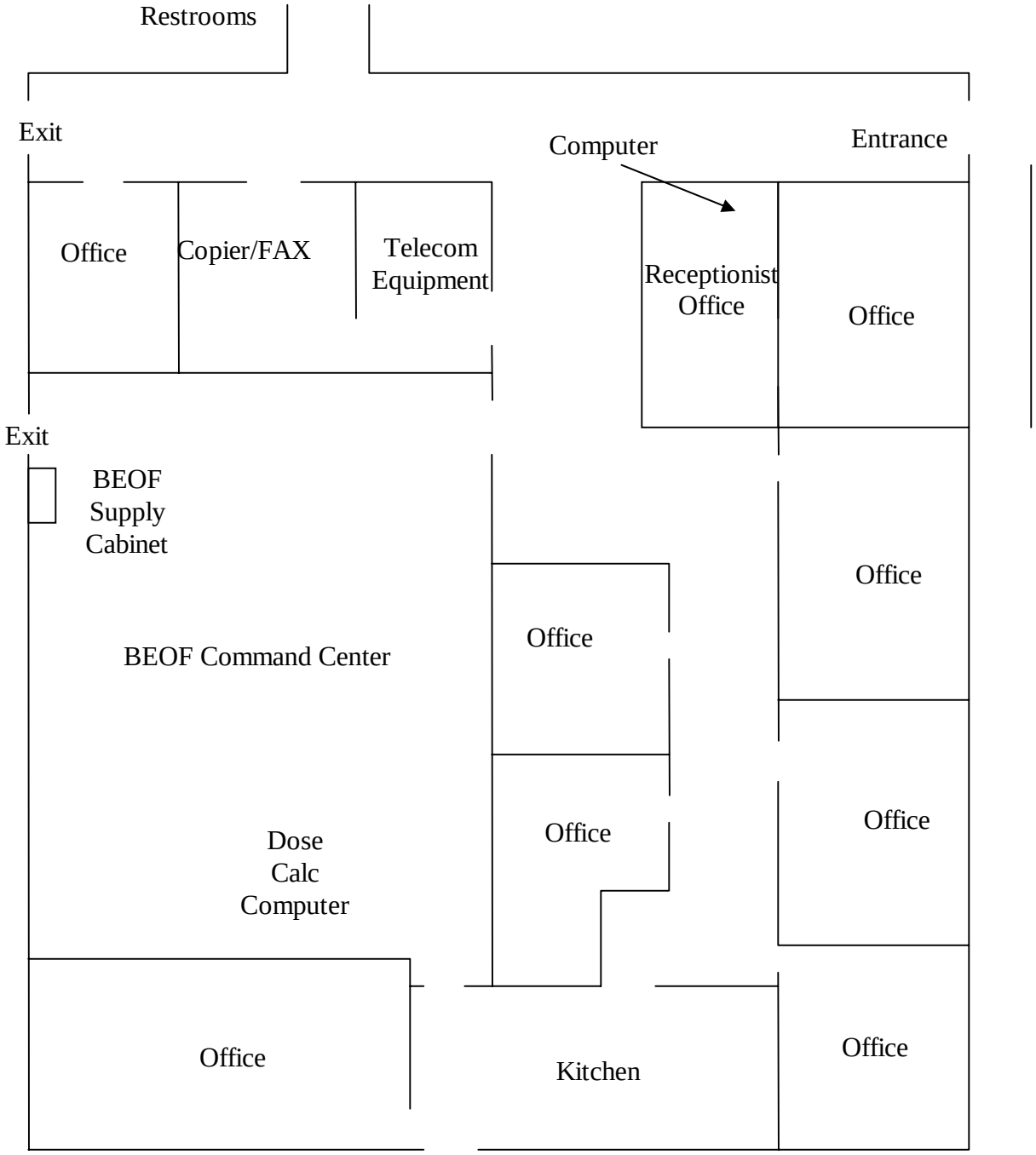
LEVEL II

FIGURE 7-5



EMERGENCY OPERATIONS FACILITY LOCATION

FIGURE 7-6



BACKUP EMERGENCY OPERATIONS FACILITY

FIGURE 7-7

Alternate Facilities

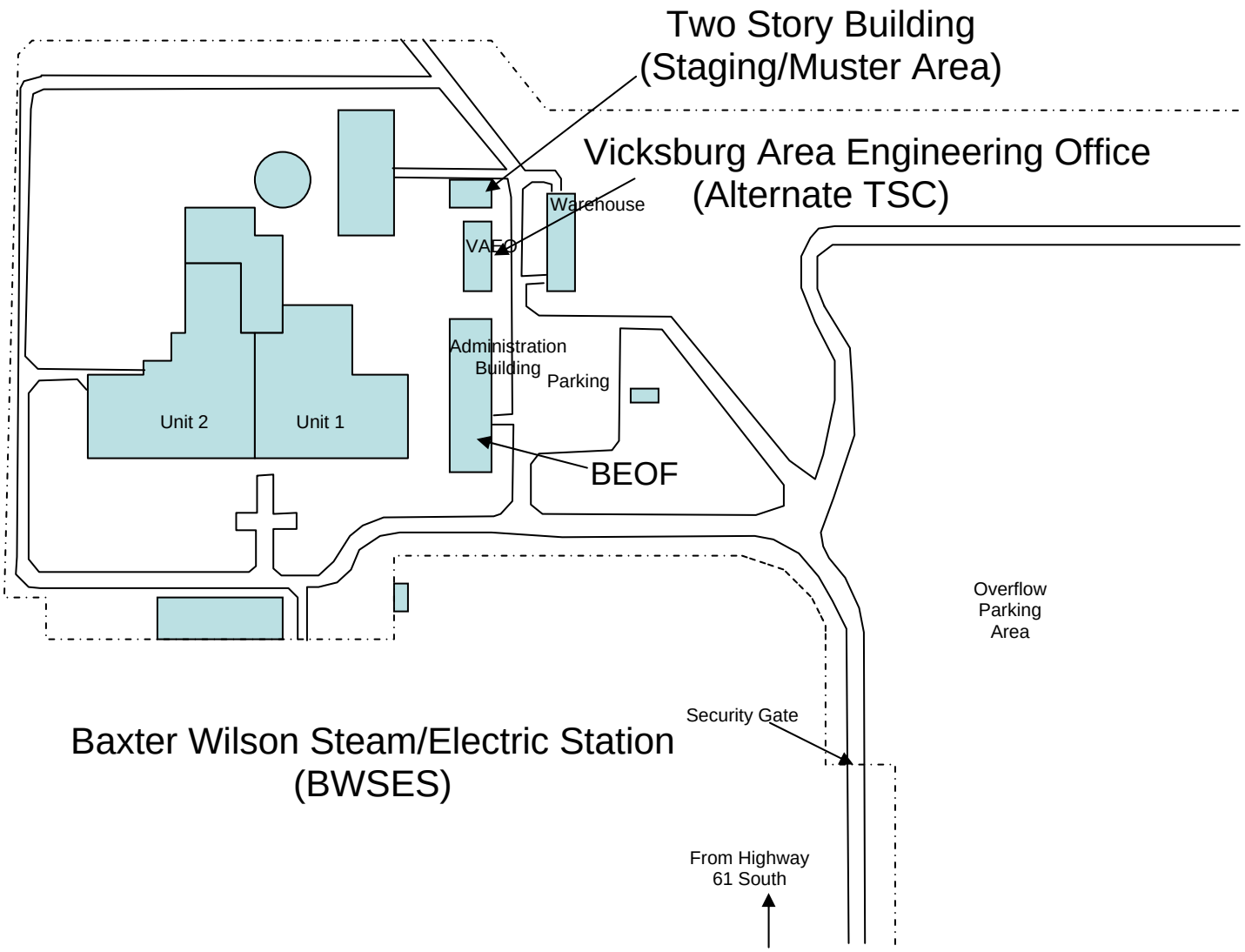


Figure 7-8

Joint Information Center Layout

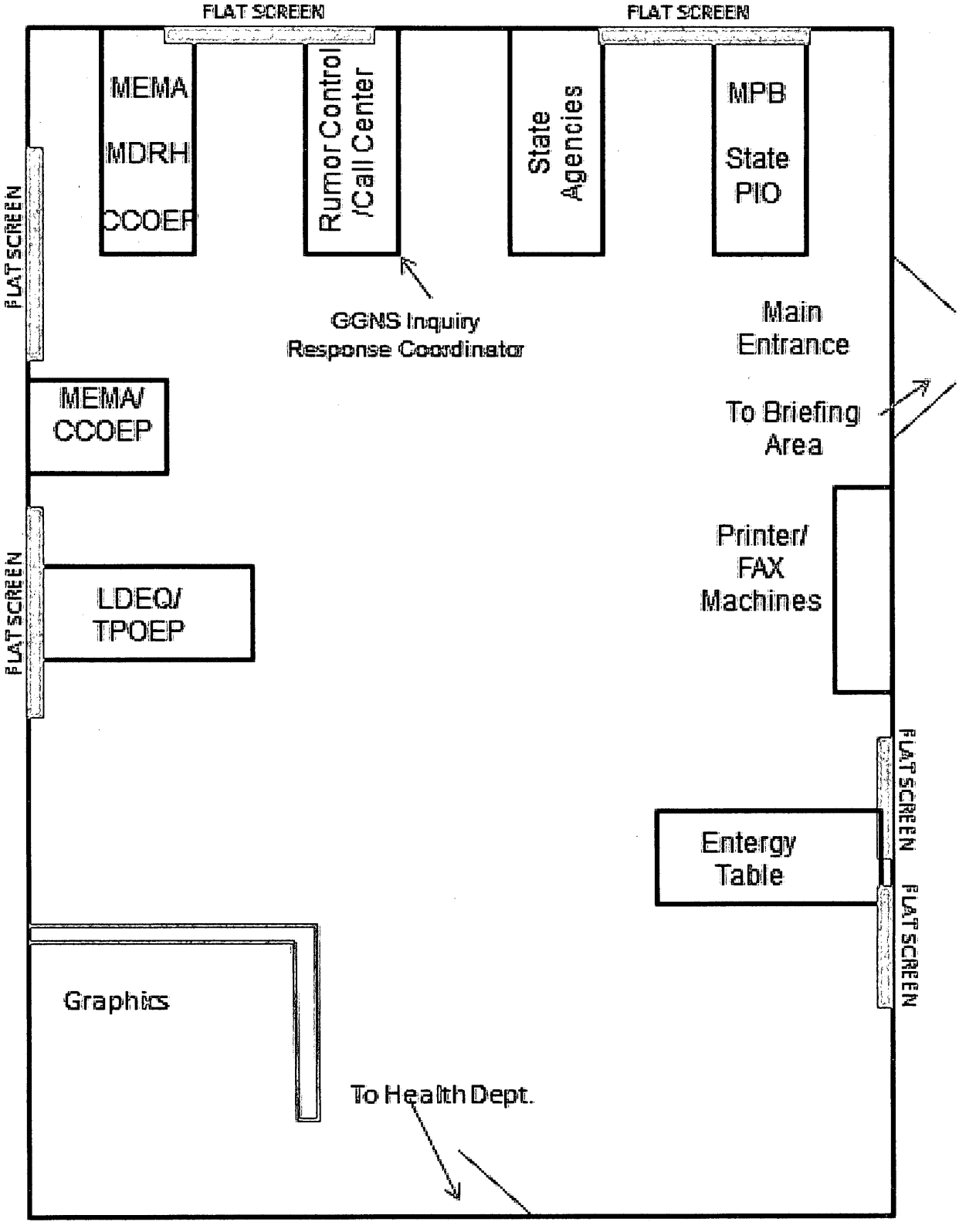
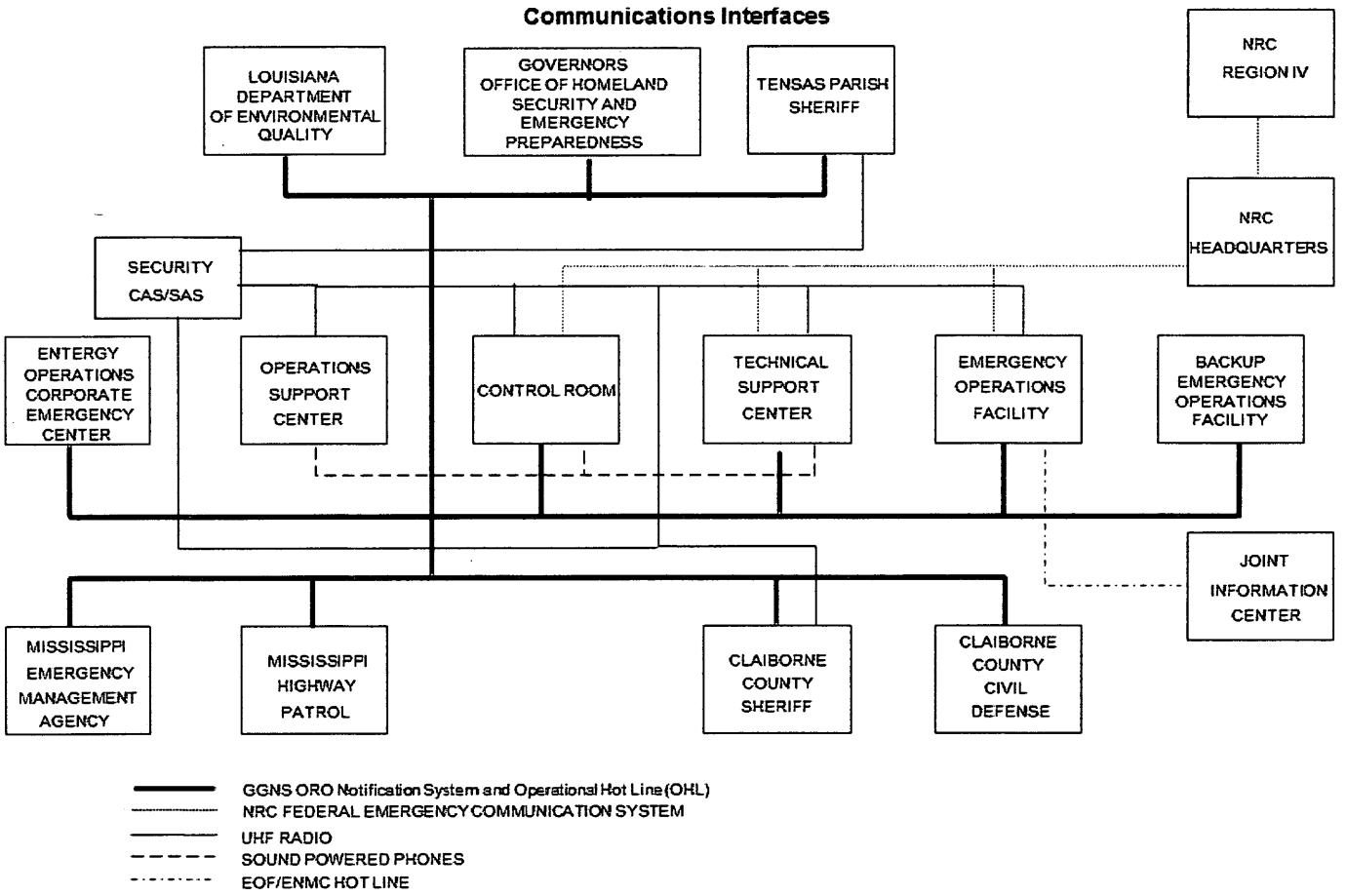


FIGURE 7-9

FIGURE DELETED

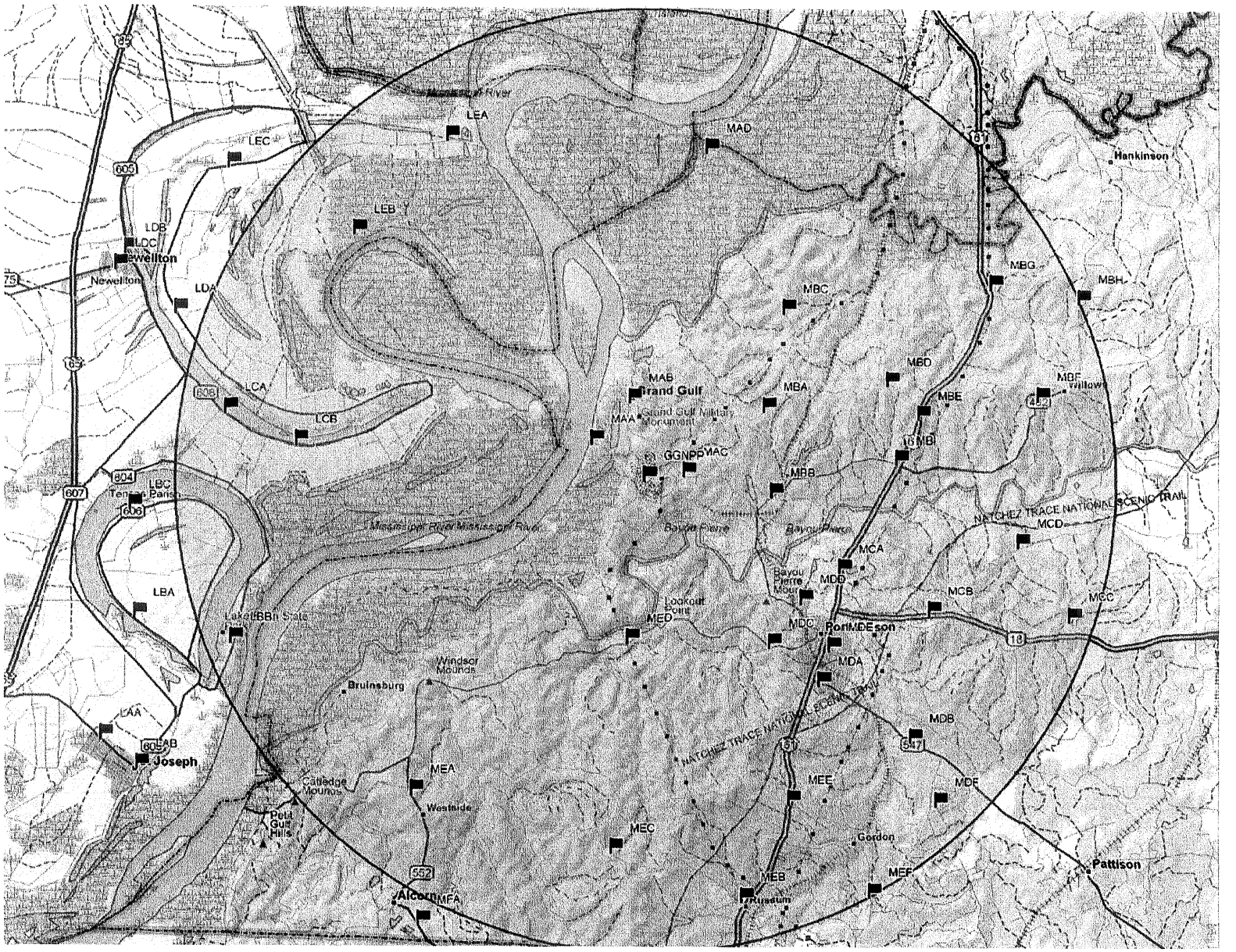
FIGURE 7-11 DELETED

GG
FSAR



Communications Interfaces

FIGURE 7-12



Siren Locations
Figure 7-13

8.0 MAINTAINING EMERGENCY PREPAREDNESS

8.1 Organizational Preparedness

GGNS recognizes its responsibilities to take measures necessary to maintain emergency preparedness for all personnel who may be involved in a station emergency. The Site Vice President, through the Director, Regulatory and Performance Improvement has authority and responsibility for establishing management direction and control to assure that preparedness is maintained and that any required corrective actions are implemented.

The Manager, Emergency Planning is delegated the overall responsibility for implementation of the emergency preparedness program, including training, drills and exercises involving GGNS Emergency Organization Personnel. The Manager, Emergency Planning has access to and reporting relationships with Corporate Emergency Preparedness senior management and GGNS 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 Manager, Training & Development is responsible for providing required Emergency Preparedness Training for personnel who are part of the GGNS Emergency Response Organization, commensurate with their positions in the emergency organization.

8.2 Training

All Entergy Operations personnel who are part of the GGNS Emergency Response Organization are required to participate in a formal Emergency Preparedness Training Program. The overall program consists of the following:

a. Plant Access Training for all unescorted personnel in the protected area.
b. Emergency Preparedness Training Specialized (EPTS) and Emergency Plan Procedure training for all emergency response personnel as required.
c. Fitness For Duty (FFD) training for all emergency response personnel in the protected area and the EOF.

An orientation and training program is offered for all outside support agencies such as the local fire department, law enforcement, ambulance, hospital services, and civil defense/emergency preparedness.

8.2.1 General Emergency Plan Training

A program is developed to provide information on the Emergency Plan to all personnel (excluding visitors) coming on site for the first time and to all personnel participating in the annual retraining program. The following objectives are met:

a. To train personnel with respect to their responsibilities during an emergency situation

b. To keep personnel informed of any applicable changes to the Emergency Plan.

In order to meet these objectives, instructions concerning the following are given to all personnel:

a. Signals and Alarms

b. Evacuation routes and procedures

c. Response during an emergency

8.2.2 Emergency Preparedness Training Specialized and Emergency Plan Procedure Training

Emergency Organization Personnel receive on an annual basis, training in emergency response. This training program ensures continued emergency preparedness of all persons who may participate in a station emergency. Emergency Preparedness Training Specialized (including the scope, nature and frequency) is provided and includes, but is not limited to, the following categories:

a. Directors or coordinators of the response organizations;

b. Personnel responsible for accident assessment;

c. Radiological monitoring teams and radiological analysis personnel;

d. Security;
e. Repair and damage control/correctional action teams;
f. First aid and rescue personnel;
g. Corporate support personnel filling GGNS Emergency Response Organization Positions;
h. Personnel responsible for transmission of emergency information and instructions.
i. Fire fighting

Specific emergency training courses and frequency are referenced in the Emergency Preparedness Training Program.

8.2.3 Orientation and Training Program for Offsite Support Agencies

The Manager, Emergency Planning ensures training is provided for appropriate offsite support agencies. These agencies include local fire, law enforcement, ambulance, and hospital services. Assistance may be provided as needed by personnel from Training, Health Physics, Operations, Security, or Corporate Communications. This emergency plan training includes the following topics as a minimum:

a. Grand Gulf Nuclear Station site layout
b. Communications interfaces and procedures between the onsite organizations and the offsite support agencies
c. Expected responses to emergencies
d. Anticipated protective actions
e. Basic health physics and radiation protection
f. Primary and alternate plant access routes and access procedures.

Local civil defense/emergency preparedness personnel are provided training through participation in joint utility/ state/local status meetings, through invitations to attend the training offered to the agencies listed above, and through their respective state emergency

preparedness organization(s). Grand Gulf Nuclear Station may also provide assistance in the training of other county/parish emergency organization personnel, if requested to do so. Emphasis is placed on the interfaces between the station and the state and local emergency organizations, communications procedures, basic radiation protection, and the expected roles of the offsite response agencies.

8.3 Drills and Exercises

Periodic exercises are conducted to evaluate major portions of emergency response capabilities; periodic drills are conducted to develop and maintain skills; and deficiencies identified as a result of exercises and drills are utilized to update the Plan and procedures.

The general purposes of drills and exercises are as follows:

a. To test the effectiveness, timing and content of the Emergency Plan and Emergency Plan Procedures
b. To test the emergency facilities and equipment
c. To ensure that emergency organization personnel are familiar with their duties and responsibilities.

An exercise is an event that tests the integrated capability and a major portion of the basic elements existing within emergency preparedness plans and organizations. An exercise simulates an emergency resulting in potential or actual offsite radiological releases that would require response by offsite authorities. A limited exercise is an event that has limited objectives and tests one or more specific portions of the basic elements existing within emergency preparedness plans and organizations.

A drill is a supervised instruction period designed to test, develop and maintain skills. A drill may be a component of an exercise or limited exercise. Drills are supervised by qualified personnel and on-the-spot correction of erroneous performance is permitted.

8.3.1 Drill and Exercise Scenarios

Exercises and limited exercises are based upon preplanned scenarios with observers assigned to various locations to monitor the actions of the Emergency Organization personnel. The sequence of events normally followed for exercises is:

a. Prepare the scenarios and review them with key officials of participating organizations (the actual details of exercise scenarios are kept confidential)
b. Submit exercise scenarios to the NRC as required by 10CFR50 Appendix E.
c. Assign and brief observers - qualified observers from the utility, state/local government as well as observers from the NRC, FEMA, and the Regional Assistance Committee
c. Conduct the drill/exercise
d. Critique the drill/exercise as soon as practicable after it is conducted
e. Make necessary changes as a result of the critique review, and;
f. Provide documentation to the Manager, Emergency Planning, Director, Regulatory and Performance Improvement and Site Vice President.

Drill scenarios are prepared by the individual responsible for conducting the drill, and are approved by the appropriate level of management. Drills may involve a single individual, section or department, or they may involve parts of the emergency organization.

State and local support agency participation during exercises are conducted under the biennial exercise requirements of 44CFR350. Scenarios, as appropriate, must emphasize coordination among onsite and offsite response organizations. The scenarios to be used for exercises are varied from year to year; operations in various weather conditions; during each eight-year cycle one drill or exercise is held between 6:00 p.m. and 4:00 a.m.; some of the drills or exercises are unannounced. Offsite participation is not required for off-hours or unannounced drills and exercises. Scenarios include the following:

a. Basic objectives and appropriate evaluation criteria
b. Dates, locations, and organizations expected to participate
c. Listing of simulated events

d. Time schedule (real and simulated)

e. Narrative summary including information such as simulated casualties, offsite fire department assistance, rescue of personnel, use of protective clothing, deployment of radiological monitoring teams, public information activities, etc.

f. Observer assignments and advance materials consisting of the scenario, evaluation criteria, performance objectives, and observer check sheets.

g. The opportunity for the ERO to demonstrate key skills specific to emergency response duties in their facilities.

8.3.2 Drill and Exercise Schedule

The following drills and exercises are conducted to ensure that the Emergency Organization maintains a high degree of readiness.

a. Communications Drills

Communications are tested on a monthly basis with the State and local governments within the plume exposure pathway of the Emergency Planning Zones (10 mile EPZ), and with the NRC.

Communications are tested on a quarterly basis with those State Emergency Response Organizations within the ingestion pathway (50 mile EPZ).

Communications drills include the aspect of understanding of the contents of messages. In addition, the communications drills may be utilized to review and update emergency telephone numbers.

Communications are tested annually with Federal emergency response organizations.

Communications are tested annually between the Control Room, TSC and the EOF, and between the site, state/local EOCs and field assessment teams.

b. Emergency Repair Team

A drill is conducted on an annual basis to determine the effectiveness of the Emergency Repair Team members and their equipment.

c. Fire Brigade

Each fire brigade is drilled as required by UFSAR Section 9B.9.2. A drill is conducted on an annual basis to determine the effectiveness of the local fire department working in conjunction with the Fire Brigade. This annual drill shall involve the participation of at least one of the local fire departments.

d. Medical Emergency Drill

A medical emergency drill, involving a simulated contaminated individual, which contains provisions for participation by local support service agencies (i.e., ambulance and offsite medical treatment facility), shall be conducted annually. The offsite portion of the medical drill may be performed separately, or as part of an exercise or other scheduled drill.

e. Radiological Monitoring Drill

Plant environs and radiological monitoring drills, both onsite and offsite, are conducted on an annual basis to determine the effectiveness of the collection and analysis of sample media. The drills include the utilization of communication equipment and demonstrate proper record keeping procedures.

f. Health Physics Drill

A Health Physics Drill is conducted on a semiannual basis and involves response to and analysis of simulated elevated airborne and liquid samples and direct radiation measurements in the environment.

g. Text Deleted

h. Radiation Emergency Exercise

An exercise is conducted on a biennial basis. The exercise involves

participation of offsite emergency support personnel within the local and State Emergency Organizations. This exercise simulates emergency conditions requiring the declaration of a Site Area Emergency or General Emergency.

At least every eight years, a joint exercise appropriate to a Site Area Emergency or General Emergency that involves Federal, State, and local emergency response personnel, organizations, and agencies is conducted. The scope of the exercise tests as much of the emergency plan (i.e., GGNS, State, and local) including the alert and notification system, as is reasonably achievable. The degree of public participation in this exercise is determined by the appropriate State agencies

In each exercise cycle the scenarios are varied to provide the opportunity for the ERO to demonstrate proficiency in the key skills necessary to respond to the following:

1. Hostile action directed at the plant site.
2. No or minimal radiological release.
3. An initial classification of, or rapid escalation to, a Site Area or General Emergency.
4. Implementation of strategies, procedures and guidance developed under 10CFR50.54(hh)(2).

i. Radiation Emergency Drill

Drill(s) are conducted periodically between exercises to ensure emergency response capabilities are maintained. At least one of the drill(s) include management and coordination of the emergency response, accident assessment, protective action decision making, and plant system repair and corrective actions. State and local agencies shall be allowed to participate in the drill(s) when requested.

j. Hostile Action Based Exercise.

Hostile action based (HAB) exercises are performed in conjunction with a full scale exercise once every six years or once per eight year cycle. Full state participation is required every cycle, but states with more than one plume exposure pathway may alternate this participation between reactor sites.

k. Remedial Exercises.

Remedial exercises will be required if the emergency plan is not satisfactorily tested during the biennial exercise. State and local participation should be to an extent necessary to show that appropriate corrective measures have been taken regarding the elements of the plan not properly tested.

8.3.3 Scenario Variety Documentation.

A record of scenarios shall be maintained documenting the content of scenarios used to meet the requirements of this Emergency Plan section.

8.4 Responsibilities

The Manager, Emergency Preparedness is responsible for coordinating the implementation of the overall radiological emergency response planning and preparedness effort to include, but not be limited to:

a. Ensuring that the Emergency Plan complies with all Federal regulations, and that it is coordinated with the Grand Gulf Nuclear Station Physical Security Plan and the emergency response plans of Claiborne County, Tensas Parish, and the States of Mississippi and Louisiana.

b. Ensuring that Emergency Plan Procedures are consistent with Administrative, Security, Radiation Control, and Training Procedures, the Emergency Plan, and with each other.
c. Ensuring that training is offered annually for the emergency response personnel and local offsite support agencies and that training commitments for on-call emergency response personnel are met.
d. Ensuring that drills and exercises are conducted in accordance with Section 8.3, and that necessary corrective actions are implemented.
e. Ensuring that the Plan and procedures are reviewed and updated on an annual basis
f. Ensuring that the commitments of the Public Information Program are met on an annual basis
g. Ensuring that maintenance and inventory of emergency equipment and supplies is performed on a quarterly basis.

The Manager, Emergency Planning interfaces with several organizations who have specific responsibilities for some of the above areas.

The Manager, Emergency Planning is responsible for ensuring that the commitments of the News Media Emergency Information Program and the Public Information Program are met. He is also responsible for conducting specialized training and drills for personnel directly involved with these programs.

The Security Manager is responsible for revisions to the GGNS Physical Security Plan.

The Manager, Emergency Planning works with the above individuals, as well as with federal, state and local personnel having responsibilities to the GGNS emergency preparedness program, to ensure that the commitments of the Plan are fully implemented.

Training opportunities are afforded to the Emergency Preparedness Staff to ensure that they are able to effectively carry out their assigned responsibilities.

8.5 Review and Updating of the Emergency Plan and Emergency Plan Procedures

The Plan shall be reviewed and updated as necessary on at least an annual basis. Letters of Agreement with offsite organizations and agencies are reviewed during the annual Plan review and updated as necessary. A change in original signatory(ies) to a given Letter of Agreement does not in itself require revision of that Letter. A change in applicability of content of a Letter of Agreement, however, does require a revision to that Letter.

Emergency Plans of offsite organizations and agencies are reviewed as requested.

The Manager responsible for the Quality Assurance programs is responsible for conducting an independent review of the Emergency Preparedness Program, to verify compliance with the Quality Assurance Program Manual, the Fire Protection Plan, federal regulations, and operating license provisions. The review shall be conducted at intervals not to exceed 12 months or, as necessary, based on an assessment of performance indicators, and as soon as reasonably practicable after a change occurs in personnel, procedures, equipment, or facilities that potentially could adversely affect emergency preparedness, but no longer than 12 months after the change. In any case, all elements of the emergency preparedness program must be reviewed at least once every 24 months. The review must include an evaluation for adequacy of interfaces with State and local governments and drills, exercises, capabilities, and procedures. The results of the review, along with recommendations for improvements, must be documented, maintained for a period of five years and reported to the Manager, Emergency Planning, Director, Regulatory and Performance Improvement, Site Vice President, and affected groups. The part of the review involving the evaluation for adequacy of interface with State and local governments must be available to the appropriate State and local governments. In addition, the Manager, Emergency Planning, by virtue of his involvement with the Emergency Preparedness Program, provides an ongoing review. Personnel performing reviews or audits of the Emergency Plan and/or Emergency Plan Procedures take into account and review corporate policy, state policy and plans, local plans, and the various agreements and understandings with federal, state, and local support agencies and organizations.

The Plan is a part of the GGNS FSAR, but is maintained as a separate document. Document holders receive revisions to the Plan in a controlled manner as they are issued. Revised pages are dated and marked to show where revisions have been made.

The Manager, Emergency Planning is responsible for coordinating reviews and audits of

the Emergency Plan and implementing procedures. In addition, the Manager, Emergency Planning, through letters, meetings, seminars, or other means available, ensures that all elements of the total emergency organizations are informed of revisions to the Plan.

Results of all exercises and each annual revision and change to the plan are reported to / reviewed by the Site Vice President, and Director, Regulatory and Performance Improvement, who provides management direction and control to ensure that all corrective actions are implemented.

8.6 Maintenance and Inventory of Emergency Equipment and Supplies

The Manager, Emergency Planning, or his designee, is responsible for planning and scheduling the quarterly inventory and inspection of designated emergency equipment and supplies at GGNS. He, or his designee, ensures that identified deficiencies are corrected in a reasonable period of time.

All emergency equipment/instruments are inspected, inventoried and operationally tested on a quarterly basis and after each use. Lists of telephone numbers used in emergency response are reviewed and updated quarterly.

Designated emergency equipment and supplies and their storage locations are listed in Appendix B. Supplies having shelf-lives are checked and replaced as necessary.

Any deficiencies found during the inventory and inspection are either cleared immediately or documented for corrective action. There are sufficient reserves of emergency equipment/instruments available to replace any equipment which is removed from the emergency kits for calibration or repair. All emergency instruments are calibrated at the intervals specified by the FSAR, Section 12. A summary report of each inventory and inspection is prepared and submitted to file.

8.7 Educational Information to the Public

Grand Gulf Nuclear Station, in conjunction with State and local agencies, provides the following written information to those members of the general public that reside within the 10 mile Emergency Planning Zone:

a. Educational information on radiation
b. Personnel to contact for further information
c. Protective measures, e.g. evacuation routes and relocation centers, sheltering, respiratory protection, radioprotective drugs
d. Special needs of the handicapped.

This information is disseminated via an Emergency Public Information publication mailed annually to residents of the 10-mile EPZ, in accordance with the Public Education and Information Program included in Appendix H. This program addresses providing information to the transient population. The Public Education and Information Program annually ensures the permanent and transient adult population within the plume exposure EPZ are provided an adequate opportunity to become aware of the above information.

8.8 News Media Information

A News Media Emergency Information Program was developed that includes details on arrangements for timely exchange of information among the designated spokespersons and news media representatives. This program is included in Appendix H. The details for dealing with rumors are included in Emergency Plan Procedure 10-S-01-34. GGNS provides supporting information to state and local authorities to develop messages intended for the public. Messages to state and local authorities include information concerning recommended protective actions. This program also provides for an annual training session to acquaint the news media with the methodology to obtain information during an emergency, as well as information about overall emergency preparedness for GGNS.

9.0 RECOVERY

In any declared Emergency, immediate actions are intended to limit consequence and provide maximum protection to plant personnel, the general public, and plant equipment. For a Site Area or General Emergency, once emergency phase corrective and protective actions have been implemented and effective controls established, emergency actions shift to the Recovery phase which includes reentry and recovery operations.

It is the responsibility of the Emergency Director to determine when the Recovery Phase can be initiated. The following criteria must be met before recovery operations can begin:

a. The plant must be in a controlled and stable condition
b. Release of radioactive material to the environment must be controlled and must be below any of the Emergency Action Level threshold values
c. Radiation levels must be stable or decreasing in all plant areas

The Emergency Director discusses existing offsite conditions with appropriate State officials prior to terminating a Site Area Emergency or General Emergency classification.

Recovery may be completed by the Emergency Organization before emergency termination. If recovery has not been accomplished by the termination of the emergency, a recovery organization is activated as described in Section 5.5. Its objective is to safely and effectively place the plant back in a safe operating condition or an acceptable long term condition. Appropriate GGNS and outside assistance is mobilized to accomplish this objective. The Emergency Director is responsible for transmitting a notification to agencies connected to the GGNS Operational Hot Line (see Section 7.5.3.a.1) that the incident is terminated and the plant is transitioning to the Recovery phase.

Recovery is conducted in compliance with normal occupational dose limits specified in 10CFR20. Significant release of radioactive materials during recovery is planned, controlled, and evaluated in advance for radiological impact, and appropriate offsite organizations and agencies informed of the scheduled release and estimated impact. Emergency Plan Procedures

provide methods of periodically estimating total population exposure.

9.1 Recovery Operations

The nature and extent of an emergency determine the required recovery operations and the size of the recovery organization that must be formed. A recovery plan must be flexible enough to adapt to existing conditions. It is not possible to anticipate in advance all emergency conditions that may be encountered. General principles are addressed in this section that serve as a guide for developing a flexible plan of action. More detailed information is provided in Emergency Plan procedures.

The initial objectives of recovery operations are to determine damage to equipment, the installation of shielding, rope barriers and signs, the application of clearance tags, decontamination, and cleanup to place the plant in an acceptable long term condition. Other recovery operations are not initiated until the area affected by the emergency has been defined. Particular attention is directed toward isolating and tagging out components and systems to control or minimize hazards. A systematic assessment is conducted to determine the extent of damage to plant equipment.

Once the initial objectives are completed, a detailed investigation of the accident causes and consequences, both to the plant and to the environment, is conducted. Repair work and modifications to plant equipment and/or changes to operating procedures are determined, approved, and performed. Test programs to confirm fitness for return to services are developed and implemented.

9.2 Reentry Operations

Reentry operations are part of the Recovery phase and includes returning to areas that were precluded from entry due to radiation levels or other hazards. For radiation hazards, an initial radiation assessment is performed to allow reentry and recovery operations. The following is a list of actions that should be performed prior to authorizing reentry operations into the affected areas:

a. Review available radiation survey data. Determine plant areas potentially affected by radiation and/or contamination.

b. Review radiation exposure margins of personnel who will participate in recovery operations. Determine the need for, and source of additional personnel.

c. Review adequacy of radiation survey instrumentation and equipment (type, ranges, number, calibration, etc.).

d. Preplan survey team activities to include:

   1. Areas to be surveyed
   2. Anticipated radiation and contamination levels
   3. Radiation survey equipment required
   4. Shielding requirements and availability
   5. Protective clothing and equipment required
   6. Access control procedures
   7. Exposure control limits and personnel dosimetry required
   8. Decontamination requirements
   9. Communications

Initial reentry operations into plant areas include the following goals (in order of priority):

a. Determine recovery operation tasks (application of clearance tags, etc.)

b. Observe hazards or potential hazards limiting recovery operations

c. Conduct comprehensive radiation surveys of plant facilities and define radiological problem areas which could impede recovery operations

d. Post areas in the plant with radiological warning signs, and rope barriers.

Recovery operations are conducted in compliance with normal operational radiation exposure levels specified in 10CFR20. When possible, significant releases of radiation during recovery is planned, controlled, evaluated in advance for radiological impact, and appropriate offsite organizations and agencies informed of the scheduled release and estimated impact. Emergency Plan Procedures provide methods of periodically estimating total population exposure.

APPENDIX A

Emergency Plan Cross Reference

and

List of Procedures that Implement the Emergency Plan

EMERGENCY PLAN CROSS REFERENCE

EMERGENCY PLAN SECTION	ADMINISTRATIVE PROCEDURES	EMERGENCY PLAN[1] PROCEDURES (EPP)	COMMENTS
SECTION 1.0 DEFINITIONS requires no procedures.			
SECTION 2.0 SCOPE AND APPLICABILITY contains no explicit actions or responsibilities which should be implemented by procedures. There is an implicit requirement for a procedure to assure that changes to any procedure -- administrative, operational, security, radiation protection, or emergency -- be reviewed with respect to all related procedures to assure a coordinated emergency response will be provided when required.			
2.1			Criterion for GGNS Emergency Plan Development
2.2			Applicability of the Emergency Plan
2.2.1			General Information and Site Description
2.2.2			Population and Population Distribution
2.2.3			Emergency Planning Zones
2.3			Scope of the Emergency Plan
2.3.1			Regulatory Requirements
2.3.2		1	Objectives of the Emergency Plan
2.4		1	Emergency Plan Interrelationships
2.4.1			Emergency Plan Procedures
2.4.2			Related Plans, Programs and Procedures
2.4.3			Participating Governmental Agencies
Table 2-1			Public Facilities and Institutions

[1] All emergency plan procedures prefaced with 10-S-01-

EMERGENCY PLAN CROSS REFERENCE

EMERGENCY PLAN SECTION	ADMINISTRATIVE PROCEDURES	EMERGENCY PLAN[1] PROCEDURES (EPP)	COMMENTS
Table 2-2			Resident Population Distribution in Evacuation Area by Sector
Figure 2-1			General Area Surrounding GGNS
Figure 2-2			Site Layout
Figure 2-3			Permanent Resident Population Distribution
Figure 2-4			Ten-Mile Emergency Planning Zone
Figure 2-5			Fifty-Mile Emergency Planning Zone
3.1		1	Emergency Planning
3.2			Emergency Plan Steps
3.3		1,6	Emergency Direction and Assignments
4.1			Emergency Classification System
4.1.1		1,6	Unusual Event
4.1.2		1,6,34, EN-EP-609, 610 & 611	Alert
4.1.3		1,6,34, EN-EP-609, 610 & 611	Site Area Emergency
4.1.4		1,6,34, EN-EP-609, 610 & 611	General Emergency
4.2			Classification of postulated accidents.
Table 4-1		1, 38	Emergency Classification
5.1			Statement of GGNS organization.
5.2			Statement of normal station organization.

[1] All emergency plan procedures prefaced with 10-S-01-

EMERGENCY PLAN CROSS REFERENCE

EMERGENCY PLAN SECTION	ADMINISTRATIVE PROCEDURES	EMERGENCY PLAN[1] PROCEDURES (EPP)	COMMENTS
5.2.1			General Manager, Plant Operations
5.2.2			Manager, Operations
5.2.3			Manager, Maintenance
5.2.4			Manager, Radiation Protection
5.2.5			Manager, Planning, Scheduling and Outage
5.2.6			Manager, Training & Development
5.2.7			Shift Technical Advisor
5.2.8			Manager, Materials, Purchasing, and Contracts
5.2.9			Director, Nuclear Safety Assurance
5.3			Statement of normal station shift staffing.
5.4			Emergency Organization
5.4			Normal Station Shift
5.4.2	EN-EP-801	22, EN-EP-609	Emergency Director
5.4.3	EN-EP-801	EN-EP-609	EOF Manager
5.4.4	EN-EP-801	EN-EP-609	Radiological Assessment Coordinator
5.4.5	EN-EP-801	EN-EP-609	Technical Advisor
5.4.6	EN-EP-801	EN-EP-609	Admin. & Logistics Coordinator
5.4.7	EN-EP-801	EN-EP-609,34	Public Information Liaison
5.4.8	EN-EP-801	6, EN-EP-609	Offsite Communicator

[1] All emergency plan procedures prefaced with 10-S-01-

EMERGENCY PLAN CROSS REFERENCE

EMERGENCY PLAN SECTION	ADMINISTRATIVE PROCEDURES	EMERGENCY PLAN[1] PROCEDURES (EPP)	COMMENTS
5.4.9	EN-EP-801	EN-EP-609	EOF Communicator
5.4.10	EN-EP-801	EN-EP-609	Lead Offsite Liaison
5.4.11	EN-EP-801	EN-EP-609	Offsite Liaison
5.4.12	EN-EP-801	12, EN-EP-609	Dose Assessor
5.4.13	EN-EP-801	EN-EP-609	Offsite Team Coordinator
5.4.14	EN-EP-801	EN-EP-609	Offsite Monitoring Team
5.4.15	EN-EP-801	EN-EP-609	Information Technology (IT) Specialist
5.4.16	EN-EP-801	EN-EP-610	EOF Log Keeper
5.4.17	EN-EP-801	EN-EP-610	Emergency Plant Manager (EPM)
5.4.18	EN-EP-801	EN-EP-610	TSC Manager
5.4.19	EN-EP-801	EN-EP-610	TSC Communicator
5.4.20	EN-EP-801	1, EN-EP-610	Security Coordinator
5.4.21	EN-EP-801	EN-EP-610	ENS Communicator
5.4.22	EN-EP-801	EN-EP-610	Maintenance Coordinator
5.4.23	EN-EP-801	EN-EP-610	Engineering Coordinator
5.4.24	EN-EP-801	EN-EP-610	Radiological Coordinator

[1] All emergency plan procedures prefaced with 10-S-01-

EMERGENCY PLAN CROSS REFERENCE

EMERGENCY PLAN SECTION	ADMINISTRATIVE PROCEDURES	EMERGENCY PLAN[1] PROCEDURES (EPP)	COMMENTS
5.4.25	EN-EP-801	EN-EP-610	Operations Coordinator
5.4.26	EN-EP-801	30	Engineers (Mech./I&C/Elect.)
5.4.27	EN-EP-801	EN-EP-610,35	Reactor Engineer
5.4.28	EN-EP-801	EN-EP-611	OSC Manager
5.4.29	EN-EP-801	EN-EP-611	Log Keeper - OSC
5.4.30	EN-EP-801	EN-EP-611	Operations Support
5.4.31	EN-EP-801	EN-EP-611	Work Control Coordinator
5.4.32	EN-EP-801	EN-EP-611	Mechanical/I&C/Electrical Coordinator
5.4.33	EN-EP-801	EN-EP-611	Rad Chem Coordinator
5.4.34	EN-EP-801	34	Company Spokesperson
5.4.35	EN-EP-801	34	Technical Advisor – JIC
5.4.36	EN-EP-801	34	JIC Manager
5.4.37	EN-EP-801	34	Log Keeper – JIC
5.4.38	EN-EP-801	34	Inquiry Response Coordinator
5.4.39	EN-EP-801	34	Press Release Writer

[1] All emergency plan procedures prefaced with 10-S-01-

EMERGENCY PLAN CROSS REFERENCE

EMERGENCY PLAN SECTION	ADMINISTRATIVE PROCEDURES	EMERGENCY PLAN[1] PROCEDURES (EPP)	COMMENTS
5.5		EN-EP-611	Recovery Organization
5.6			Local services support (normal 10CFR20 limits on exposure or contamination)
5.6.1			Description of medical support
5.6.2			Fire Support
5.6.3			Law Enforcement Agencies
5.7			Coordination with Governmental Agencies.
5.7.1			MEMA and Miss. Div. of Radiological Health
5.7.2			LDEQ AND LHLS/EP
5.7.3			Port Gibson/Claiborne Co. Civil Defense
5.7.4			Tensas Parish Office of Homeland Security and Emergency Preparedness
5.7.5		6	NRC

[1] All emergency plan procedures prefaced with 10-S-01-

EMERGENCY PLAN CROSS REFERENCE

EMERGENCY PLAN SECTION	ADMINISTRATIVE PROCEDURES	EMERGENCY PLAN[1] PROCEDURES (EPP)	COMMENTS
5.7.6			DOE
5.7.7			INPO
5.7.8			U.S.C.G.
5.8		EN-EP-609	Contractor Assistance
5.9			Support for Federal Response
Table 5-1		6	Minimum shift staffing
Figure 5-1			Deleted
Figure 5-2			Normal Station Organization
Figure 5-3			Emergency Organization
Figure 5-4			Emergency Organization
Figure 5-5			Interrelationships of Emergency Response Organizations
Figure 5-6			Federal Response Management Diagram
6.1			Initiating emergency measures
6.1.1		22	Plant Administrative Procedures
6.1.2		EN-EP-610	Security Plan
6.2			Activation of emergency organization
6.2.1	Control room operators		
6.2.2		1	Shift Superintendent

[1] All emergency plan procedures prefaced with 10-S-01-

EMERGENCY PLAN CROSS REFERENCE

EMERGENCY PLAN SECTION	ADMINISTRATIVE PROCEDURES	EMERGENCY PLAN[1] PROCEDURES (EPP)	COMMENTS
6.2.2		1	Shift Manager
6.2.3			STA
6.2.4		1,6,34	Emergency Director
6.3			Assessment Actions
6.3.1		1	Assessment actions during Unusual Events
6.3.2		1	Assessment actions during Alerts
6.3.3		1	Assessment actions during Site Area Emergencies
6.3.4		1	Assessment actions during General Emergencies
6.4			Corrective Actions
6.5			Protective actions
6.5.1			Protective cover, evacuation, personnel accountability
6.5.1.a		11, EN-EP-609	GGNS
6.5.1.b		11	Offsite areas
6.6		11	Contamination Control Measures
6.7			Aid to affected personnel
6.7.1		17, 20	Emergency Personnel Exposure
6.7.2		11	Decontamination and First Aid
6.7.3		19	Medical Transportation

[1] All emergency plan procedures prefaced with 10-S-01-

EMERGENCY PLAN CROSS REFERENCE

EMERGENCY PLAN SECTION	ADMINISTRATIVE PROCEDURES	EMERGENCY PLAN[1] PROCEDURES (EPP)	COMMENTS
Table 6-1		12	Recommended Protective Actions
Figure 6-1			Deleted
Figure 6-2		6, EN-EP-609	Emergency Notification Form
7.1			Facilities and Equipment
7.2			Control Room
7.3		39	Emergency Response Facilities
7.3.1		EN-EP-610	TSC
7.3.2		EN-EP-611	OSC
7.3.3		EN-EP-609	EOF
7.3.4		EN-EP-609	BEOF
7.3.5		34	Joint Information Center
7.4			County and State Emergency Centers
7.4.1			Claiborne County EOC
7.4.2			Mississippi State EOC
7.4.3			Tensas Parish EOC

[1] All emergency plan procedures prefaced with 10-S-01-

EMERGENCY PLAN CROSS REFERENCE

EMERGENCY PLAN SECTION	ADMINISTRATIVE PROCEDURES	EMERGENCY PLAN[1] PROCEDURES (EPP)	COMMENTS
7.4.4			Louisiana State EOC
7.5	01-S-10-5		Communications Systems
7.5.1			Telephone System
7.5.2			Plant Paging System & Sound Powered Phones
7.5.3	01-S-10-5 10-S-01-6	1,6, EN-EP-611	Emergency Communications Equipment
7.5.4			Alert Notification System
7.6			Assessment Facilities
7.6.1		12	Onsite Systems and Equipment
7.6.2			Offsite Monitoring Equipment and Facilities
7.6.3		14	Radiological Assessment Laboratories
7.6.4			Post-Accident Sampling Capability
7.6.4	01-S-10-5	28	Designated Emergency Vehicles
7.7		11	Protective Facilities
7.8	01-S-10-5		First Aid and Medical Facilities.
7.9	01-S-10-5		Rescue and Damage Control Equipment
7.10	01-S-10-5		Personal Protective Equipment
Table 7-1		EN-EP-609	GGNS Operational Hot Line
Figure 7-1			Emergency Facilities

[1] All emergency plan procedures prefaced with 10-S-01-

EMERGENCY PLAN CROSS REFERENCE

EMERGENCY PLAN SECTION	ADMINISTRATIVE PROCEDURES	EMERGENCY PLAN[1] PROCEDURES (EPP)	COMMENTS
Figure 7-2			Technical Support Center
Figure 7-3			Operations Support Center
Figure 7-4			Emergency Operations Facility Level I
Figure 7-5			Emergency Operations Facility Level II
Figure 7-6			Emergency Operations Facility Location
Figure 7-7			Backup Emergency Operations Facility
Figure 7-8			Deleted
Figure 7-9			Joint Information Center Layout
Figure 7-10			Deleted
Figure 7-11			Deleted
Figure 7-12			Communications Interfaces
Figure 7-13			Siren Locations
8.1			Organizational Preparedness
8.2	EN-TQ-110		Training
8.2.1	EN-TQ-110		General Emergency Plan Training
8.2.2	EN-TQ-110		Emergency Preparedness Training Specialized and Emergency Plan Procedure Training

[1] All emergency plan procedures prefaced with 10-S-01-

EMERGENCY PLAN CROSS REFERENCE

EMERGENCY PLAN SECTION	ADMINISTRATIVE PROCEDURES	EMERGENCY PLAN[1] PROCEDURES (EPP)	COMMENTS
8.2.3	01-S-10-3		Orientation and Training Program for Offsite Support Agencies
8.3		37	Drills and Exercise
8.3.1			Drill and Exercise Scenarios
8.3.2			Drill and Exercise Schedule
8.4	01-S-10-3		Responsibilities
8.5	01-S-10-3		Review of Emergency Plan and Emergency Plan Procedure
8.6	01-S-10-3, 5	39	Maintenance and Inventory of Emergency Equipment and Supplies
8.7	01-S-10-3		Educational Information to the Public
8.8		34	News Media Information
9.1		EN-EP-613	Recovery Operations
9.2		23, EN-EP-613	Reentry Operations
Appendix A			Reserved
Appendix B			List of supplies
Appendix C			Reserved
Appendix D			Letters of Agreement from offsite organizations
Appendix E			Evacuation Time Estimates

[1] All emergency plan procedures prefaced with 10-S-01-

EMERGENCY PLAN CROSS REFERENCE

EMERGENCY PLAN SECTION	ADMINISTRATIVE PROCEDURES	EMERGENCY PLAN[1] PROCEDURES (EPP)	COMMENTS
Appendix F			Index of Supporting Plans
Appendix G			Reserved
Appendix H		34	News Media Emergency Information Program and Public Education and Information Program
Appendix I			Reserved

[1] All emergency plan procedures prefaced with 10-S-01-

LIST OF PROCEDURES THAT IMPLEMENT THE EMERGENCY PLAN

10-S-01-1	Activation of Emergency Plan (EPP-1) (EPP-1) Upon recognition that abnormal plant or site conditions exist, this procedure will be used by the operator to determine the appropriate EAL(s), properly classify the emergency condition and action to be taken for the emergency classification.
10-S-01-2	Unusual Event (EPP-2) DELETED - Superseded by 10-S-01-1.
10-S-01-3	Alert (EPP-3) DELETED - Superseded by 10-S-01-1.
10-S-01-4	Site Area Emergency (EPP-4) DELETED - Superseded by 10-S-01-1.
10-S-01-5	General Emergency (EPP-5) DELETED - Superseded by 10-S-01-1.
10-S-01-6	Notification of Offsite Agencies and Plant On-Call Emergency Personnel (EPP-6) This procedure lists the methods of notifying Emergency Organization Personnel; for notifying Federal, State, and local authorities; for notifying outside service agencies; and for keeping the proper communication record.
10-S-01-7	Activation of Emergency Facilities (EPP-7) DELETED - Superseded by 10-S-01-3, 10-S-01-29, 10-S-01-30, and 10-S-01-33
10-S-01-8	Fire (EPP-8) DELETED - Superseded by 10-S-03-2
10-S-01-9	Release of Toxic Material (EPP-9) DELETED - Superseded by 10-S-01-1 (EPP-1) and 10-S-01-29 (EPP-29)
10-S-01-10	Natural Occurrences (EPP-10) DELETED - Superseded by 05-1-02-VI-1, 05-1-02-VI-2, and 05-S-02-VI-3.
10-S-01-11	Evacuation of Onsite Personnel (EPP-11) This procedure provides the guidelines for evacuation and accountability of personnel during an emergency.
10-S-01-12	Radiological Assessment and Protective Action Recommendations (EPP-12) This procedure provides guidance for performing radiological assessment during emergencies.
10-S-01-13	Onsite Radiological Monitoring (EPP-13) DELETED - Superseded by 10-S-01-14 (EPP-14)
10-S-01-14	Emergency Radiological Monitoring (EPP-14) This procedure provides guidelines for performing radiological surveys outside of the restricted area during emergency conditions. Instructions for dose rate measurements and collection and analysis of radioiodines are included.

LIST OF PROCEDURES THAT IMPLEMENT THE EMERGENCY PLAN

10-S-01-15 Site Access Point Operations (EPP-15)
DELETED

10-S-01-16 Personnel Accountability (EPP-16)
DELETED - Superseded by 10-S-01-11 (EPP-11)

10-S-01-17 Emergency Personnel Exposure Control (EPP-17)
This procedure provides guidelines for the issuing dosimetry and RWP access during emergencies.

10-S-01-18 Personnel Search and Rescue (EPP-18)
This procedure provides guidelines for performing search and rescue operations in order to locate and/or rescue individuals that have not been accounted for.

10-S-01-19 Personnel Injury (EPP-19)
This procedure provides for handling those individuals who have been injured and must be transported off site.

10-S-01-20 Administration of Thyroid Blocking Agents (EPP-20)
This procedure provides guidance on the use of potassium iodide as a thyroid blocking agent to prevent thyroid uptake of radioactive iodine and the subsequent dose.

10-S-01-21 Evacuating Personnel and Vehicle Contamination Control (EPP-21)
DELETED - Superseded by 10-S-01-11 (EPP-11)

EN-EP-613 Recovery
This procedure provides guidance for the Recovery phase of on emergency and the formation of a Recovery organization.

10-S-01-23 Reentry (EPP-23)
This procedure provides general guidance for the Reentry Operations.

10-S-01-24 Maintenance of Emergency Preparedness (EPP-24)
DELETED - Superseded by 01-S-10-5.

10-S-01-25 Onsite Personnel Response (EPP-25)
DELETED - Superseded by 10-S-01-11 (EPP-11)

10-S-01-26 Offsite Emergency Response (EPP-26)
This procedure provides instructions for offsite emergency personnel that are ordered to report to the site during an emergency.

10-S-01-27 Public Information (EPP-27)
DELETED - Superseded by 10-S-01-34

10-S-01-28 Control of Designated Emergency Vehicles (EPP-28)
This procedure provides a description of the administrative controls over company-owned

LIST OF PROCEDURES THAT IMPLEMENT THE EMERGENCY PLAN

vehicles designated for use during an emergency.

EN-EP-611 — Operations Support Center (OSC) Operations
This procedure provides general instructions for the Operations Support Center (OSC) including: facility activation, personnel responsibilities, staffing and coordination of Emergency Response Teams.

EN-EP-610 — Technical Support Center (TSC) Operations
This procedure provides general instructions for the TSC including: facility activation, personnel responsibilities, staffing and coordination between the Control Room, and the Operations Support Center.

EN-EP-609 — Emergency Operations Facility (EOF) Operation
This procedure provides instructions for the activation operation of the EOF.

10-S-01-34 — Joint Information Center (JIC) Operations (EPP-34)
This procedure provides instruction for dissemination of public information and the activation and operation of the ENMC and EIC.

10-S-01-35 — Core Damage Assessment (EPP-35)
This procedure provides guidance for determining if core damage may or has occurred, and estimating amount of reactor core damage under accident conditions.

10-S-01-36 — Incident Command Post (ICP) Operation
This procedure provides general instructions for the activation and operation of the Incident Command Post

10-S-01-37 — Communication Drill
This procedure provides guidance for performing communication drills.

10-S-01-38 — EAL Contingency Planning
This document identifies the plant instruments that are the designated indicators of Emergency Action Level (EAL) entry criteria. It then analyzes each primary instrument for backup/alternative indications allowed by the EAL, Instrument redundancy and Correlation between EAL requirements by Operating Mode versus related Tech Spec/TRM/ODCM. This procedure is entered when any of the equipment listed in the attachments is identified to be out of service

10-S-01-39 — Grand Gulf Equipment Important to Emergency Response
This procedure ensures that when equipment important to emergency response(emergency preparedness [EP] equipment) is removed from service for maintenance or is in a degraded condition, the correct restoration priority is assigned, compensatory measures are implemented, and the equipment is restored to a functional condition promptly

EN-TQ-110 — Emergency Response Organization Training Program
This procedure describes and implements training for GGNS ERO to ensure a constant state of preparedness for and during emergencies.

LIST OF PROCEDURES THAT IMPLEMENT THE EMERGENCY PLAN

01-S-10-3	Emergency Planning Department Responsibilities This procedure describes the responsibilities and organizational structure of the Emergency Planning staff, provides guidance for the overall maintenance of the Emergency Planning program, and defines the responsibilities for maintenance and control of the GGNS Emergency Plan.
EN-EP-306	Drills and Exercises This procedure describes the type and frequency of drills and exercise, procedure for conducting a drill or exercise, and method for management review and approval of drills and exercises.
01-S-10-5	Control of Emergency Response Equipment and Facilities This procedure prescribes the requirements for the inventory, inspection, maintenance and operability checks of Emergency Facilities and Equipment.
01-S-01-8	Emergency Preparedness Action Tracking System DELETED - Superseded by 01-S-10-3.
EN-EP-801	Emergency Response Organization The procedure outlines responsibilities for personnel assigned to an ERO position and for other company personnel who may be called upon to support an emergency response effort, but are not directly assigned to an ERO position.

This appendix contains a list of supplies by general category maintained in the emergency kits and lockers located in the various emergency facilities. Detailed lists of the inventory are maintained in accordance with 01-S-10-5, Control of Emergency Response Equipment and Facilities.

EMERGENCY EQUIPMENT MAINTAINED IN THE CONTROL ROOM/TSC/OSC/EOF

A. Protective Equipment

B. Radiological Monitoring Equipment

C. Communications Equipment

D. Emergency Supplies

EMERGENCY EQUIPMENT MAINTAINED IN THE BEOF

A. Communications Equipment

EMERGENCY EQUIPMENT MAINTAINED AT RIVER REGION MEDICAL CENTER AND CLAIBORNE COUNTY HOSPITAL

A. Protective Equipment

B. Radiological Monitoring Equipment

C. Emergency Supplies

EMERGENCY FOOD AND WATER SUPPLIES

A. Emergency food and water supplies are maintained in the Control Room envelope in sufficient quantity to maintain five people for five days.

B. Emergency food and water supplies are maintained in the EOF in sufficient quantity to maintain seven people for five days.

APPENDIX C

Reserved

APPENDIX D

Letters of Agreement

APPENDIX D - LIST OF LETTERS OF AGREEMENT

	Page No.
U. S. Department of Energy, Oak Ridge Operations	D-2
State of Mississippi	D-5
State of Louisiana	D-6
Port Gibson/Claiborne County Civil Defense Council	D-7
Tensas Parish Office of Homeland Security and Emergency Preparedness	D-8
Port Gibson Police Department	D-9
Claiborne County Sheriff's Department	D-10
Claiborne County Fire Department	D-12
Claiborne County Hospital	D-13
River Region Medical Center	D-15
Text Deleted	D-17
INPO	D-19
Governor's Office of Homeland Security and Emergency Preparedness	D-29
The Ochsner Clinic	D-34
Metro Ambulance Services (Rural), Inc.	D-37

Department of Energy
ORNL Site Office
P.O. Box 2008
Oak Ridge, Tennessee 37831-6269

July 14, 2014

Mr. Alain Grosjean
Senior Project Manager
Entergy Nuclear
450 Broadway
Buchanan, New York 10511

Dear Mr. Grosjean:

LETTER OF AGREEMENT - RADIATION EMERGENCY ASSISTANCE CENTER/TRAINING SITE (REAC/TS) SUPPORT

Please reference your letter dated July 1, 2014, requesting that the Department of Energy (DOE) REAC/TS facilities and team continue to be available to provide back-up capability and assistance to the Entergy Nuclear's nuclear facilities in the event of a radiological emergency. This response constitutes our agreement to provide this service upon your request. The agreement remains in effect until terminated in writing by either party.

We wish to remind you that our REAC/TS facilities in the Oak Ridge Institute for Science and Education (ORISE) are government controlled and operated by the Oak Ridge Associated Universities under contract with DOE. Therefore, REAC/TS is prohibited from competing with commercial firms that can provide radiological emergency services. Only if the magnitude or uniqueness of a radiological emergency exceeds your in-house and commercially available capabilities would REAC/TS be authorized to provide back-up services.

Since these facilities are government controlled, no fee or retainer is required to assure the availability of back-up services by REAC/TS. However, if you utilize the services of REAC/TS, we should expect to recover those costs that could reasonably be related to handling such an incident, including all charges billed to DOE or ORISE by hospitals and physicians. Information concerning the REAC/TS facilities, staff, services available, and procedures for seeking REAC/TS assistance can be obtained by direct contact with the REAC/TS Director, Dr. Albert Wiley, ORISE, Post Office Box 117, Oak Ridge, Tennessee 37831, or at telephone number (865) 576-3131.

Sincerely,

M. G. Branton

Michele G. Branton
Contracting Officer's Representative

cc:
Matthew P. Albert, ORISE
Albert L. Wiley, ORISE

TEXT DELETED

TEXT DELETED

GEX1-2012/00086

PHIL BRYANT
GOVERNOR

October 16, 2012

Mike Perito
Vice President Operations
Grand Gulf Nuclear Station
P.O. Box 756
Port Gibson, Mississippi 39150

Dear Mr. Perito:

Radiological, security and other emergencies could occur at the Grand Gulf Nuclear Station and pose threats to the people of the State of Mississippi and jeopardize the safety of plant employees.

As Governor of the State of Mississippi, I assure you that in the event of an emergency at the Grand Gulf Nuclear Station, I will exercise my authority to provide assistance as delineated in the Mississippi Radiological Emergency Preparedness Plan, Volume III, of the Mississippi Comprehensive Emergency Management Plan.

This letter may be made part of the Grand Gulf Nuclear Station Emergency Plan, and may be used to indicate a commitment by the State of Mississippi to respond to an emergency at the Grand Gulf Nuclear Station.

Sincerely,

Phil Bryant
Governor

cc: Robert R. Latham, Jr., MEMA Executive Director

RECEIVED
NOV - 8 2012

STATE OF MISSISSIPPI • OFFICE OF THE GOVERNOR
POST OFFICE BOX 139 • JACKSON, MISSISSIPPI 39205 • TELEPHONE: (601) 359-3150 • FAX: (601) 359-3741 • www.governorbryant.com

LETTER OF AGREEMENT

between

ENTERGY OPERATIONS, INC.

and the

MISSISSIPPI EMERGENCY MANAGEMENT AGENCY

This re-stated Letter of Agreement hereby supercedes and replaces Letter of Agreement No. 10008476 dated October 24, 2002 between Entergy Operations, Inc. and the Mississippi Emergency Management Agency.

In regard to the preparation, maintenance, and implementation of the Emergency Plan required by the Nuclear Regulatory Commission, Entergy Operations, Inc. (Entergy Operations), acting as agent for the Owners of Grand Gulf Nuclear Station (Grand Gulf) , and the Mississippi Emergency Management Agency (MEMA), acting on behalf of the State of Mississippi, undertake and agree as follows:

I

MEMA will maintain the Mississippi Radiological Emergency Preparedness Plan, Vol III, of the Mississippi Comprehensive Emergency Management Plan, prepared pursuant to the Letter of Agreement between the parties dated June 3, 1981, for the State of Mississippi and approved by the Federal Emergency Management Agency (FEMA) and will provide assistance to Entergy Operations and will support the Grand Gulf Emergency Plan, as required by the Nuclear Regulatory Commission, in the following areas:

A. MEMA shall provide overall coordination of emergency management arrangements between Entergy Operations and various Mississippi state agencies and local governments, which are providing assistance to Entergy Operations in the event of an emergency at Grand Gulf.

B. MEMA shall assist in maintaining the Grand Gulf Emergency Plan and in conducting a program of training for the State and local personnel involved in providing emergency assistance to Entergy Operations.

C. MEMA shall maintain and operate a communications system necessary for the effective implementation of the Grand Gulf Emergency Plan.

D. MEMA shall ensure evacuation signs are available as necessary for the effective implementation of the Grand Gulf Emergency Plan.

E. MEMA agrees to take whatever additional action and to provide additional services, as Entergy Operations shall reasonably request, in the implementation of the Grand Gulf Emergency Plan. If it is determined that Entergy Operations' request for additional services is unreasonable due to excessive costs or due to the fact that the additional services differ materially from other services performed under this Agreement, then MEMA shall have no obligation to perform such services unless the parties mutually agree upon an equitable adjustment and modify this Agreement accordingly.

II

A. MEMA agrees to provide the above described assistance and support, and Entergy Operations agrees to provide MEMA, in consideration thereof, an amount of money, not to exceed $266,250 per year as allocated to MEMA and county governments as shown on Attachment A hereto. Distribution to MEMA will be made on January 1, April 1, July 1, and October 1 of each year and paid directly to the counties on an annual basis. These funds shall be used to cover the actual expenses incurred by state agencies and local governments in support of the Grand Gulf Emergency Plan.

B. MEMA and local governments agree to keep and maintain detailed records of expenses incurred in support of the Grand Gulf Emergency Plan. Such records shall be in auditable form and will be subject to audit by Entergy Operations at any time within a five-year period following expenditures.

III

All of the equipment and facilities purchased pursuant to this or any previous Agreement shall remain the property of the Owners of Grand Gulf Nuclear Station.

IV

Unless terminated in accordance with this paragraph, this Agreement will remain in effect throughout the operational term of Grand Gulf which has an estimated forty (40) year operational design life. Entergy Operations may terminate this Agreement at any time upon thirty (30) days written notice. If the parties are unable to negotiate and equitable adjustment for changed conditions in accordance with Article V, MEMA may terminate this agreement by giving Entergy Operations thirty (30) days prior written notice.

V

The Parties recognize that MEMA's performance of its obligations under this Agreement in the manner and for the amounts of money set forth herein, is predicated upon conditions prevailing on the effective date of this Agreement. The conditions referred to include, but are not limited to, economic and monetary conditions, and conditions resulting from actions created by governmental authorities, laws, and regulations in force on and after the date of this Agreement. If it is mutually determined that such conditions change so as to materially differ from such conditions existing on the effective date of this Agreement, and significantly impair or make economically impractical the ability of MEMA to fulfill its obligations hereunder, then an equitable adjustment will be negotiated by the parties and the costs and other applicable terms of this Agreement will be modified accordingly.

Accepted and Agreed

ENTERGY OPERATIONS, INC., as Agent for the Owners		MISSISSIPPI EMERGENCY MANAGEMENT AGENCY	
By:	for	By:	
Title:	Vice President, Operations	Title:	Executive Director
Date:	3-5-2008	Date:	4/22/08

LOA NO. 10008476

AMENDMENT NO. 17

to the

LETTER OF AGREEMENT

between

ENTERGY OPERATIONS, INC.

and the

MISSISSIPPI EMERGENCY MANAGEMENT AGENCY

1. The first paragraph of Section I of the Letter of Agreement is hereby amended to read as follows:

"MEMA will maintain the Mississippi Radiological Emergency Preparedness Plan Vol. III of the Mississippi Comprehensive Emergency Management Plan, prepared pursuant to the Letter of Agreement between the parties dated June 3, 1981, for the State of Mississippi and approved by the Federal Emergency Management Agency (FEMA) and will provide assistance to Entergy Operations and will support the Grand Gulf Emergency Plan, including events involving hostile actions against the plant, as required by the Nuclear Regulatory Commission, in the following areas:"

All other terms and conditions, except as duly modified by this Amendment, shall remain in full force and effect.

Accepted and Agreed to:

ENTERGY OPERATIONS, INC., as Agent for the Owners		**MISSISSIPPI EMERGENCY MANAGEMENT AGENCY**	
By:	David Bauer 2014.03.27 16:31:52 -05'00'	By:	William D Brown
Title:	Dave Bauer Manager, Strategic Sourcing Materials	Title:	William D Brown Chief of Staff
Date:	March 27, 2014	Date:	4/1/14

LOA No. 10008476

CHANGE ORDER NO. 20

THIS CHANGE ORDER is issued pursuant to Agreement No. 100008476 effective January 1, 1992 between **Entergy Operations, Inc.** ("Entergy Operations") and **Mississippi Emergency Management Agency** ("Contractor"). Inasmuch as it has been agreed to by both parties concerned, the following changes are hereby incorporated into the Agreement No.10008476 effective February 16, 2016.

1. Paragraph C of Section I of the Letter of Agreement is hereby amended to read as follows:

" MEMA shall maintain and operate a communications system necessary for the effective implementation of the Grand Gulf Emergency Plan; and will support Tensas Parish, Louisiana emergency plan communications if requested and within the capability of MEMA"

All other terms and conditions, except as duly modified by this Change Order, shall remain in full force and effect.

Accepted and Agreed to:

ENTERGY OPERATIONS, INC.,
as Agent for the Owners

By: Kimberly Peyton — Kimberly Peyton 2016.02.22 16:03:36 -06'00'

Title: Kimberly Peyton/ Tracy Askew
Title: Procurement Specialist / Manager
Date: February 16, 2016

Digitally signed by Tracy L. Askew
DN: cn=Tracy L. Askew, o=MP&C, ou=PNPS, email=taskew@entergy.com, c=US
Date: 2016.02.22 16:12:42 -06'00'

MISSISSIPPI EMERGENCY MANAGEMENT AGENCY

By:

Title: DIRECTOR REP
Date: February 22, 2016

TEXT DELETED

JOHN BEL EDWARDS
GOVERNOR

State of Louisiana

JAMES WASKOM
DIRECTOR

Governor's Office of Homeland Security
and
Emergency Preparedness

January 14, 2016

Mr. Kevin Mulligan
Vice President of Operations
Grand Gulf Nuclear Station
Post Office Box 756
Port Gibson, MS 39150

Dear Mr. Mulligan:

I am fully aware that emergencies (radiological, security, etc.) could occur at Grand Gulf Nuclear Station. These emergencies could pose a threat to the people of the State of Louisiana.

As Director of the Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP) for the State of Louisiana, I assure you that in the event of an emergency at Grand Gulf Nuclear Station, I will exercise my authority to provide assistance as delineated in the Louisiana Peacetime Radiological Response Plan for the health and safety of Louisiana citizens, and provide interstate and interlocal cooperation with the State of Mississippi within the capabilities of our State, if requested.

This letter may be part of the Grand Gulf Nuclear Station Emergency Plan and may be used as an indication of the commitment by the State of Louisiana to respond to an emergency at Grand Gulf Nuclear Station.

Sincerely,

James B. Waskom

7667 Independence Boulevard • Baton Rouge, Louisiana 70806 • (225) 925-7500 • Fax (225) 925-7501

LETTER OF AGREEMENT

between

ENTERGY OPERATIONS, INC.

and the

PORT GIBSON/CLAIBORNE COUNTY CIVIL DEFENSE COUNCIL

This re-stated Letter of Agreement hereby supercedes and replaces the Agreement (NGSM1148) between Entergy Operations, Inc. and the Port Gibson/Claiborne County Civil Defense Council dated July 16, 2002 as amended.

In regard to the protection of the residents of Port Gibson and Claiborne County, Mississippi in the event of a nuclear incident at Grand Gulf Nuclear Station, Entergy Operations, Inc. (Entergy Operations), acting as agent for the Owners of Grand Gulf Nuclear Station (Grand Gulf), and the Port Gibson/Claiborne County Civil Defense Council undertake and agree as follows:

I

Entergy Operations shall be responsible for:

All onsite operations relating to an incident at Grand Gulf;

Notification of the Port Gibson/Claiborne County Civil Defense Council during declared emergencies in accordance with the Grand Gulf Emergency Plan;

Providing training for appropriate local offsite support agencies in accordance with the Grand Gulf Emergency Plan;

Inviting the Port Gibson/Claiborne County Civil Defense Council to participate in all exercises;

Reviewing the Port Gibson/Claiborne County Radiological Emergency Plan as requested; and,

Disseminating a Public Information publication to the residents of the 10-mile Emergency Planning Zone (EPZ) in accordance with the Grand Gulf Emergency Plan.

II

In the event of a nuclear incident at Grand Gulf the Port Gibson/Claiborne County Civil Defense Council shall be responsible for:

Implementation of the Port Gibson/Claiborne County Radiological Emergency Plan;

Activation of the Port Gibson/Claiborne County Emergency Operations Center (EOC);

Initiation of protective actions for Claiborne County, including GGNS site property located outside the GGNS Emergency Preparedness Owner Controlled Area, based on the emergency classification of the incident; and,

Coordination of additional emergency actions as may be necessary.

III

Unless terminated in accordance with this paragraph, this Agreement will remain in effect throughout the operational term of Grand Gulf which has an estimated forty (40) year operations design life. Either party may terminate this Agreement at any time upon sixty (60) days written notice to the other.

Accepted and Agreed

ENTERGY OPERATIONS, INC., as Agent for the Owners		PORT GIBSON/CLAIBORNE COUNTY CIVIL DEFENSE COUNCIL	
By:	Bill Eaton	By:	Bobby McClung
Title:	Vice President, Operations	Title:	Co Ad Director
Date:	10/25/02	Date:	10/25/02

LOA NO. 10008488

AMENDMENT NO. 06

to the

LETTER OF AGREEMENT

between

ENTERGY OPERATIONS, INC.

and the

PORT GIBSON/CLAIBORNE COUNTY CIVIL DEFENSE COUNCIL

1. Section II of the Letter of Agreement is hereby amended to read as follows:

"In the event of a nuclear or hostile action incident at Grand Gulf Nuclear Station, the Port Gibson/Claiborne County Civil Defense Council shall be responsible for the following:

Implementation of the Port Gibson/Claiborne County Radiological Emergency Plan;

Activation of the Port Gibson/Claiborne County Emergency Operations Center (EOC);

Initiation of protective actions based on the emergency classification of the incident; and,

Coordination of additional emergency actions as may be necessary."

All other terms and conditions, except as duly modified by this Change Order, shall remain in full force and effect.

Accepted and Agreed to:

ENTERGY OPERATIONS, INC., as Agent for the Owners		**PORT GIBSON/CLAIBORNE COUNTY CIVIL DEFENSE COUNCIL**	
By:	Frances S Chipley Digitally signed by Frances Chipley DN: cn=Frances Chipley, o=MP&C, ou=Contracts, email=fchiple@entergy.com, c=US Date: 2014.03.27 15:39:28 -05'00'	By:	
Title:	Sr. Procurement Specialist	Title:	EMA Director
Date:	March 27, 2014	Date:	3-31-2014

LOA No. 10008371/02
June 1, 2004
Page 1 of 2

LETTER OF AGREEMENT

between

ENTERGY OPERATIONS, INC.

and the

TENSAS PARISH OFFICE OF HOMELAND SECURITY AND EMERGENCY PREPAREDNESS

This re-stated Letter of Agreement replaces the existing Agreement dated April 1, 1999 and Amendment No. 01 thereto, dated March 1, 1999.

In regard to the protection of the residents of Tensas Parish, Louisiana in the event of a nuclear incident at Grand Gulf Nuclear Station, Entergy Operations, Inc. (Entergy Operations), acting as agent for the Owners of Grand Gulf Nuclear Station (Grand Gulf), and the Tensas Parish Office of Homeland Security and Emergency Preparedness undertake and agree as follows:

I

Entergy Operations shall be responsible for:

All onsite operations relating to an incident at Grand Gulf;

Notification of the Tensas Parish Office of Homeland Security and Emergency Preparedness during declared emergencies in accordance with the Grand Gulf Emergency Plan;

Providing training for appropriate local offsite support agencies in accordance with the Grand Gulf Emergency Plan;

Inviting the Tensas Parish Office of Homeland Security and Emergency Preparedness to participate in all exercise;

Reviewing the Tensas Parish Radiological Emergency Plan as requested; and,

Disseminating a Public Information publication to the residents of the 10-mile Emergency Planning Zone (EPZ) in accordance with the Grand Gulf Emergency Plan.

II

In the event of a nuclear incident at Grand Gulf the Tensas Office of Homeland Security and Emergency Preparedness shall be responsible for:

Implementation of the Tensas Parish Radiological Emergency Plan;

Activation of the Tensas Parish Emergency Operations Center (EOC);

Initiation of protective actions based on the emergency classification of the incident; and,

Coordination of additional emergency actions as may be necessary.

III

Unless terminated in accordance with this paragraph, this Agreement will remain in effect throughout the operational term of Grand Gulf, which has an estimated forty (40) year operations design life. Either party may terminate this Agreement at any time upon sixty (60) days written notice to the other.

Accepted and Agreed:

ENTERGY OPERATIONS, INC.,
as Agent for System Energy
Resources, Inc. and South
Mississippi Electric Power Association

By: George A. Williams

Title: Vice President-Operations

Date: 6/14/04

TENSAS PARISH OFFICE OF
HOMELAND SECURITY AND
EMERGENCY
PREPAREDNESS

By: Rick Foster

Title: Director

Date: 6/15/04

LOA NO. 10008371

AMENDMENT NO. 03

to the

LETTER OF AGREEMENT

between

ENTERGY OPERATIONS, INC.

and the

TENSAS PARISH OFFICE OF HOMELAND SECURITY

1. Section II of the Letter of Agreement is hereby amended to read as follows:

"In the event of a nuclear or hostile action incident at Grand Gulf Nuclear Station, the Tensas Parish Office of Emergency Preparedness shall be responsible for the following:

Implementation of the Tensas Radiological Emergency Plan;

Activation of the Tensas Parish Emergency Operations Center (EOC);

Initiation of protective actions based on the emergency classification of the incident; and,

Coordination of additional emergency actions as may be necessary."

All other terms and conditions, except as duly modified by this Change Order, shall remain in full force and effect.

Accepted and Agreed to:

ENTERGY OPERATIONS, INC., as Agent for the Owners		**TENSAS PARISH OFFICE OF HOMELAND SECURITY**	
By:	Frances S Chipley Digitally signed by Frances Chipley DN: cn=Frances Chipley, o=MP&C, ou=Contracts, email=fchiple@entergy.com, c=US Date: 2014.03.27 15:44:52 -05'00'	By:	Rick Foster
Title:	Sr. Procurement Specialist	Title:	Director
Date:	March 27, 2014	Date:	4/11/14

LOA No. 10008370
April 1, 1994

AMENDMENT NO. 02

to the

LETTER OF AGREEMENT

between

ENTERGY OPERATIONS, INC.

and the

PORT GIBSON POLICE DEPARTMENT

This restated Letter of Agreement, in regard to the protection of the residents of Port Gibson and Claiborne County, Mississippi in the event of a nuclear incident at Grand Gulf Nuclear Station, Entergy Operations, Inc. (Entergy Operations), acting as agent for the Owners of Grand Gulf Nuclear Station (Grand Gulf), and the Port Gibson Police Department undertake and agree as follows:

I

Entergy Operations shall be responsible for:

All onsite operations relating to an incident at Grand Gulf;

Providing training for appropriate local offsite support agencies in accordance with the Grand Gulf Emergency Plan; and,

Inviting the Port Gibson Police Department to participate in all exercises.

II

In the event of a nuclear incident at Grand Gulf the Port Gibson Police Department shall be responsible for:

Assisting in traffic control;

Providing back-up communications as necessary;

Initiating protective actions as required;

Coordinating the evacuation of personnel within the Port Gibson city limits as necessary; and,

Coordinating additional emergency actions as may be necessary.

III

Unless terminated in accordance with this paragraph, this Agreement will remain in effect throughout the operational term of Grand Gulf which has an estimated forty (40) year operations design life. Either party may terminate this Agreement at any time upon sixty (60) days written notice to the other.

Accepted and Agreed

ENTERGY OPERATIONS, INC., as Agent for the Owners		PORT GIBSON POLICE DEPARTMENT	
By:	W Brown	By:	Calvin E Jack
Title:	Site Vice President	Title:	Chief of Police
Date:	6/21/07	Date:	07/12/07

LOA NUMBER: NGS00060/01
EFFECTIVE DATE: March 1, 1999

AMENDMENT NO. 01

to the

LETTER OF AGREEMENT

between

ENTERGY OPERATIONS, INC.

and the

PORT GIBSON POLICE DEPARTMENT

This Amendment is issued pursuant to the terms and conditions of Agreement No. NGS00060 (formerly G-3908) effective April 1, 1994 by and between Entergy Operations, Inc. (Entergy Operations) and the Port Gibson Police Department. Inasmuch as it has been agreed to by both parties concerned, the following change is hereby incorporated into the Agreement. The effective date of this Change Order is November 18, 1998:

1) The following new Section IV, Year 2000 Warranty, is hereby added to the Agreement:

IV

If the Port Gibson Police Department, in providing materials and/or services to Entergy Operations under this Agreement in any way uses or relies upon any hardware, software, or firmware of the Port Gibson Police Department, and/or materials of services to one or more third parties, that is dependent in any manner on the use of date-related data (collectively, the "Support Items"), the Port Gibson Police Department will ensure that such Support Items are Year 2000 Compliant. If the Port Gibson Police Department is or becomes aware that any Support Item is not Year 2000 Compliant, the Port Gibson Police Department shall immediately notify Entergy Operations in writing of such noncompliance without delay. Without limiting any other remedies Entergy Operations has under this Agreement or by law, the Port Gibson Police Department agrees to work diligently to correct any such noncompliance at no cost to Entergy Operations and to a schedule satisfactory to Entergy Operations.

All other terms and conditions, except as duly modified by this Change Order, shall remain in full force and effect.

Accepted and Agreed:

ENTERGY OPERATIONS, INC., as Agent for System Energy Resources, Inc. and South Mississippi Electric Power Association

By: [signature] C.P.M.

Title: SR. PROC. SPEC.

Date: 03/01/99

PORT GIBSON POLICE DEPARMENT

By: [signature]

Title: Chief of Police

Date: 5-4-99

LOA No. 10008370

AMENDMENT NO. 03

to the

LETTER OF AGREEMENT

between

ENTERGY OPERATIONS, INC.

and the

PORT GIBSON POLICE DEPARTMENT

1. The first paragraph of the Letter of Agreement is hereby amended to read as follows:

"This restated Letter of Agreement, in regard to the protection of the residents of Port Gibson and Claiborne County, Mississippi in the event of a nuclear or hostile action incident at Grand Gulf Nuclear Station, Entergy Operations, Inc. (Entergy Operations), acting as agent for the Owners of Grand Gulf Nuclear Station (Grand Gulf), and the Port Gibson Police Department undertake and agree as follows:"

Accepted and Agreed

ENTERGY OPERATIONS, INC.,
as Agent for the Owners

By: Frances S Chipley
Digitally signed by Frances Chipley
cn=Frances Chipley, o=MPBC, ou=Contracts, email=fchipley@entergy.com, c=US
Date: 2014.03.27 15:50:00 -05'00'

Title: Sr. Procurement Specialist

Date: March 27, 2014

PORT GIBSON POLICE DEPARTMENT

By: Calvin Gill

Title: Chief of Police

Date: 04/25/14

PORT GIBSON POLICE DEPARTMENT
806 FARMER STREET
PORT GIBSON, MS 39150
(601) 437-5101

The Claiborne Count Sheriff Department Letter Agreement, which details support for an emergency involving GGNS, is on file in accordance with federal regulations dealing with protection of information concerning the physical security system at a nuclear power plant, NUREG-0794 (10CFR73.21).

TEXT DELETED

TEXT DELETED

LETTER OF AGREEMENT NO. 10411959 (formerly G-3909)
April 24, 2014

LETTER OF AGREEMENT

Between

ENTERGY OPERATIONS, INC.

and the

CLAIBORNE COUNTY FIRE DEPARTMENT

In regard to the protection of the residents of Port Gibson and Claiborne County, Mississippi in the event of a nuclear or hostile action incident at Grand Gulf Nuclear Station, Entergy Operations, Inc. (Entergy Operations), acting as agent for the Owners of Grand Gulf Nuclear Station (Grand Gulf), and the Claiborne County Fire Department undertake and agree as follows:

I

Entergy Operations shall be responsible for:

All onsite operations relating to an incident at Grand Gulf;

Notification of the Port Gibson/Claiborne County Civil Defense Council during declared emergencies in accordance with the Grand Gulf Emergency Plan;

Providing training for appropriate local offsite support agencies in accordance with the Grand Gulf Emergency Plan; and,

Inviting the Claiborne County Fire Department to participate in annual fire drills.

II

In the event of a nuclear incident at Grand Gulf the Claiborne County Fire Department shall be responsible for:

Dispatching men and equipment as available to fight fires;

Assisting local law enforcement officials in evacuation;

Maintaining fire protection surveillance; and,

Assisting in decontamination, as necessary.

III

Entergy Operations will, to the extent possible, fill Self Contained Breathing Apparatus bottles for the Claiborne County Fire Department. This service will be coordinated through a representative designated by Entergy Operations. Entergy Operations will only fill those bottles with a current hydrostatic test date and that exhibit no signs of damage.

IV

Unless terminated in accordance with this paragraph, this Agreement will remain in effect throughout the operational term of Grand Gulf which has an estimated forty (40) year operations design life. Either party may terminate this Agreement at any time upon sixty (60) days written notice to the other.

Accepted and Agreed

ENTERGY OPERATIONS, INC.,
acting as agent for the Owners

By: Frances S Chipley
Digitally signed by Frances Chipley
DN: cn=Frances Chipley, o=MP&C, ou=Contracts, email=fchiple@entergy.com, c=US
Date: 2014.04.24 15:28:19-05'00'

Title: Sr. Procurement Specialist
Date: April 24, 2014

CLAIBORNE COUNTY FIRE DEPARTMENT

By: Jerry Davis

Title: CHIEF CC F.D.
Date: April 29 2014

LOA No. 10008493-06
January 19, 2009

LETTER OF AGREEMENT

between

ENTERGY OPERATIONS, INC.

and the

CLAIBORNE COUNTY HOSPITAL

(Note: Amendment 05 was internal to Entergy Operations.)

This restated Letter of Agreement (designated as Change Order 06 to Change Order 04) is issued to reflect the change in name from Patient's Choice Medical Center of Claiborne County to Claiborne County Hospital.

In regard to the treatment and care of radioactively contaminated/injured individuals **Entergy Operations, Inc.**, acting as agent for the Owners of Grand Gulf Nuclear Station ("Entergy Operations"), and **Claiborne County Hospital** ("Claiborne County Hospital") undertake and agree as follows in this restated Letter of Agreement:

I

A. The Claiborne County Hospital will accept and treat injured or ill personnel from Grand Gulf Nuclear Station that are radioactively contaminated or overexposed as a result of an incident during the operation of Grand Gulf Nuclear Station. As a minimum, the Claiborne County Hospital will maintain the capability and facilities to provide decontamination, first aid and emergency medical treatment of injured or ill Grand Gulf Nuclear Station personnel that are radioactively contaminated or overexposed. These services and facilities will be available 24 hours per day. Patients may be transferred to another hospital should the treatment required extend beyond the capabilities of the Claiborne County Hospital.

B. The Claiborne County Hospital will, with Entergy Operations assistance, develop and maintain the procedures to be followed by the hospital personnel in admitting radioactively contaminated/exposed personnel.

C. Entergy Operations will supply to the Claiborne County Hospital an emergency kit containing supplies not normally stocked by the hospital, and necessary to treat contaminated personnel. This emergency kit will be maintained by Entergy Operations. The Claiborne County Hospital will provide storage space for the kit and use it as directed in the procedures developed pursuant to Paragraph I.B above.

D. Entergy Operations will provide training on treatment and decontamination of radioactively contaminated individuals for the Claiborne County Hospital personnel on an annual basis at a time and location mutually agreeable to both parties.

E. The Claiborne County Hospital will participate in the emergency drills designed to test the competence of the emergency planning for Grand Gulf Nuclear Station. These drills will be scheduled on dates and at times mutually agreeable to both parties.

II

A. Charges for the services specified in Section I.A. above will be paid to the Claiborne County Hospital by Entergy Operations on the basis of the standard fee charged by the Claiborne County Hospital for each service provided.

B. The Claiborne County Hospital will submit invoices to Entergy Operations when services as provided by this Agreement have been rendered. Such invoices shall reference the Agreement No. shown on the first page of this Agreement and shall be mailed to: **Entergy Operations, Inc., P. O. Box 756, Port Gibson, MS 39150, Attn: Accounts Payable - Contracts**.

III

A. If the Claiborne County Hospital, in providing services to Entergy Operations under this Agreement, in any way uses or relies upon any hardware, software, or firmware of the Claiborne County Hospital, and/or materials or services of one or more third parties, that is dependent in any manner on the use of date-related data (collectively, the "Support Items"), the Claiborne County Hospital shall ensure that such Support Items are Year 2000 Compliant. If the Claiborne County Hospital is or becomes aware that any Support Item is not Year 2000 Compliant, the Claiborne County Hospital shall immediately notify Entergy Operations in writing of such noncompliance without delay. The Claiborne County Hospital agrees to work diligently to correct any such noncompliance at no cost to Entergy Operations and to a schedule satisfactory to Entergy Operations.

B. Unless terminated in accordance with this Paragraph III.B, this Agreement will remain in effect through the operational term of Grand Gulf Nuclear Station, which has an estimated forty (40) year operational design life. Either party may terminate this Agreement at any time upon thirty (30) days written notice to the other.

Accepted and agreed to:

ENTERGY OPERATIONS, INC., as Agent for the Owners		**CLAIBORNE COUNTY HOSPITAL**	
By:	Frances S Chipley Digitally signed by Frances Chipley DN: cn=Frances Chipley, o=MP&C, ou=Contracts, email=fchiple@entergy.com, c=US Date: 2013.06.07 13:49:07 -05'00'	By:	Linda Mangan
Title:	Sr. Procurement Specialist, Contracts	Title:	CEO
Date:	June 7, 2013	Date:	07/25/2013

LETTER OF AGREEMENT

between

ENTERGY OPERATIONS, INC.

and

VICKSBURG HEALTHCARE LLC, d/b/a

RIVER REGION HEALTH SYSTEM

This Letter Of Agreement No. NGS00807 supercedes and replaces Letter of Agreement No. NGSM1190/01, dated January 20, 2000.

In regard to the treatment and care of radioactively contaminated/injured individuals Entergy Operations, Inc., acting as agent for the Owners of Grand Gulf Nuclear Station ("Entergy Operations"), and Vicksburg HealthCare LLC, d/b/a River Region Health System (hereinafter "The Medical Center") undertake and agree as follows:

I

A. The Medical Center will accept and treat injured or ill personnel from Grand Gulf Nuclear Station that are radioactively contaminated or overexposed as a result of an incident during the operation of Grand Gulf Nuclear Station. As a minimum, The Medical Center will maintain the capability and facilities to provide decontamination, first aid and emergency medical treatment of injured or ill Grand Gulf Nuclear Station personnel that are radioactively contaminated or overexposed. These services and facilities will be available 24 hours per day. Patients may be transferred to another hospital should the treatment required extend beyond the capabilities of The Medical Center.

B. The Medical Center will, with Entergy Operations assistance, develop and maintain the procedures to be followed by the hospital personnel in admitting radioactively contaminated/exposed personnel.

C. Entergy Operations will supply to The Medical Center an emergency kit containing supplies not normally stocked by the hospital, and necessary to treat contaminated personnel. This emergency kit will be maintained by Entergy Operations. The Medical Center will provide storage space for the kit and use it as directed in the procedures developed pursuant to Paragraph I.B above.

D. Entergy Operations will provide training on treatment and decontamination of radioactively contaminated individuals for The Medical Center personnel on an annual basis at a time and location mutually agreeable to both parties.

E. The Medical Center will participate in emergency drills designed to test the competence of the emergency planning for Grand Gulf Nuclear Station. These drills will be scheduled on dates and at times mutually agreeable to both parties.

II

A. Charges for the services specified in Section I.A. above will be paid to The Medical Center by Entergy Operations on the basis of the standard fee charged by The Medical Center for each service provided.

B. The Medical Center will submit invoices to Entergy Operations when services as provided by this Agreement have been rendered. Such invoices shall reference the Agreement No. shown on the first page of this Agreement and shall be mailed to: **Site Business Management, Entergy Operations, Inc., P. O. Box 756, Port Gibson, MS 39150.**

III

Unless terminated in accordance with this paragraph, this Agreement will remain in effect through the operational term of Grand Gulf Nuclear Station, which has an estimated forty (40) year operational design life. Either party may terminate this Agreement at any time upon thirty (30) days written notice to the other.

Accepted and agreed:

ENTERGY OPERATIONS, INC.,
as Agent for System Energy
Resources, Inc. and South
Mississippi Electric Power Association

By: William A Eaton

Title: Vice President, Operations - GGNS

Date: Jan. 28, 2002

VICKSBURG HEALTHCARE LLC, d/b/a
RIVER REGION HEALTH SYSTEM

By: Bruce W Hazlewood

Title: Chief Operating Officer

Date: Feb. 1, 2002

CONTRACT NO. 10008449

CHANGE ORDER NO. 003

THIS CHANGE ORDER is issued pursuant to Contract No.10008449 effective February 17, 2002 between **Entergy Operations, Inc.** ("Entergy Operations") and **River Region Health Systems**("Contractor"). Inasmuch as it has been agreed to by both parties concerned, the following changes are hereby incorporated into the Contract No. 10008449 effective June 9, 2016.

1. The Contractor's name is hereby changed to Merit Health River Region.

All other terms and conditions, except as duly modified by this Change Order, shall remain in full force and effect.

Accepted and Agreed to:

ENTERGY OPERATIONS, INC.,
as Agent for the Owners

By: Glenn K Hebert

Digitally signed by Glenn K Hebert
DN: cn=Glenn K Hebert, c=US, o=Entergy Operations, inc ou=Grand Gulf Nuclear Station, email=ghebert3@entergy.com
Date: 2016.06.14 08:30:35 -05'00'

Glenn K Hebert
Title: Sr Procurement Specialist
Date: June 9, 2016

Merit Health River Region

By:

Title:
Date:

TEXT DELETED

Nuclear Power Plant Emergency Response Assistance Agreement

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

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

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

NOW, THEREFORE, it is agreed, that:

1. Assistance rendered by a Party as described hereunder may be given in response to a request by any Party for help following an emergency arising at a nuclear power plant or during the transportation of nuclear materials. If such assistance is given, it shall be rendered in accordance with the terms and conditions herein.

2. The Party that requests assistance shall be known as the "Requesting Company" and the Party furnishing assistance shall be known as the "Responding Company."

3. Assistance shall be defined as the requested, offered and/or actual responsive assistance to a request under the terms of this Agreement by a Responding Company, as documented in an Assistance Agreement.

4. Assistance Agreement shall be defined as a scoping document that may be as informal as an email, fax, or phone request (followed with documentation) in emergency circumstances that lists the requested, offered and agreed upon Assistance, that references this Agreement, and that is agreed to by both the Requesting and Responding Parties.

5. (a)
Requesting Company shall notify INPO or a Responding Company of the type of assistance requested and the anticipated duration during which such assistance is desired. If INPO is contacted directly, then INPO shall identify and contact the appropriate Responding Companies to ask for help in responding to an emergency. If a Responding Company is called directly, then the Responding Company may furnish such assistance that is within the scope of this agreement. Except as such companies may agree otherwise, Requesting Company shall be responsible for determining the procedures to be followed relative to the furnishing of such assistance, directing the work, and making any reports to governmental authorities and the news media regarding the emergency or the furnishing of assistance pursuant to this Agreement. Requesting Company shall notify Responding Company when its assistance is no longer needed.

(b)
The furnishing of assistance hereunder shall be deemed to have commenced when personnel of the Responding Company are assigned to other than normal duties or transportation of equipment commences pursuant to a determination by the Responding Company to provide assistance to a Requesting Company under this Agreement and shall be deemed to have terminated when the transportation of such personnel or equipment back to its working base, or home (for personnel returning at other than regular working hours), is completed.

(c)
The Responding Company shall make all arrangements for the transportation of its personnel and equipment from and to their working base or home.

6. (a)
Employees of Responding Company shall at all times continue to be employees of the Responding Company and shall at no time and for no purpose be deemed to be servants, agents, employees, or representatives of the Requesting Company.

(b)
Wages, hours, and other terms and conditions of employment applicable to personnel of the Responding Company shall be those of the Responding Company. Work procedures, security, and safety rules for such personnel shall be those of the Requesting Company.

(c)
Unless otherwise agreed, all personnel of the Responding Company shall be equipped by the Responding Company with such normal working and protective equipment as shall be compatible with the circumstances under which said personnel shall function hereunder; Requesting Company shall inform Responding Company of any specific equipment which may be required in a particular situation.

7. (a)
Responding Company shall furnish the requested personnel and equipment to the extent that the Responding Company may determine to do so in its sole judgment and discretion.

(b)
Any information which Responding Company may provide to Requesting Company (including drawings, reports, and analyses) or which Requesting Company provides to Responding Company, which either the Responding Company or the Requesting Company considers proprietary or confidential, shall be so designated. Such proprietary information shall be held in confidence and shall be used exclusively in connection with the emergency at the nuclear power plant at which the emergency has occurred (including necessary disclosures on a proprietary basis to others in that connection) and shall not be published or otherwise disclosed to others, except as may be required by law. The restrictions set forth in this section 7.(b) shall not apply to information that the Receiving Company can establish by documentary evidence:

(1) is or has become generally known to, or readily ascertainable by, the public without fault or omission of either party or its employees or agents; or
(2) was already known to the Receiving Company prior to the first disclosure of such information by the disclosing party; or
(3) was received by the Receiving Company without restrictions as to its use from a third-party who is lawfully in possession and not restricted as to the use thereof; or
(4) was independently developed through persons who have not had, either directly or indirectly, access to or knowledge of similar information provided by the other party.

(c)
Responding Company shall have the right, at any time and in its sole judgment and discretion and without any obligation to Requesting Company, to withdraw personnel and equipment furnished to the Requesting Company and return such personnel and equipment to its working base. Without limiting Responding Company's rights under the preceding sentence, Responding Company shall attempt to schedule any such withdrawal of its personnel or equipment to accommodate the needs of Requesting Company. Responding Company shall give written notice at least 24 hours in advance to Requesting Company of the permanent withdrawal of personnel or equipment furnished. Responding Company's withdrawal of personnel or equipment shall not affect any obligations which may have been incurred hereunder prior to such withdrawal or which may arise out of events occurring prior to such withdrawal.

8. All time sheets and work records pertaining to Responding Company personnel and equipment shall be kept by the Responding Company. The Responding Company shall furnish the Requesting Company with a detailed statement of all costs and expenses paid or incurred by the Responding Company in connection with the furnishing of assistance to the Requesting Company, which statement shall be paid by Requesting Company within thirty (30) days after receipt.

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

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

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

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

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

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

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

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

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

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

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

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

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

14. Except as otherwise provided in paragraph 15, any Party may withdraw from this Agreement upon at least thirty (30) days prior written notice to INPO with a copy to all of the other Parties. Notice of withdrawal shall not affect any obligations which may have been incurred hereunder prior to the effective date of such notice or which may arise out of events occurring prior to the date. No Party may withdraw from this Agreement while it is receiving assistance pursuant to this Agreement.

15. This Agreement may be amended by the agreement of a majority of the Parties hereto. Such amendment shall be effective and binding upon all Parties thirty (30) days after INPO has received counterpart signature pages for the amendment executed by at least a majority of the Parties to the Agreement. INPO shall notify all Parties when at least a majority of the Parties have executed an amendment to the Agreement. No amendment shall affect any obligation that may have been incurred hereunder prior to the effective date of such amendment or that may arise out of events occurring prior to that date. Notwithstanding the first sentence of paragraph 14, any Party may withdraw from this Agreement by submitting written notice to INPO at any time during the thirty (30) day period prior to the effective date of such amendment with a copy to all of the other Parties.

16. If any provision of this Agreement is determined to be invalid or unenforceable as to any Party or otherwise, such determination shall not affect the validity or enforceability of the other provisions of this Agreement as to that Party or otherwise.

17. In the event (i) an emergency occurs at a nuclear power plant under the control of or operated on behalf of a Party, or an event associated with transportation of nuclear materials shipped by or on behalf of a Party; (ii) a request for assistance is issued to another Party hereto in respect to such emergency; and (iii) such assistance is provided, this Agreement shall be construed in accordance with the law of the State in which the nuclear power plant is located with respect to all rights and obligations arising out of such emergency.

18. This Agreement, together with the attachments hereto, shall constitute the entire agreement between and among the parties hereto relating to nuclear power plant emergency response. This agreement, once signed, supersedes previous assistance agreements among the parties hereto.

EXHIBIT

COUNTERPART SIGNATURE PAGE

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

Date Nov 8, 2013 Company Entergy

By _____ (Corporate Officer Signature)

Printed Name: Jeffrey S. Forbes

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

Background:

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

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

Agreement:

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

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

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

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

- INPO will maintain an emergency resource capability to furnish EPRI and NEI technical information relevant to the emergency as obtained from the utility and/or available in its own databases.

- INPO will maintain information on industry assistance capabilities including:
  - Personnel with specialized plant or emergency response knowledge
  - Emergency response equipment available for sharing with the affected utility.

- INPO will coordinate the delivery of persons and material under its Nuclear Power Plant and Transportation Agreements, as requested by the affected utility.

3. Among the organizations, EPRI will maintain an emergency response capability and will be available for consultation and to conduct in-depth analyses of the emergency as appropriate.

- Both EPRI and INPO will be available to assist the affected utility through their technical analysis and events analysis capabilities, respectively. EPRI and INPO will coordinate such efforts with each other.

4. EPRI, INPO, and NEI will develop and share written procedures governing emergency notifications and specifying points of contact to provide for cross-notification of emergencies.

LOA No. 10008376/04
January 1, 2012

LETTER OF AGREEMENT

BETWEEN

ENTERGY OPERATIONS, INC.
AND
GOVERNOR'S OFFICE OF HOMELAND SECURITY AND EMERGENCY PREPAREDNESS
(GOHSEP)

Be it known, on this **1st** day of **January, 2012** the Governor's Office of Homeland Security and Emergency Preparedness (hereinafter sometimes referred to as "**GOHSEP**") and the Entergy Operations, Inc. P. O. Box 756, Port Gibson, MS 39150 (hereinafter sometimes referred to as "**Entergy Operations**") do hereby enter into a Letter of Agreement under the following conditions.

This re-stated Letter of Agreement (LOA) replaces the existing Agreement dated August 29, 2006, re-stated LOA dated, June 1, 2004, and the original Agreement dated April 1, 1996 thereto. The following constitutes an agreement between Entergy Operations, acting as agent for the owners of **Grand Gulf Nuclear Station (GGNS),** and the GOHSEP in regards to support of the emergency preparedness efforts of GGNS. The parties undertake and agree as follows:

I
DESCRIPTION OF SERVICES

On an on-going basis, GOHSEP agrees to provide the following services:

A. GOHSEP will maintain adequate and well trained staff to provide 24/7 Communications Desk Operations and response capability, serving as the primary warning point for notification of fixed nuclear facility emergencies.
B. GOHSEP will provide a full-time professional level staff member to conduct, as appropriate, radiological emergency preparedness training for local and Louisiana state personnel.
C. GOHSEP will participate in drills, exercises and exercise scenario development, and will serve as an exercise evaluator/controller in support of GGNS as these activities are conducted throughout the year.
D. GOHSEP will develop, coordinate and maintain Louisiana state level implementing procedures which address Louisiana state response to a Fixed Nuclear Facility (FNF) emergency.
E. GOHSEP will provide response to actual events as requested by the GGNS, or as required by law, the Federal Emergency Management Agency (FEMA), and the United States Nuclear Regulatory Commission (NRC).
F. GOHSEP will provide annual calibrations and non-technical maintenance to all radiation detection equipment furnished to the local Off Site Response Organizations by the GGNS.

II
PAYMENT TERMS

A. GOHSEP agrees to provide the above described assistance and support and Entergy Operations agrees to provide to GOHSEP, in consideration thereof, the sum of **$62,156.66** per year. Entergy Operations shall make equal payments of **$15,539.16** per quarter to GOHSEP at the beginning of each quarter, except the initial payment which will be made within thirty (30) days following execution of this Agreement.

B. GOHSEP shall submit quarterly invoices, referencing Agreement No. 10008376, at least thirty (30) days prior to the start of each quarter. Such invoices shall be mailed to:

Site Business Management
Entergy Operations, Inc.
P. O. Box 756
Port Gibson, MS 39150

LOA No. 10008376/04
January 1, 2012

III
TERMINATION

A. Unless terminated in accordance with this paragraph, this Agreement will remain in effect throughout the operational term of GGNS which has an estimated forty (40) years operational design life.

B. Either party may terminate this Agreement upon one hundred twenty (120) days written notice to the other. In the event of termination, GOHSEP, subsequent to its receipt of any quarterly payment as specified in Paragraph II above, shall return to Entergy Operations a pro-rata portion of such compensation, based on GOHSEP's costs actually incurred pursuant to the Agreement prior to the termination.

IV
PERIOD OF PERFORMANCE

The Parties recognize GOHSEP's performance of its obligation under this Agreement in the manner and in the amounts set forth, is predicated upon conditions prevailing on the effective date of this Agreement. The conditions referred to include, but are not limited to, economics and monetary conditions, and conditions created by actions of governmental authorities, laws and regulations on the date of this Agreement. If it is mutually determined that conditions change so as to materially differ from such conditions existing on the effective date of this Agreement and threaten to significantly impair or to make economically impractical the ability to GOHSEP to fulfill its contractual obligations hereunder, then an equitable adjustment will be negotiated by the parties and compensation and other applicable terms of this Agreement will be modified in writing.

V
TERM OF AGREEMENT

This Agreement will be effective on the 1st day of **January, 2012**, and will remain in effect hereafter, unless the terms are negotiated and agreed to in writing by both parties based on changes as described in Paragraph IV above.

ACCEPTED AND AGREED:

ENTERGY OPERATIONS, INC.
as Agent for Entergy Mississippi
and South Mississippi Electric Power Association

By: _____

Print Name: MICHAEL PERITO

Title: VICE PRESIDENT GGNS

Date: 2/3/12

GOVERNOR'S OFFICE OF HOMELAND SECURITY AND EMERGENCY PREPAREDNESS OF THE STATE OF LOUISIANA:

By: _____

Print Name: KEVIN DAVIS

Title: DIRECTOR

Date: 2/13/12

APPROVED
FEB 13 2012
GOHSEP

LOA No. 10008376

AMENDMENT NO. 14

to the

LETTER OF AGREEMENT

between

ENTERGY OPERATIONS, INC.

and the

GOVERNOR'S OFFICE OF HOMELAND SECURITY

1. Section I Item E is hereby amended to read as follows:

"E. GOHSEP will coordinate response efforts to actual events, including hostile actions directed toward the plant, as requested by Grand Gulf Nuclear Station, or as required by law, the Federal Emergency Management Agency (FEMA), and the United States Nuclear Regulatory Commission (NRC)."

Accepted and Agreed:

ENTERGY OPERATIONS, INC.,
as Agent for System Energy Resources, Inc. and South Mississippi Electric Power Association

By: Annette Berry Delaughter
Digitally signed by Annette Berry Delaughter
DN: cn=Annette Berry Delaughter, o=Strategic Materials, ou=Supply Chain, email=aberry@entergy.com, c=US
Date: 2014.03.31 11:25:45 -05'00'
Annette Delaughter for Frances Chipley
Title: Category Leader
Date: March 31, 2014

GOVERNOR'S OFFICE OF HOMELAND SECURITY

By:
Title: Director
Date: March 31, 2014

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LETTER OF AGREEMENT

between

ENTERGY OPERATIONS, INC.

and

OCHSNER CLINIC FOUNDATION

This Letter of Agreement supersedes and cancels Agreement No. 10008477/04 dated June 1, 2004 between the parties, including all amendments thereto.

In regard to the transportation and treatment of injured or ill personnel from Grand Gulf Nuclear Station (Grand Gulf), Entergy Operations, Inc. (Entergy Operations), acting as agent for the Owners, and the Ochsner Clinic Foundation (OCF) undertake and agree as follows:

I

A. OCF will accept and treat injured or ill personnel from Grand Gulf Nuclear Station whether or not they are radioactively contaminated or overexposed, provided that the maximum contamination does not exceed 5R/hr at one (1) meter from the patient. As a minimum, OCF shall maintain the capability and facilities to provide decontamination, first aid, and emergency medical treatment to injured or ill personnel from Grand Gulf Nuclear Station. These services and facilities will be available 24 hours per day. Patients may be transferred from OCF to another hospital should the treatment required as a result of the injury extend beyond the capabilities of the Ochsner Clinic Foundation.

B. OCF will accept, via the appropriate helicopter carrier, injured or ill personnel from Grand Gulf Nuclear Station, Claiborne County Hospital, or River Region Medical Center. It will be left to these facilities to determine the helicopter carrier.

II

A. Entergy Operations shall pay one hundred percent (100%) of OCF's billed fees for the services specified in this Letter of Agreement within thirty (30) days following receipt of OCF's invoice(s).

B. OCF will submit invoices to Entergy Operations when services as provided by this Agreement have been rendered. Such invoices shall reference the Agreement No. shown on the first page of this Agreement and shall be mailed to: **Site Business Management, Entergy Operations, Inc. P.O. Box 756, Port Gibson, MS 39150.**

C. If Ochsner's emergency room or hospital is on patient diversion due to exceeding their patient treatment capacity Ochsner has the right to refuse care under this agreement.

III

Unless terminated in accordance with this paragraph, this Agreement will remain in effect through the operational term of Grand Gulf Nuclear which has an estimated forty (40) year operational design life. Either party may terminate this Agreement at any time upon thirty (30) days written notice to the other.

Accepted and agreed:

ENTERGY OPERATIONS, INC., as Agent for the Owners		**OCHSNER CLINIC FOUNDATION**
By:	Alexander H. Fletcher — Digitally signed by Alexander H. Fletcher; DN: cn=Alexander H. Fletcher, o, ou, email=afletc1@entergy.com, c=US; Date: 2013.02.19 09:43:04 -06'00'	By: Grant J Walker
Title:	Sr. Procurement Specialist – Contracts	Title: VP Supply Chain
Date:	February 19, 2013	Date: 2-26-2013

TEXT DELETED

LETTER OF AGREEMENT

between

ENTERGY OPERATIONS, INC.

and

METRO AMBULANCE SERVICE (RURAL), INC., D/B/A AMERICAN MEDICAL RESPONSE

In regard to the transportation and treatment of radioactively contaminated/injured individuals, Entergy Operations, Inc., acting as agent for the Owners of Grand Gulf Nuclear Station ("Entergy Operations"), and Metro Ambulance Service (Rural), Inc., d/b/a American Medical Response ("AMR ") undertake and agree as follows:

I

A. AMR will provide, when requested by Entergy Operations, ambulance service to treat and transport injured or ill personnel from Grand Gulf Nuclear Station to the Claiborne County (Mississippi) Hospital or other local hospitals.

B. AMR will, with Entergy Operations assistance, develop and maintain procedures to be followed by AMR personnel when transporting radioactively contaminated personnel from Grand Gulf Nuclear Station.

C. AMR will maintain radio communications with local hospitals and will respond to calls for assistance at Grand Gulf Nuclear Station forwarded by those hospitals for Entergy Operations.

D. AMR agrees to comply with all applicable Grand Gulf Nuclear Station security and radio communications procedures. Entergy Operations will provide copies of applicable procedures and will brief AMR personnel on applicable portions of those procedures.

E. AMR agrees that, upon request, Entergy Operations Health Physics personnel may accompany, in AMR's ambulance(s), Entergy Operations personnel being transported by AMR.

F. Entergy Operations will provide training on the treatment and decontamination of radioactively contaminated individuals for AMR personnel on an annual basis at a time and location mutually agreeable to both parties.

G. AMR will participate in emergency drills designed to test the competence of the emergency planning for Grand Gulf Nuclear Station. These drills will be scheduled on dates and at times mutually agreeable to both parties.

II

A. Charges for the services specified in Section I.A above will be paid to AMR by Entergy Operations on the basis of the standard fee charged by AMR for each service provided.

B. Entergy Operations will reimburse AMR for a temporary replacement ambulance while any AMR ambulance used to provide services under this Agreement is inoperative due to clean-up and decontamination after transporting a patient from Grand Gulf Nuclear Station. Entergy Operations will reimburse AMR for a permanent replacement ambulance if any AMR is rendered permanently inoperative due to contamination from the Grand Gulf Nuclear Station. Until such time as a replacement ambulance becomes available, Entergy Operations agrees to reimburse AMR for any lost transport revenues.

C. AMR will submit invoices to Entergy Operations when services as provided by this Agreement have been rendered. Such invoices shall reference Agreement No. 10195761 and shall be mailed to: **Site Business Management, Entergy Operations, Inc., P. O. Box 756, Port Gibson, MS 39150.**

III

A. AMR agrees to at all times to carry at least the minimum standards of insurance as set forth by the Department of EMS of Mississippi for ambulances; to include General Liability, Medical Malpractice, Workers' Compensation and Automotive Liability coverages.

IV

A. AMR agrees to notify the Grand Gulf Nuclear Station Office of Emergency Preparedness within two (2) workings days of the termination of AMR's contract with the Claiborne County Hospital.

B. Unless terminated in accordance with this Section IV.B, this Agreement will remain in effect through the operational term of Grand Gulf Nuclear Station, which has an estimated forty (40) year operations design life. Either party may terminate this Agreement at any time upon thirty (30) days written notice to the other.

V

A. Compliance. The parties will comply in all material respects with all applicable federal and state laws and regulations including, the federal Anti-kickback statute.

B. Compliance Program and Code of Conduct. AMR has made available to each party a copy of its Code of Conduct, Anti-kickback policies and other compliance policies, as may be changed from time-to-time, at AMR's web site, located at: www.amr.net, and each party acknowledges receipt of such documents. AMR warrants that its personnel shall comply with AMR's compliance policies, including training related to the Anti-kickback Statute.

C. Non-Exclusion. Each party represents and certifies that neither it nor any practitioner who orders or provide Services on its behalf hereunder has been convicted of any conduct that constitutes grounds for mandatory exclusion as identified in 42 U.S.C.§ 1320a-7(a). Each party further represents and certifies that it is not ineligible to participate in Federal health care programs or in any other state or federal government payment program. Each party agrees that if DHHS/OIG excludes it, or any of its practitioners or employees who order or provide Services, from participation in Federal health care programs, the party must notify the other party within five (5) days of knowledge of such fact, and the other party may immediately terminate this Agreement, unless the excluded party is a practitioner or employee who immediately discontinues ordering or providing Services hereunder.

D. Referrals. It is not the intent of either party that any remuneration, benefit or privilege provided for under the Agreement shall influence or in any way be based on the referral or recommended referral by either party of patients to the other party or its affiliated providers, if any, or the purchasing, leasing or ordering of any services other than the specific services described in this Agreement. Any payments specified herein are consistent with what the parties reasonably believe to be a fair market value for the services provided.

Accepted and Agreed:

ENTERGY OPERATIONS, INC., as Agent for the Owners	**METRO AMBULANCE SERVICE (RURAL), INC., D/B/A AMERICAN MEDICAL RESPONSE**
By:	By: Jessica Broadus
Title: Vice President, Operations - GGNS	Title: General Manager
Date: 5/16/08	Date: 05/30/08

LOA No. 10195761

AMENDMENT NO. 01

to the

LETTER OF AGREEMENT

between

ENTERGY OPERATIONS, INC.

and

METRO AMBULANCE SERVICE (RURAL), INC., D/B/A AMERICAN MEDICAL RESPONSE

1. Section I Item A of the Letter of Agreement is hereby amended to read as follows:

"A. AMR will provide, when requested by Entergy Operations, ambulance service to treat and transport injured or ill personnel, including those persons injured in a hostile action directed toward the Plant, from Grand Gulf Nuclear Station to the Claiborne County (Mississippi) Hospital or other local hospitals."

Accepted and Agreed:

ENTERGY OPERATIONS, INC., as Agent for the Owners		**METRO AMBULANCE SERVICE (RURAL), INC., D/B/A AMERICAN MEDICAL RESPONSE**	
By:	Frances S Chipley Digitally signed by Frances Chipley DN: cn=Frances Chipley, o=MP&C, ou=Contracts, email=fchiple@entergy.com, c=US Date: 2014.03.27 16:03:47 -05'00'	By:	Timothy A. Houghton
Title:	Sr. Procurement Specialist	Title:	Manager of Operations
Date:	March 27, 2014	Date:	April 3, 2014

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FSAR

APPENDIX E

Executive Summary of the
Evacuation Time Estimates
For Grand Gulf Nuclear Station

November 2012

The entire Evacuation Time Estimates Study can be found in GIN 2013/00190.

EXECUTIVE SUMMARY

This report describes the analyses undertaken and the results obtained by a study to develop Evaluation time Estimates (ETE) for the Grand Gulf Nuclear Station (GGNS) located in Claiborne County, Mississippi. ETE are part of the required planning basis and provide Entergy and State and local governments with site-specific information needed for Protective Action decision-making.

In the performance of this effort, guidance is provided by documents published by Federal Governmental agencies. Most important of these are:

- Criteria for Development of Evacuation Time Estimate Studies, NUREG/CR-7002, November 2011.
- Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, NUREG 0654/FEMA-REP-1, Rev. 1, November 1980.
- Development of Evacuation Time Estimates for Nuclear Power Plants, NUREG/CR-6863, January 2005.
- 10CFR50, Appendix E – "Emergency Planning and Preparedness for Production and Utilization Facilities"

Overview of Project Activities

This project began in April, 2012 and extended over a period of six months. The major activities performed are briefly described in chronological sequence:

- Attended "kick-off" meetings with Entergy personnel, and emergency management personnel representing state and local governments.
- Accessed U.S. Census Bureau data files for the year 2010. Studied Geographical Information Systems (GIS) maps of the area in the vicinity of the GGNS, then conducted a detailed field survey of the highway network
- Synthesized this information to create an analysis network representing the highway system topology and capacities within the Emergency Planning Zone (EPZ), plus a Shadow region covering the region between the EPZ boundary and approximately 15 miles radially from the plant
- Designed and sponsored a telephone survey of residents within the EPZ to gather focused data needed for this ETE study that were not contained within the census database. The survey instrument was reviewed and modified by the licensee and offsite response organization (ORO) personnel prior to the survey
- Data collection forms (provided to the OROs at the kickoff meeting) were returned with data pertaining to employment, transients, and special facilities in each county and parish.

- The traffic demand and trip-generation rates of evacuating vehicles were estimated from the gathered data. The trip generation rates reflected the estimated mobilization time (i.e., the time required by evacuees to prepare for the evaluation trip) computed using the results of the telephone survey of EPZ residents.
- Following Federal guidelines, the EPZ is subdivided into 16 PAS / PAA. These PAS / PAA are then grouped within circular areas or "keyhole" configurations (circles plus radial sectors) that define a total of 41 Evacuation Regions.
- The time-varying external circumstances are represented as Evacuation Scenarios, each described in terms of the following factors: (1) Season (Summer, Winter); (2) Day of Week (Midweek, Weekend); (3) Time of Day (Midday, Evening); and (4) Weather (Good, Rain). One special event scenario involving a football game at Alcorn State University was considered. One roadway impact scenario was considered wherein in a single lane was closed on US 61 northbound for the duration of the evacuation.
- Staged evacuation was considered for those regions wherein the 2-mile radius and sectors downwind to 5 miles were evacuated.
- As per NUREG/CR-7002, the Planning Basis for the calculation of ETE is:
    - A rapidly escalating accident at GGNS that quickly assumes the status of General Emergency such that the Advisory to Evacuate is announced in a timely manner following the siren notification, and no early protective actions have been implemented.
    - While an unlikely accident scenario, this planning basis will yield ETE, measured as the elapsed time from the Advisory to Evacuate until the stated percentage of the population exits the impacted Region, that represent "upper bound" estimates. This conservative Planning Basis is applicable for all initiating events.
- If the emergency occurs while schools are in session, the ETE study assumes that the children will be evacuated by bus directly to reception centers located outside the EPZ. Parents, relatives, and neighbors are advised to not pick up their children at school prior to the arrival of the buses dispatched for that purpose. The ETE for schoolchildren are calculated separately.
- Evacuees who do not have access to private vehicle will either ride-share with relatives, friends or neighbors, or be evacuated by buses provided as specified in the county evacuation plans. Those in special facilities will likewise be evacuated with public transit, as needed: bus, van, or ambulance, as required. Separate ETE are calculated for the transit-dependent evacuees for homebound special needs population, and for those evacuated from special facilities.

Computation of ETE

A total of 492 ETE were computed for the evacuation of the general public. Each ETE quantifies the aggregate evacuation time estimated for the population within one of the 41 Evacuation Regions to evacuate from that Region, under the circumstances defined for one of the 12

Evacuation Scenarios (41 x 12 = 492). Separate ETE are calculated for transit-dependent evacuees, including schoolchildren for applicable scenarios.

Except for Region R03, which is the evacuation of the entire EPZ, only a portion of the people within the EPZ would be advised to evacuate. That is, the Advisory to Evacuate applies only to those people occupying the specified impacted region. It is assumed that 100 percent of the people within the impacted region will evacuate in response to this Advisory. The people occupying the remainder of the EPZ outside the impacted region may be advised to take shelter.

The computation of ETE assumes that 20% of the population within the EPZ but outside the impacted region, will elect to “voluntarily" evacuate. In addition, 20% of the population in the Shadow Region will also elect to evacuate. These voluntary evacuees could impede those who are evacuating from within the impacted region. The impedance that could be caused by voluntary evacuees is considered in the computation of ETE for the impacted region.

Staged evacuation is considered wherein those people within the 2-mile region evacuate immediately, while those beyond 2 miles, but within the EPZ, shelter-in-place. Once 90% of the 2-mile region is evacuated, those people beyond 2 miles begin to evacuate. As per federal guidance, 20% of people beyond 2 miles will evacuate (non-compliance) even though they are advised to shelter-in-place.

The computational procedure is outlined as follows:

- A link-node representation of the highway network is coded. Each link represents a unidirectional length of highway; each node usually represents an intersection or merge point. The capacity of each link is estimated based on the field survey observations and on established traffic engineering procedures.
- The evacuation trips are generated at locations called “zonal centroids" located within the EPZ and Shadow Region. The trip generation rates vary over time reflecting the mobilization process, and from one location (centroid) to another depending on population density and on whether a centroid is within, or outside, the impacted area.
- The evacuation model computes the routing patterns for evacuating vehicles that are compliant with federal guidelines (outbound relative to the location of the plant), then simulate the traffic flow movements over space and time. This simulation process estimates the rate that traffic flow exits the impacted region.

The ETE statistics provide the elapsed times for 90 percent and 100 percent, respectively, of the population within the impacted region, to evacuate from within the impacted region. These statistics are presented in tabular and graphical formats. The 90th percentile ETE have been identified as the values that should be considered when making protective action decisions because the 100th percentile ETE are prolonged by those relatively few people who take longer to mobilize. This is referred to as the “evacuation tail" in Section 4.0 of NUREG/CR-7002.

The use of a public outreach (information) program to emphasize the need for evacuees to minimize the time needed to prepare to evacuate (secure the home, assemble needed clothes,

medicines, etc.) should also be considered.

Traffic Management

This study references the comprehensive traffic management plans provided by Claiborne County, MS and Tensas Parish, LA. Due to the limited traffic congestion within the EPZ, no additional traffic or access control measures have been identified as a result of this study.

Selected Results

A compilation of selected information is presented on the following pages in the form of Figures and Tables extracted from the body of the report; these are described below.

- Figure 6-1 displays a map of the GGNS EPZ showing the layout of the 16 PAS / PAA that comprise, in aggregate, the EPZ.
- Table 3-1 presents the estimates of permanent resident population in each PAS / PAA based on the 2010 Census data.
- Table 6-1 defines each of the 41 Evacuation Regions in terms of their respective groups of PAS / PAA.
- Table 6-2 lists the Evacuation Scenarios.
- Tables 7-1 and 7-2 are compilations of ETE. These data are the times needed to clear the indicated regions of 90 and 100 percent of the population occupying these regions, respectively. These computed ETE include consideration of mobilization time and of estimated voluntary evacuations from other regions within the EPZ and from the Shadow Region.
- Tables 7-3 and 7-4 presents ETE for the 2-mile region for un-staged and staged evacuations for the 90th and 100th percentiles, respectively.
- Table 8-7 presents ETE for the schoolchildren in good weather.
- Table 8-10 presents ETE for the transit-dependent population in good weather.
- Figure H-8 presents an example of an Evacuation Region (Region R08) to be evacuated under the circumstances defined in Table 6-1. Maps of all regions are provided in Appendix H.

Conclusions

- General population ETE were, computed for 492 unique cases - a combination of 41 unique Evacuation Regions and 12 unique Evacuation Scenarios. Table 7-1 and Table 7-2 document these ETE for the 90th and 100th percentiles. These ETE range from 1:25 (hr:min) to 2:30 at the 90th percentile.
- Inspection of Table 7-1 and Table 7-2 indicates that the ETE for the 100th percentile are significantly longer than those for the 90th percentile (see Figures 7-8 through 7-19). This is due to the fact that the resident mobilization curve has a long "tail"; relatively few evacuees take a long time to mobilize.
- Inspection of Table 7-3 and Table 7-4 indicates that a staged evacuation provides no benefits to evacuees from within the 2 mile region and unnecessarily delays the evacuation of those beyond 2 miles (compare Regions R02, R04 through R09 with

Regions R35 through R41, respectively, in Tables 7-1 and 7-2). See Section 7.6 for additional discussion.

- Comparison of Scenarios 10 (winter, midweek/weekend, evening) and 11 (winter, weekend, evening) in Table 7-2 indicates that the special event does not materially affect the ETE at the 100th percentile, but increases the ETE at the 90th percentile for regions including PAS / PAA 6 by up to 35 minutes. See Section 7.5 for additional discussion.
- Comparison of Scenarios 1 and 12 in Table 7-1 indicates that the roadway closure – the closure of one lane on US 61 northbound from the boundary of Port Gibson to the EPZ boundary (by the Claiborne County line) - does not have an impact on the 90th percentile ETE. See Section 7.5 for additional discussion.
- Throughout the evacuation the EPZ is free from congestion, with the exception of the exit roadways from the Alcorn State University. The most congested area in the network is SR 522 from the University to US 61 SB. By 2 hours and 20 minutes after the Advisory to Evacuate, traffic is moving at free-flow speed (LOS A) on all roadways within the EPZ (Scenario 6, R03). See Section 7.3 and Figures 7-3 through 7-7.
- Separate ETE were computed for schools, medical facilities, transit-dependent persons, homebound special needs persons and correctional facilities. The average single-wave ETE for schools and medical facilities are within a similar range as the general population ETE at the 90th percentile; the ETE for transit-dependents, homebound special needs persons and the correctional facility are slightly longer on average. See Section 8.
- Table 8-5 indicates that there are sufficient transportation resources available to evacuate the public schools in both the county and parish, but not all the transit dependent population within the EPZ in a single wave. There are also not enough ambulances to evacuate the bedridden population in a single wave. The second-wave ETE for ambulances and special needs population does exceed the general population ETE at the 90th percentile. See Sections 8.4 and 8.5.
- The general population ETE at the 100th percentile closely follows the trip generation time due to a lack of congestion within the EPZ. The 90th percentile ETE are less sensitive to truncating the tail of the mobilization time distribution, since the mobilization time of the bulk of evacuees is unchanged. See Table M-l.
- The general population ETE is insensitive to the voluntary evacuation of vehicles in the Shadow Region (tripling the shadow evacuation percentage does not increase 90th or 100th percentile ETE). See Table M-2.
- Population changes of 50 and 75% do not result in ETE changes which meet the criteria for updating ETE between decennial Censuses. A population increase of 160% is needed to increase the 90th percentile ETE by 30 minutes. See Section M.3.

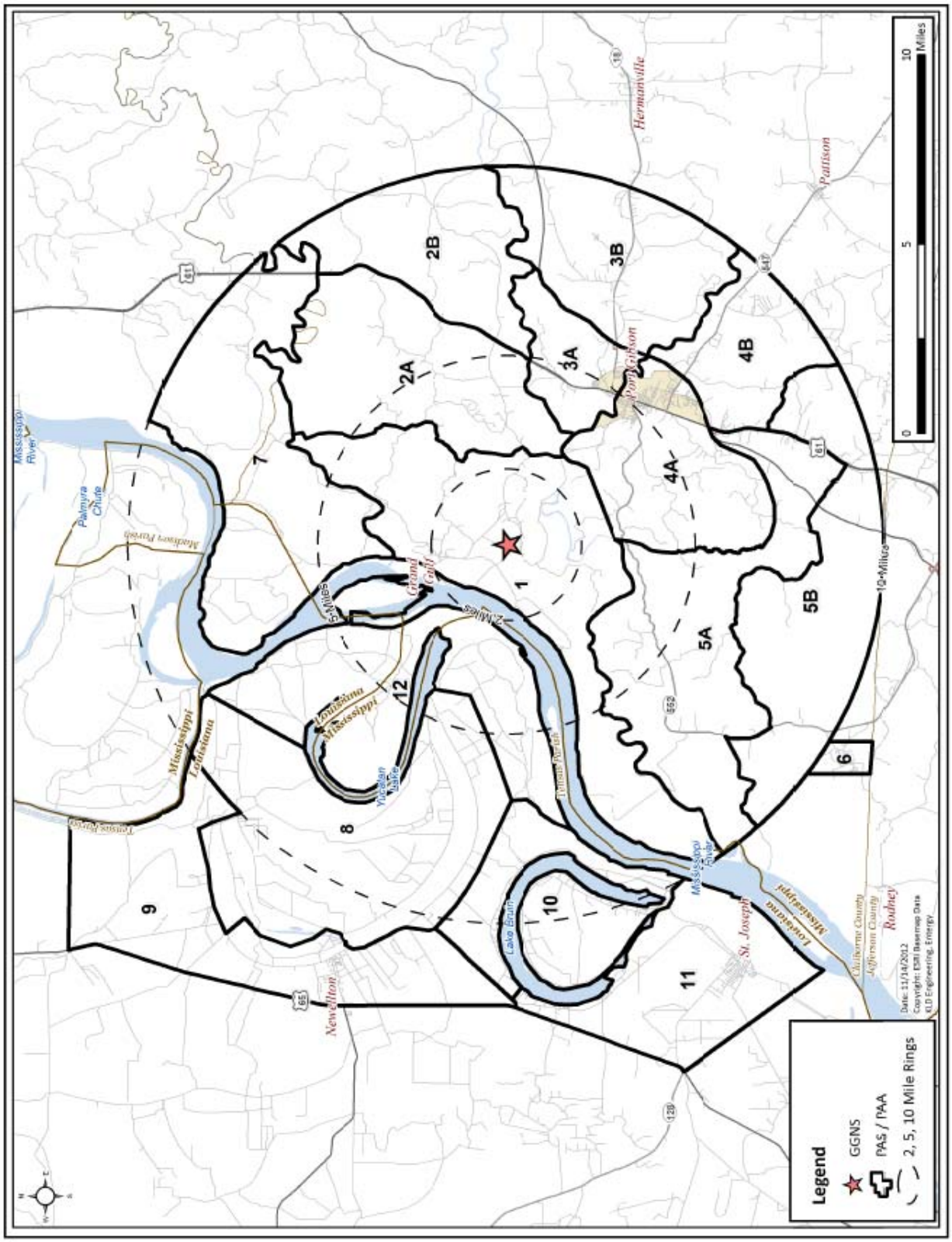

Figure 6.1 GGNS EPZ PAS/PAA

Table 3-1. EPZ Permanent Resident Population

PAS / PAA	2000 Population	2007 Population	2010 Population
1	104	100	43
2A	356	342	305
2B	150	144	151
3A	983	946	961
3B	506	487	388
4A	2,892	2,778	2,407
4B	564	541	453
5A	163	156	138
5B	396	381	356
6	2,057	2,258	2,629
7	3	3	28
8	163	148	126
9	1,892	1,708	1,185
10	431	388	394
11	1,530	1,381	1,403
12	-	-	-
TOTAL	**12,190**	**11,761**	**10,967**
EPZ Population Growth (2000 to 2010):			**-10.03%**

Table 6.1. Description of Evacuation Regions

		PAS/PAA															
Region	Description	1	2A	2B	3A	3B	4A	4B	5A	5B	6	7	8	9	10	11	12
R01	2-Mile Ring	x															
R02	5-Mile Ring	x	x		x		x		x								x
R03	Full EPZ	x	x	X	x	x	x	x	x	x	x	x	x	x	x	x	x
Evacuate 2-Mile Radius and Downwind to 5 Miles																	
		PAS/PAA															
Region	Wind Direction Toward	1	2A	2B	3A	3B	4A	4B	5A	5B	6	7	8	9	10	11	12
R04	WSW, W, WNW	X															x
N/A	NNE	Refer to Region 01															
R05	NE. ENE	x	X														
R06	E	X	x		x												
R07	ESE, SE, SSE	X			X		X										
R08	W	x					X		X								
R09	SSW	X							x								
N/A	SW	Refer to Region 01															
		Evacuate 2-Mile Radius and Downwind to EPZ Boundary															
		PAS/PAA															
Region	Wind Direction Toward	1	2A	2B	3A	3B	4A	4B	5A	5B	6	7	8	9	10	11	12
N/A4	N	Refer to Region 04															
R10	NNE	X	X									X					
R11	NE. ENE	X	X	X								X					
R12	E	X	X	X	X	X											
R13	ESE	X	X	X	X	X	X	X									
R14	SE	X			X	X	X	X	X	X							
R15	SSE	X			X		X	X	X	X							
R16	S	X					X	X	X	X	X						
R17	SSW	X							X	X	X						
R18	SW	X									X				x	x	
R19	WSW	X									X		X		X	x	x
R20	W	X											x	x	x	x	X

		PAS/PAA															
Region	Description	1	2A	2B	3A	3B	4A	4B	5A	5B	6	7	8	9	10	11	12
R21	WNW	x											x	x	x		X
R22	NW, NNW	x							x				x	x			x
Evacuate 5-Mile Radius and Downwind to EPZ Boundary																	
		PAS/PAA															
Region	Wind Direction Toward	1	2A	2B	3A	3B	4A	4B	5A	5B	6	7	8	9	10	11	12
N/A	N	Refer to Region 02															
R23	NNE	X	X		X		X		X			X					X
R24	NE. ENE	x	X		X		X					X					X
R25	E	X	x	X	X	X	X		X								X
R26	ESE	X	X	X	X	X	X	X	X								X
R27	SE	x	X	x	X	X	X	X	X	X							X
R28	SSE	X	X		X		X	X	X	X							X
R29	S	X	X		X		X	X	X	X	X						X
R30	SSW	X	X		X		X		X	X	X						X
R31	SW	X	X		X		X		x	X	X				X	X	X
R32	WSW, W	X	X		X		X		x				X	X	X	X	X
R33	WNW	X	X		X		X		x			X	X	X	X	X	X
R34	NW, NNW	X	x		X		X		x				X	X			X
		Evacuate 2-Mile Radius and Staged Downwind to5 Miles															
		PAS/PAA															
Region	Wind Direction Toward	1	2A	2B	3A	3B	4A	4B	5A	5B	6	7	8	9	10	11	12
R35	5 – Mile Ring	X	X		X							X					X
R36	WSW, W, WNW,	X										X					x
N/A	NNE	Refer to Region 01															
R37	NE, ENE	X	X														
R38	E	X	X		X												
R39	ESE, SE, SSE	X			X		X										
R40	S	X					X		X								
R41	SSW	X							X								
N/A	SW	Refer to Region 01															

Table 6-2. Evacuation Scenario Definitions

Scenario	Season[1]	Day of Week	Time of Day	Weather	Special
1	Summer	Midweek	Midday	Good	None
2	Summer	Midweek	Midday	Rain	None
3	Summer	Weekend	Midday	Good	None
4	Summer	Weekend	Midday	Rain	None
5	Summer	Midweek, Weekend	Evening	Good	None
6	Winter	Midweek	Midday	Good	None
7	Winter	Midweek	Midday	Rain	None
8	Winter	Weekend	Midday	Good	None
9	Winter	Weekend	Midday	Rain	None
10	Winter	Midweek, Weekend	Evening	Good	None
11	Winter	Weekend	Evening	Good	Alcorn State University football game
12	Winter	Midweek	Midday	Good	Roadway Impact – Lane Closure on US 61

[1] Winter assumes that school is in session (also applies to spring and autumn). Summer assumes that school is not in session.

Table 7-1. 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	Evening	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	1:30	1:30	1:25	1:25	1:30	1:30	1:30	1:30	1:30	1:25	1:25	1:30	R01
R02	2:10	2:15	2:05	2:05	2:00	2:10	2:10	2:05	2:05	2:00	2:00	2:10	R02
R03	2:20	2:20	2:05	2:05	2:00	2:15	2:15	2:00	2:05	2:00	2:30	2:20	R03
2-Mile Region and Keyhole to 5 Miles													
R04	1:30	1:30	1:25	1:25	1:30	1:30	1:30	1:30	1:30	1:25	1:25	1:30	R04
R05	2:05	2:05	2:05	2:05	2:00	2:05	2:05	2:05	2:05	2:00	2:00	2:05	R05
R06	2:05	2:10	2:05	2:05	2:00	2:05	2:10	2:05	2:05	2:00	2:00	2:05	R06
R07	2:10	2:10	2:05	2:05	2:00	2:05	2:10	2:00	2:05	2:00	2:00	2:10	R07
R08	2:05	2:10	2:00	2:05	2:00	2:05	2:10	2:00	2:05	2:00	2:00	2:05	R08
R09	2:00	2:05	2:00	2:05	2:00	2:00	2:05	2:00	2:05	2:00	2:00	2:00	R09
2-Mile Region and Keyhole to 10 Miles													
R10	2:05	2:05	2:05	2:05	2:05	2:05	2:05	2:05	2:05	2:00	2:00	2:05	R10
R11	2:05	2:05	2:05	2:05	2:00	2:05	2:05	2:05	2:05	2:00	2:00	2:05	R11
R12	2:05	2:10	2:05	2:05	2:00	2:05	2:10	2:05	2:05	2:00	2:00	2:10	R12
R13	2:15	2:15	2:05	2:05	2:00	2:10	2:15	2:05	2:05	2:00	2:00	2:15	R13
R14	2:15	2:15	2:05	2:10	2:05	2:15	2:15	2:05	2:05	2:05	1:55	2:15	R14
R15	2:10	2:15	2:00	2:05	2:00	2:10	2:10	2:05	2:05	2:00	1:55	2:10	R15
R16	2:10	2:15	2:00	2:05	2:00	2:10	2:10	2:00	2:05	1:55	2:30	2:10	R16
R17	2:10	2:10	2:00	2:00	1:55	2:00	2:05	2:00	2:00	1:55	2:30	2:10	R17
R18	2:10	2:10	2:00	2:00	1:55	2:05	2:05	2:00	2:00	1:55	2:30	2:10	R18
R19	2:10	2:10	2:00	2:00	1:55	2:05	2:05	2:00	2:00	1:55	2:30	2:10	R19
R20	2:15	2:20	2:00	2:00	2:00	2:15	2:15	2:00	2:00	1:55	1:55	2:15	R20
R21	2:10	2:10	2:00	2:00	1:55	2:10	2:10	1:55	2:00	1:55	1:55	2:10	R21
R22	2:05	2:05	2:00	2:00	1:55	2:05	2:05	1:55	2:00	1:55	1:55	2:05	R22

	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	Evening	Midday	Region
	Good Weather	Rain	Good Weather	Rain	Good Weather	Good Weather	Rain	Good Weather	Rain	Good Weather	Special Event	Roadway Impact	
5-Mile Region and Keyhole to EPZ Boundary													
R23	2:10	2:15	2:05	2:10	2:00	2:10	2:15	2:05	2:05	2:00	2:00	2:10	R23
R24	2:10	2:15	2:05	2:10	2:00	2:10	2:15	2:05	2:05	2:00	2:00	2:10	R24
R25	2:10	2:15	2:05	2:05	2:00	2:10	2:15	2:05	2:05	2:00	2:00	2:10	R25
R26	2:15	2:15	2:05	2:10	2:00	2:10	2:15	2:05	2:05	2:00	2:00	2:15	R26
R27	2:15	2:15	2:05	2:10	2:00	2:15	2:15	2:05	2:05	2:00	1:55	2:15	R27
R28	2:15	2:15	2:05	2:10	2:00	2:10	2:15	2:05	2:05	2:00	1:55	2:15	R28
R29	2:15	2:15	2:05	2:05	2:00	2:10	2:10	2:05	2:05	2:00	2:30	2:15	R29
R30	2:15	2:15	2:05	2:05	2:00	2:10	2:10	2:00	2:05	2:00	2:30	2:15	R30
R31	2:15	2:15	2:05	2:05	2:00	2:10	2:10	2:00	2:05	2:00	2:30	2:15	R31
R32	2:15	2:15	2:05	2:05	2:00	2:15	2:15	2:05	2:05	2:00	2:00	2:15	R32
R33	2:15	2:15	2:05	2:05	2:00	2:15	2:15	2:05	2:05	2:00	2:00	2:15	R33
R34	2:10	2:15	2:05	2:05	2:00	2:10	2:15	2:05	2:05	2:00	2:00	2:10	R34
Staged Evacuation – 5-Mile Region, 2-Mile Region and Keyhole to 5 Miles													
R35	2:10	2:15	2:05	2:05	2:00	2:10	2:10	2:05	2:05	2:00	2:00	2:10	R35
R36	1:35	1:35	1:45	1:45	1:45	1:35	1:35	1:40	1:40	1:45	1:45	1:35	R36
R37	2:05	2:05	2:05	2:05	2:00	2:05	2:05	2:05	2:05	2:00	2:00	2:05	R37
R38	2:05	2:10	2:05	2:05	2:00	2:05	2:10	2:05	2:05	2:00	2:00	2:05	R38
R39	2:10	2:10	2:05	2:05	2:00	2:05	2:10	2:00	2:05	2:00	2:00	2:10	R39
R40	2:05	2:10	2:00	2:05	2:00	2:05	2:10	2:00	2:00	1:55	1:55	2:05	R40
R41	2:00	2:05	2:00	2:00	1:55	2:00	2:05	2:00	2:00	1:55	1:55	2:00	R41

Table 7-2. 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	Evening	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	4:55	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
2-Mile Region and Keyhole to 10 Miles													
R10	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R10
R11	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R11
R12	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R12
R13	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R13
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	4:55	4:55	R20
R21	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R21
R22	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R22

	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	Evening	Midday	Region
	Good Weather	Rain	Good Weather	Rain	Good Weather	Good Weather	Rain	Good Weather	Rain	Good Weather	Special Event	Roadway Impact	
5-Mile Region and Keyhole to EPZ Boundary													
R23	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	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
R26	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R26
R27	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R27
R28	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R28
R29	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R29
R30	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R30
R31	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R31
R32	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R32
R33	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R33
R34	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	4:55	R34
Staged Evacuation – 5-Mile Region, 2-Mile Region and Keyhole to 5 Miles													
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
R37	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R37
R38	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R38
R39	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R39
R40	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R40
R41	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R41

Table 7-3. 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	Evening	Midday	Region
	Good Weather	Rain	Good Weather	Rain	Good Weather	Good Weather	Rain	Good Weather	Rain	Good Weather	Special Event	Roadway Impact	
2-Mile and 5-Mile Region													
R01	1:30	1:30	1:25	1:25	1:30	1:30	1:30	1:30	1:30	1:25	1:25	1:30	R01
R02	1:30	1:30	1:25	1:25	1:30	1:30	1:30	1:30	1:30	1:25	1:25	1:30	R02
2-Mile Region and Keyhole to 5 Miles													
R04	1:30	1:30	1:25	1:25	1:30	1:30	1:30	1:30	1:30	1:25	1:25	1:30	R04
R05	1:30	1:30	1:25	1:25	1:30	1:30	1:30	1:30	1:30	1:25	1:25	1:30	R05
R06	1:30	1:30	1:25	1:25	1:30	1:30	1:30	1:30	1:30	1:25	1:25	1:30	R06
R07	1:30	1:30	1:25	1:25	1:30	1:30	1:30	1:30	1:30	1:25	1:25	1:30	R07
R08	1:30	1:30	1:25	1:25	1:30	1:30	1:30	1:30	1:30	1:25	1:25	1:30	R08
R09	1:30	1:30	1:25	1:25	1:30	1:30	1:30	1:30	1:30	1:25	1:25	1:30	R09
Staged Evacuation - 5-Mile Region, 2-Mile Region and Keyhole to 5 Miles													
R35	1:35	1:35	1:45	1:45	1:45	1:35	1:35	1:40	1:40	1:45	1:45	1:35	R35
R36	1:35	1:35	1:45	1:45	1:45	1:35	1:35	1:40	1:40	1:45	1:45	1:35	R36
R37	1:35	1:35	1:45	1:45	1:45	1:35	1:35	1:40	1:40	1:45	1:45	1:35	R37
R38	1:35	1:35	1:45	1:45	1:45	1:35	1:35	1:40	1:40	1:45	1:45	1:35	R38
R39	1:35	1:35	1:45	1:45	1:45	1:35	1:35	1:40	1:40	1:45	1:45	1:35	R39
R40	1:35	1:35	1:45	1:45	1:45	1:35	1:35	1:40	1:40	1:45	1:45	1:35	R40
R41	1:35	1:35	1:45	1:45	1:45	1:35	1:35	1:40	1:40	1:45	1:45	1:35	R41

Table 7-4. 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	Evening	Midday	Region
	Good Weather	Rain	Good Weather	Rain	Good Weather	Good Weather	Rain	Good Weather	Rain	Good Weather	Special Event	Roadway Impact	
2-Mile and 5-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
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
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
Staged Evacuation - 5-Mile Region, 2-Mile Region and Keyhole to 5 Miles													
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
R37	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R37
R38	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R38
R39	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R39
R40	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R40
R41	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	4:50	R41

Table 8-7. School Evacuation Time Estimates – Good Weather

School	Driver Mobili-Zation Time (min)	Loading Time (min)	Dist. To EPZ Bdry (mi)	Average Speed (mph)	Travel Time to EPZ Bdry (min)	ETE (hr:min)	Dist. EPZ Bdry To R.C. (min)	Travel Time from EPZ Bdry to R.C. (min)	ETE to R.C. (hr:min)	Bus Ready For Second Wave (min)	Second Wave ETE (hr:min)	Second Wave ETE to R.C.
CLAIBORNE SCHOOLS												
A.W.Watson Elementary School	90	15	6.1	42.8	9	1:55	39.1	52	2:50	240	4:25	5:15
Richardson Headstart	90	15	5.9	43.8	8	1:55	39.1	52	2:45	240	4:25	5:15
Child Day Care Kindergarten	90	15	5.9	43.8	8	1:55	39.1	52	2:45	240	4:25	5:15
Heavenly angels Daycare	90	15	4.2	51.3	5	1:50	39.1	52	2:45	238	4:20	5:10
Port Gibson High	90	15	5.6	47.0	7	1:55	39.1	52	2:45	239	4:25	5:15
Claiborne County Vo-Tech	90	15	5.7	45.0	8	1:55	39.1	52	2:45	240	4:25	5:15
Katherine's Daycare and Learning	90	15	6.1	42.9	9	1:55	39.1	52	2:50	240	4:25	5:15
Port Gibson Middle School	90	15	4.7	48.0	6	1:55	39.1	52	2:45	238	4:20	5:15
Concerned Citizens Daycare	90	15	4.7	48.0	6	1:55	39.1	52	2:45	238	4:20	5:15
Chamberlain-Hunt Academy	90	15	4.7	48.0	6	1:55	39.1	52	2:45	238	4:20	5:15
Little Kids University	90	15	4.7	48.0	6	1:55	39.1	52	2:45	238	4:20	5:15
Claiborne Educational Foundation	90	15	4.2	51.3	5	1:50	39.1	52	2:45	238	4:20	5:10
God's Little Bee's Child Care	90	15	6.2	46.9	8	1:55	39.1	52	2:45	240	4:25	5:15
Alcorn State University	90	15	0.4	28.5	1	1:50	38.1	51	2:40	232	4:10	5:00
TENSAS SCHOOLS												
Newellton Christian Academy	90	15	1.3	31.0	3	1:50	25.9	35	2:25	230	4:10	4:45
Newellton Elementary	90	15	1.3	31.0	3	1:50	25.9	35	2:25	230	4:10	4:45
Little Green Nursery	90	15	3.7	33.7	7	1:55	25.9	35	2:30	180	3:25	4:00
Tensas Academy	90	15	3.7	33.7	7	1:55	35.4	47	2:40	180	3:25	4:10
Tensas High School	90	15	2.5	37.7	4	1:50	35.4	47	2:40	180	3:20	4:10
Tensas Elementary	90	15	2.5	37.7	4	1:50	35.4	47	2:40	180	3:20	4:10
					Maximum for EPZ:	1:55	Maximum:	2:50	2:50	Maximum:	4:25	5:15
					Average for EPZ:	1:50	Average:	2:45	2:45	Average:	4:10	5:00

Table 8-10. Transit-Dependent Evacuation Time Estimates – Good Weather

Route Number	Bus Number	One-Wave							Two-Wave					
		Mobilization (min)	Route Length (miles)	Speed (mph)	Route Travel Time (min)	Pickup Time (min)	ETE (hr:min)	Distance to R.C. (miles)	Travel Time to R.C. (min)	Unload (min)	Driver Rest (min)	Route Travel Time (min)	Pickup Time (min)	ETE (hr:min)
1	1	105	12.4	55.0	14	30	2:30	22.0	29	5	10	59	30	4:45
2	3	105	6.0	52.4	7	30	2:25	39.1	52	5	10	67	30	5:10
	2	120	6.0	51.7	7	30	2:40	39.1	52	5	10	67	30	5:25
3	1	105	7.5	55.0	8	30	2:25	25.9	35	5	10	53	30	4:40
4	2	105	5.6	39.8	8	30	2:25	35.4	47	5	10	63	30	5:00
	2	120	5.6	42.6	8	30	2:40	35.4	47	5	10	64	30	5:15
5	1	105	1.2	41.4	2	30	2:20	33.4	45	5	10	48	30	4:40
	1	120	1.2	41.3	2	30	2:35	33.4	45	5	10	48	30	4:55
6	4	105	3.1	39.3	5	30	2:20	38.1	51	5	10	60	30	5:00
	2	120	3.1	39.3	5	30	2:35	38.1	51	5	10	60	30	5:15
7	2	105	5.5	55.0	6	30	2:25	18.1	24	5	10	37	30	4:15
	1	120	5.5	55.0	6	30	2:40	18.1	24	5	10	37	30	4:30
Maximum ETE:							2:40	Maximum ETE:						5:25
Average ETE:							2:30	Average ETE:						4:55

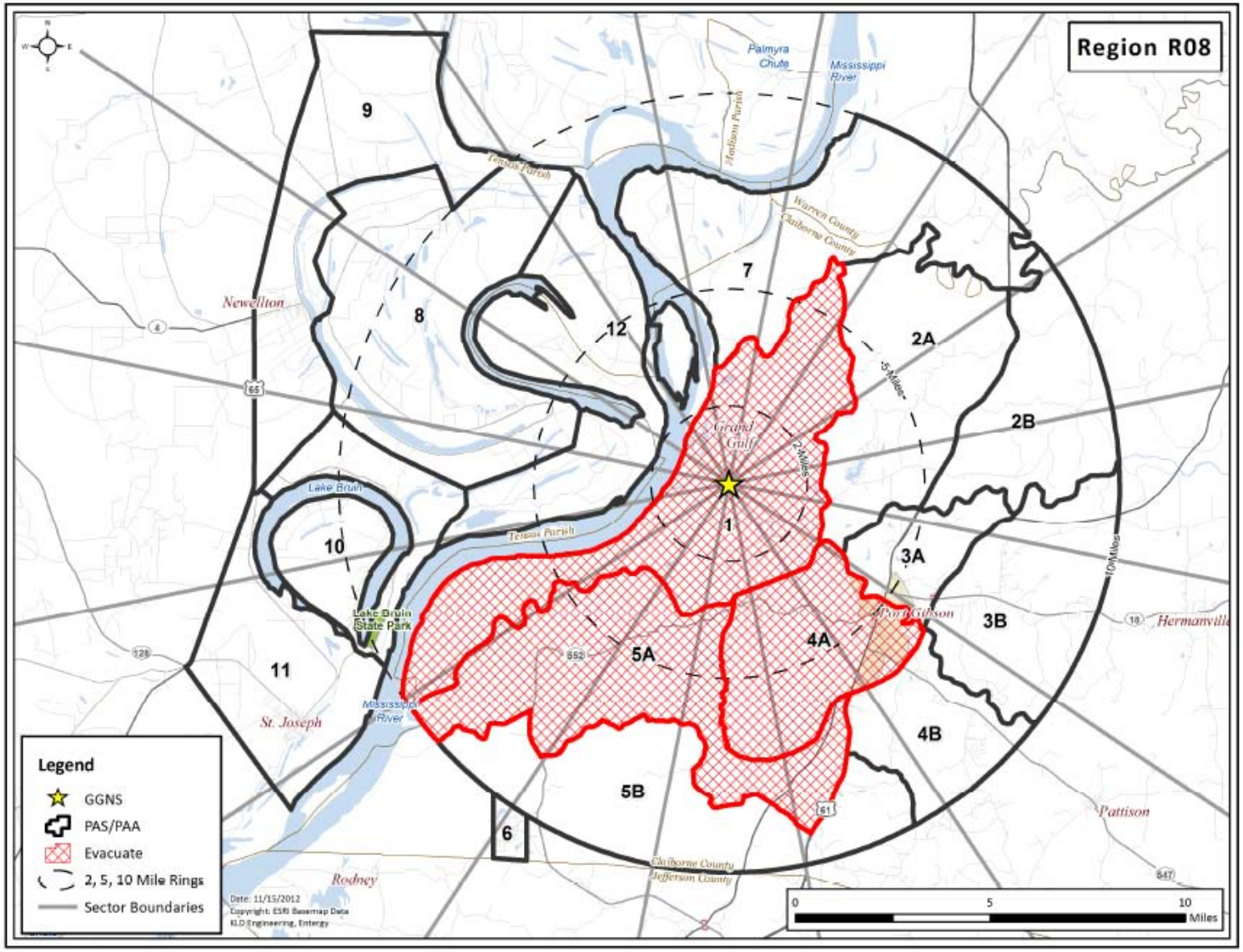

Figure H-8. Region R08

APPENDIX F

List of Supporting Plans

APPENDIX F - LIST OF SUPPORTING PLANS

1. Mississippi Radiological Emergency Preparedness Plan; Volume III, to the Mississippi Comprehensive Emergency Management Plan

2. Port Gibson/Claiborne County - Radiological Emergency Preparedness Plan

3. Louisiana Peacetime Radiological Response Plan; Supplement II, Fixed Nuclear Facilities to Louisiana Emergency Operations Plan, Attachment 2, Grand Gulf Nuclear Station

4. Louisiana Peacetime Radiological Response Plan; Supplement II, Fixed Nuclear Facilities to Louisiana Emergency Operations Plan Attachment 2, Grand Gulf Nuclear Station, Enclosure I, Tensas Parish Radiological Emergency Response Plan

5. Hospital Emergency Department Management of Radiation Accidents

APPENDIX G

NUREG O654 Cross Reference

Planning Standards and Evaluation Criteria

A. Assignment of Responsibility (Organization Control)

Planning Standard

Primary responsibilities for emergency response by the nuclear facility licensee, and by state and local organizations within the Emergency Planning Zones have been assigned, the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

		Evaluation Criteria	Cross Reference to Plan
1.	a.	Each plan shall identify the state, local, federal and private sector organizations (including utilities), that are intended to be part of the overall response organization for Emergency Planning Zones. (See Appendix 5).	Sections 2.4.3, 5.6, 5.7, 5.8
	b.	Each organization and suborganization having an operational role shall specify its (All) concept of operations, and its relationship to the total effort.	Sections 2.3.1, 2.3.2, 2.4.1, 2.4.2, 5.0
	c.	Each plan shall illustrate these interrelationships in a block diagram.	Figure 5-5
	d.	Each organization shall identify a specific individual by title who shall be in charge of the emergency response.	Sections 5.4.1, 5.4.2,
	e.	Each organization shall provide for 24-hour per day emergency response, including 24-hour per day manning of communications links.	Sections 5.4, 7.5, Table 5-1
2.	a.	Each organization shall specify the functionsN/A and responsibilities for major elements and key individuals by title, of emergency response, including the following: Command and Control, Alerting and Notification, Communications, Public Information, Accident Assessment, Public Health and Sanitation, Social Services, Fire and Rescue, Traffic Control, Emergency Medical Services, Law Enforcement, Transportation, Protective Response (including authority to request federal assistance and to initiate other protective actions), and Radiological Exposure Control. The description of these functions shall include a clear and concise summary such as a table of primary and support responsibilities using the agency as one axis, and the function as the other. (See Section B for licensee.)	
	b.	Each plan shall contain (by reference to specific acts, codes or statutes) the legal basis for such authorities.	N/A
3.		Each plan shall include written agreements referring to the concept of operations developed between federal, state, and and local agencies and other support organizations having	Appendix D

organizations having an emergency response role within the Emergency Planning Zones. The agreements shall identify the emergency measures to be provided and the mutually acceptible criteria for their implementation, and specify the arrangements for exchange of information. These agreements may be provided in an appendix to the plan or the plan itself may contain descriptions of these matters and a signature page in the plan may serve to verify the agreements. The signature page format is appropriate for organizations where response functions are covered by laws, regulations or executive orders where separate written agreements are not necessary.

4.	Each principal organization shall be capable of continuous (24-hour) operations for a protracted period. The individual in the principal organization who will be responsible for assuring continuity of resources (technical, administrative, and material) shall be specified by title.	Section 5.7

B. Onsite Emergency Organization

Evaluation Criteria		Cross Reference to Plan
1.	Each licensee shall specify the onsite emergency organization of plant staff personnel for all shifts and its relation to the responsibilities and duties of the normal staff complement.	Section 5.2, 5.4, Fig 5-2, 5-3
2.	Each licensee shall designate an individual as emergency coordinator who shall be on shift at all times and who shall have the authority and responsibility to immediately and unilaterally initiate any emergency actions, including providing protective action recommendations to authorities responsible for implementing offsite emergency measures.	Sections 5.4.1
3.	Each licensee shall identify a line of succession for the emergency coordinator position and identify the specific conditions for higher level utility officials assuming this function.	Section 5.4.2
4.	Each licensee shall establish the functional responsibilities assigned to the emergency coordinator and shall clearly specify which responsibilities may not be delegated to other elements of the emergency organization. Among the responsibilities which may not be delegated shall be the decision to notify and to recommend protective actions to authorities responsible for offsite emergency measures.	Sections 5.4.2
5.	Each licensee shall specify the positions or title and major tasks to be performed by the persons to be assigned to the functional areas of emergency activity. For emergency situations, specific assignments shall be made for all shifts and for plant staff members, both onsite and away from the site. These assignments shall cover the emergency functions in Table B-1 entitled, "Minimum Staffing Requirements for Nuclear Power Plant Emergencies." The minimum on-shift staffing levels shall be as indicated in Table B-1.	Sections 5.4, Table 5-1

The licensee must be able to augment on-shift capabilities within a short period after declaration of an emergency. This capability shall be as indicated in Table B-1. The implementation schedule for licensed operators, auxiliary operators and the shift technical advisor on shift shall be as specified in the July 31, 1980 letter to all power reactor licensees. Any deficiencies in the other staffing requirements of Table B-1 must be capable of augmentation within 30 minutes by September 1, 1981, and such deficiencies must be fully removed by July 1, 1982.

6. Each licensee shall specify the interfaces between and among the onsite functional areas of emergency activity, licensee headquarters support, local services support, and state and local government response organization. This shall be illustrated in a block diagram and shall include the onsite technical support center and the operational support (assembly) center and the licensee's near-site Emergency Operations Facility (EOF). — Figure 5-5

7. Each licensee shall specify the corporate management, administrative and technical support personnel who will augment the plant staff as specified in the table entitled "Minimum Staffing Requirements for Nuclear Power Plant Emergencies," (Table B-1) and in the following areas: — Sections 5.4

   a. logistics support for emergency personnel, e.g., transportation, communications, temporary quarters, food and water, sanitary facilities in the field, and special equipment and supplies procurement; — Sections 5.4.6

   b. technical support for planning and reentry/recovery operations; — Sections 5.4.24, 5.4.27, 5.5

   c. management level interface with governmental authorities; and — Sections 5.4.2

   d. release of information to news media during an emergency (coordinated with governmental authorities). — Sections 5.4.2

8. Each licensee shall specify the contractor and private organizations who may be requested to provide technical assistance to and augmentation of the emergency organization. — Section 5.8

9. Each licensee shall identify the services to be provided by local agencies for handling emergencies, e.g., police, ambulance, medical, hospital, and fire-fighting organizations shall be specified. The licensee shall provide for transportation and treatment of injured personnel who may also be contaminated. Copies of the arrangements and agreements reached with contractor, private, and local support agencies shall be appended to the plan. The agreements shall delineate the authorities, responsibilities, and limits on the actions of the contractor, private organization, and local services support groups. — Sections 5.6, 5.7.3, 5.7.4, Appendix D

C. Emergency Response Support and Resources

Planning Standard

Arrangements for requesting and effectively using assistance resources have been made, arrangements to accommodate state and local staff at the licensee's near-site Emergency Operations Facility have been made, and other organizations capable of augmenting the planned response have been identified.

Evaluation Criteria

1.		The Federal government maintains in-depth capability to assist licensees, states and local governments through the Federal Radiological Monitoring and Assessment Plan (formerly Radiological Assistance Plan (RAP) and Interagency Radiological Assistance Plan (IRAP). Each state and licensee shall make provisions for incorporating the federal response capability into its operation plan, including the following:		
	a.	specific persons by title authorized to request federal assistance; see A.1.d, A.2.a.	Sections	5.4.2
	b.	specific federal resources expected, including expected times of arrival at specific nuclear facility sites; and	Sections	5.7.5, 5.7.6
	c.	specific licensee, state and local resources available to support the federal response, e.g., air fields, command posts, telephone lines, radio frequencies and telecommunications centers.	Section	5.9
2.	a.	Each principal offsite organization may dispatch representatives to the licensee's near-site Emergency Operations Facility. (State technical analysis representatives at the nearsite EOF are preferred.)	N/A	
	b.	The licensee shall prepare for the dispatch of a representative to principal offsite governmental agency operations centers.	Sections	5.4.11
3.		Each organization shall identify radiological laboratories and their general capabilities and expected availability to provide radiological monitoring and analyses services which can be used in an emergency.	Section	7.6.3
4.		Each organization shall identify nuclear and other facilities, organizations or individuals which can be relied upon in an emergency to provide assistance. Such assistance shall be identified and supported by appropriate letters of agreement.	Sections	5.6, 5.7, 5.8 Appendix D

D. Emergency Classification System

Planning Standard

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.

	Evaluation Criteria	Cross Reference to Plan
1.	An emergency classification and emergency action level scheme as set forth in Appendix 1 must be established by by the licensee. The specific instruments, parameters or equipment status shall be shown for establishing each emergency class, in the in-plant emergency procedures. The plan shall identify the parameter values and equipment status for each emergency class.	Section 4.1 Table 4-1
2.	The initiating conditions shall include the example conditions found in Appendix 1 and all postulated accidents in the Final Safety Analysis Report (FSAR) for the nuclear facility.	Sections 4.1, 4.2 Table 4-2
3.	Each state and local organization shall establish an emergency classification and emergency action level scheme consistent with that established by the facility licensee.	N/A
4.	Each state and local organization should have procedures in place that provide for emergency actions to be taken which are consistent with the emergency actions recommended by the nuclear facility licensee, taking into account local offsite conditions that exist at the time of the emergency.	N/A

E. Notification Methods and Procedures

Planning Standard

Procedures have been established for notification, by the licensee of state and local response organizations and for notification of emergency personnel by all response organizations; the content of initial and followup messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.

	Evaluation Criteria	Cross Reference to Plan
1.	Each organization shall establish procedures which describe mutually agreeable bases for notification of response organizations consistent with the emergency classification and action level scheme set forth in Appendix 1. These procedures shall include means for verification of messages. The specific details of verification need not be included in the plan.	Sections 4.1, 6.2.2, 6.2.4 Figure 6-2
2.	Each organization shall establish procedures for alerting, notifying, and mobilizing emergency response personnel.	Sections 4.0, 6.2, 7.5.3.a.3

3.	The licensee in conjunction with state and local organizations shall establish the contents of the initial emergency messages to be sent from the plant. These measures shall contain information about the class of emergency, whether a release is taking place, potentially affected population and areas, and whether protective measures may be necessary.	Section Figure	6.2.4 6-2
4.	Each licensee shall make provisions for followup messages from the facility to offsite authorities which shall contain the following information if it is known and appropriate:	Section Figure	6.2.4 6-2

a. location of incident and name and telephone number (or communications channel identification) of caller;
b. date/time of incident;
c. class of emergency;
d. type of actual or projected release (airborne, waterborne, surface spill), and estimated duration/impact times;
e. estimate of quantity of radioactive material released or being released and the points and height of releases;
f. chemical and physical form of released material, including estimates of the relative quantities and concentration of noble gases, iodines and particulates;
g. meteorological conditions at appropriate levels (wind speed, direction (to and from), indicator of stability, precipitation, if any);
h. actual or projected dose rates at site boundary; projected integrated dose at site boundary;
i. projected dose rates and integrated dose at the projected peak and at 2, 5 and 10 miles, including sector(s) affected;
j. estimate of any surface radioactive contamination inplant, onsite or offsite;
k. licensee emergency response actions underway;
l. recommended emergency actions, including protective measures;
m. request for any needed onsite support by offsite organizations; and
n. prognosis for worsening or termination of event based on plant information.

5.	State and local government organizations shall establish a system for disseminating to the public appropriate information contained in initial and followup messages received from the licensee including the appropriate notification to appropriate broadcast media, e.g., the Emergency Broadcast System (EBS).	N/A	
6.	Each organization shall establish administrative and physical means, and the time required for notifying and providing prompt instructions to the public within the plume exposure pathway Emergency Planning Zone. (See Appendix 3.) It shall be the licensee's responsibility to demonstrate that such means exist, regardless of who implements this requirement. It shall be the responsibility of the state and local governments to activate such a system.	Section	7.5.4
7.	Each organization shall provide written messages intended for the public, consistent with the licensee's classification scheme. In particular, draft messages to the public giving instructions with regard to specific protective actions to be taken by occupants of affected areas shall be prepared and included as part of the state and local plans. Such messages should include the appropriate aspects of sheltering, ad hoc respiratory protection, e.g., handkerchief	Sections Appendix	6.5.1, 8.7 H

over mouth, thyroid blocking or evacuation. The role of the licensee is to provide supporting information for the messages. For ad hoc respiratory protection see "Respiratory Protective Devices Manual" American Industrial Hygiene Association, 1963 pp. 123-126.

F. Emergency Communications

Planning Standard

Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.

Evaluation Criteria		Cross Reference to Plan	
1.	The communications plans for emergencies shall include organizational titles and alternates for both ends of the communication links. Each organization shall establish reliable primary and backup means of communication for licensees, local, and state response organizations. Such systems should be selected to be compatible with one another. Each plan shall include:		
	a. provision for 24-hour per day notification to and activation of the state/local emergency response network; and at a minimum, a telephone link and alternate, including 24-hour per day manning of communications links that initiate emergency response actions.	Sections	5.2, 5.4, 7.5
	b. provision for communications with contiguous state/local governments within the Emergency Planning Zones;	Section	6.2.4, 7.5
	c. provision for communications as needed with federal emergency response organizations;	Section	6.2.4, 7.5
	d. provision for communications between the nuclear facility and the licensee's near-site Emergency Operations Facility, state and local emergency operations centers, and radiological monitoring teams;	Section	7.5
	e. provision for alerting or activating emergency personnel in each response organization; and	Section	6.2
	f. provision for communication by the licensee with NRC headquarters and NRC Regional Office Emergency Operations Centers and the licensee's near-site Emergency Operations Facility and radiological monitoring team assembly area.	Section	7.5
2.	Each organization shall ensure that a coordinated communication link for fixed and mobile medical support facilities exists.	Sections	6.7.3
3.	Each organization shall conduct periodic testing of the entire emergency communications system (see evaluation criteria H.10, N.2.a and Appendix 3).	Sections	7.5, 8.3.2

G. Public Education and Information

Planning Standard

Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.

	Evaluation Criteria	Cross Reference to Plan
1.	Each organization shall provide a coordinated periodic (at least annually) dissemination of information to the public regarding how they will be notified and what their actions should be in an emergency. This information shall include, but not necessarily be limited to: a. educational information on radiation; b. contact for additional information; c. protective measures, e.g., evacuation routes and relocation centers, sheltering, respiratory protection, radioprotective drugs; and d. special needs of the handicapped. Means for accomplishing this dissemination may include, but are not necessarily limited to: information in the telephone book; periodic information in utility bills; posting in public areas; and publications distributed on an annual basis.	Section 8.7 Appendix H
2.	The public information program shall provide the permanent and transient adult population within the plume exposure EPZ an adequate opportunity to become aware of the information annually. The programs should include provision for written material that is likely to be available in a residence during an emergency. Updated information shall be disseminated at least annually. Signs or other measures (e.g., decals, posted notices or other means, placed in hotels, motels, gasoline stations and phone booths) shall also be used to disseminate to any transient population within the plume exposure pathway EPZ appropriate information that would be helpful if an emergency or accident occurs. Such notices should refer the transient to the telephone directory or other source of local emergency information and guide the visitor to appropriate radio and television frequencies.	Section 8.7 Appendix H
3.	a. Each principal organization shall designate the points of contact and physical locations for use by news media during an emergency. b. Each licensee shall provide space which may be used for a limited number of the news media at the nearsite Emergency Operations Facility.	Section 7.3.5 Appendix H

4.	a. Each principal organization shall designate a spokesperson who should have access to all necessary information.	Sections Appendix	5.4.34 H
	b. Each organization shall establish arrangements for timely exchange of information among designated spokespersons.	Sections Appendix	7.3.5, 8.8 H
	c. Each organization shall establish coordinated arrangements for dealing with rumors.	Sections Appendix	7.3.5 H
5.	Each organization shall conduct coordinated programs at least annually to acquaint news media with the emergency plans, information concerning radiation, and points of contact for release of public information in an emergency.	Section Appendix	8.8 H

H. Emergency Facilities and Equipment

Planning Standard

Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

	Evaluation Criteria	Cross Reference to Plan	
1.	Each licensee shall establish a Technical Support Center and an onsite operations support center (assembly area) in accordance with NUREG-0696, Revision 1.	Sections	7.3.1, 7.3.2
2.	Each licensee shall establish an Emergency Operations Facility from which evaluation and coordination of all licensee activities related to an emergency is to be carried out and from which the licensee shall provide information to federal, state and local authorities responding to radiological emergencies in accordance with NUREG-0696, Revision 1.	Sections	7.3.3, 7.3.4
3.	Each organization shall establish an emergency operations center for use in directing and controlling response functions.	N/A	
4.	Each organization shall provide for timely activation and staffing of the facilities and centers described in the plan.	Section	4.1, 5.4, 6.1, 6.24, 7.3
5.	Each licensee shall identify and establish onsite monitoring systems that are to be used to initiate emergency measures in accordance with Appendix 1, as well as those to be used for conducting assessment.		
	The equipment shall include:		
	a. geophysical phenomena monitors, (e.g., meteorological, hydrologic, seismic);	Section	7.6

b.	radiological monitors, (e.g., process, area, emergency, effluent, wound and portable monitors and sampling equipment);	Section	7.6
c.	process monitors, (e.g., reactor coolant system pressure and temperature, containment pressure and temperature, liquid levels, flow rates, status or lineup of equipment components); and	Section	7.6
d.	fire and combustion products detectors.	Section	7.6
6.	Each licensee shall make provision to acquire data from or for emergency access to offsite monitoring and analysis equipment including:		
a.	geophysical phenomena monitors, (e.g., meteorological, hydrologic, seismic);	Section	7.6
b.	radiological monitors including ratemeters and sampling devices. Dosimetry shall be provided and shall meet, as a minimum, the NRC Radiological Assessment Branch Technical Position for the Environmental Radiological Monitoring Program; and	Section	7.6
c.	laboratory facilities, fixed or mobile.	Section	7.6
7.	Each organization, where appropriate, shall provide for offsite radiological monitoring equipment in the vicinity of the nuclear facility.	Section	7.6.2
8.	Each licensee shall provide meteorological instrumentation and procedures which satisfy the criteria in Appendix 2, and provisions to obtain representative current meteorological information from other sources.	Section	7.6.1.e.2
9.	Each licensee shall provide for an onsite operations support center (assembly area) which shall have adequate capacity, and supplies, including, for example, respiratory protection, protective clothing, portable lighting, portable radiation monitoring equipment, cameras and communications equipment for personnel present in the assembly area.	Section Appendix	7.3.2 B
10.	Each organization shall make provisions to inspect, inventory and operationally check emergency equipment/instruments at least once each calendar quarter and after each use. There shall be sufficient reserves of instruments/equipment to replace those which are removed from emergency kits for calibration or repair. Calibration of equipment shall be at intervals recommended by the supplier of the equipment.	Sections Appendix	8.6 B
11.	Each plan shall, in an appendix, include identification of emergency kits by general category (protective equipment, communications equipment, radiological	Appendix	B

monitoring equipment and emergency supplies).

12.	Each organization shall establish a central point (preferably associated with the licensee's near-site Emergency Operations Facility), for the receipt and analysis of all field monitoring data and coordination of sample media.	Section 7.3.3

I. Accident Assessment

Planning Standard

Adequate methods, systems and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

	Evaluation Criteria	Cross Reference to Plan
1.	Each licensee shall identify plant system and effluent parameter values characteristic of a spectrum of off-normal conditions and accidents, and shall identify the plant parameter values or other information which correspond to the example initiating conditions of Appendix 1. Such parameter values and the corresponding emergency class shall be included in the appropriate facility emergency procedures. Facility emergency procedures shall specify the kinds of instruments being used and their capabilities.	Section 7.6.1 Table 4-1
2.	Onsite capability and resources to provide initial values and continuing assessment throughout the course of an accident shall include post-accident sampling capability, radiation and effluent monitors, in-plant iodine instrumentation, and containment radiation monitoring in accordance with NUREG-0578, as elaborated in the NRC letter to all power reactor licensees dated October 30, 1979.	Sections 7.6.1, 7.6.4
3.	Each licensee shall establish methods and techniques to be used for determining:	
	a. the source term of releases of radioactive material within plant systems. An example is the relationship between the containment radiation monitor(s) reading(s) and radioactive material available for release from containment.	Section 7.6.1
	b. the magnitude of the release of radioactive materials based on plant system parameters and effluent monitors.	Section 7.6.1 Table 4-1
4.	Each licensee shall establish the relationship between effluent monitor readings and onsite and offsite exposures and contamination for various meteorological conditions.	Sections 7.6.1, 7.6.2
5.	Each licensee shall have the capability of acquiring and evaluating meteorological information sufficient to meet the criteria of Appendix 2. There shall be provisions for access to meteorological information by at least the nearsite Emergency Operations Facility, the Technical Support Center, the Control Room and an offsite NRC	Section 7.6.1

	center. The licensee shall make available to the state suitable meteorological data processing interconnections which will permit independent analysis by the state, of facility generated data in those states with the resources to effectively use this information.		
6.	Each licensee shall establish the methodology for determining the release rate/projected doses if the instrumentation used for assessment are offscale or inoperable.	Section	7.6.1
7.	Each organization shall describe the capability and resources for field monitoring within the plume exposure Emergency Planning Zone which are an intrinsic part of the concept of operations for the facility.	Sections	7.3.3, 7.6.2, 7.6.4
8.	Each organization, where appropriate, shall provide methods, equipment and expertise to make rapid assessments of the actual or potential magnitude and locations of any radiological hazards through liquid or gaseous release pathways. This shall include activation, notification means, field team composition, transportation, communication, monitoring equipment and estimated deployment times.	Sections	7.5.3, 7.6
9.	Each organization shall have a capability to detect and measure radioiodine concentrations in air in the plume exposure EPZ as low as 10⁻⁷ uCi/cc (microcuries per cubic centimeter) under field conditions. Interference from the presence of noble gas and background radiation shall not decrease the stated minimum detectable activity.	Section	7.6
10.	Each organization shall establish means for relating the various measured parameters (e.g., contamination levels, water and air activity levels) to dose rates for key isotopes (i.e., those given in Table 3, page 18) and gross radioactivity measurements. Provisions shall be made for estimating integrated dose from the projected and actual dose rates and for comparing these estimates with the protective action guides. The detailed provisions shall be described in separate procedures.	Section	7.6
11.	Arrangements to locate and track the airborne radioactive plume shall be made, using either or both federal and state resources.	N/A	

J. Protective Response

Planning Standard

A range of protective actions have been developed for the plume exposure pathway EPZ for emergency workers and the public. Guidelines for the choice of protective actions during an emergency, consistent with federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

Evaluation Criteria			Cross Reference to Plan	
1.	Each licensee shall establish the means and time required to warn or advise onsite individuals and individuals who may be in areas controlled by the operator, including:			
	a.	Employees not having emergency assignments;	Section	6.5.1
	b.	Visitors;	Section	6.5.1
	c.	Contractor and construction personnel; and	Section	6.5.1
	d.	Other persons who may be in the public access areas on or passing through the site or within the owner controlled area.	Section	6.5.1
2.	Each licensee shall make provisions for evacuation routes and transportation for onsite individuals to some suitable offsite location, including alternatives of inclement weather, high traffic density and specific radiological conditions.		Section	6.5
3.	Each licensee shall provide for radiological monitoring of people evacuated from the site.		Sections	6.5.1, 6.6
4.	Each licensee shall provide for the evacuation of onsite non-essential personnel in the event of a Site or General Emergency and shall provide a decontamination capability at or near the monitoring point specified in J.3.		Sections	6.5.1, 6.6, 6.7.2
5.	Each licensee shall provide for a capability to account for all individuals onsite at the time of the emergency and ascertain the names of missing individuals within 30 minutes of the start of an emergency and account for all onsite individuals continuously thereafter.		Section	6.5.1
6.	Each licensee shall, for individuals remaining or arriving onsite during the emergency, make provisions for:			
	a.	Individual respiratory protection;	Section	7.10
	b.	Use of protective clothing; and	Section	7.10
	c.	Use of radioprotective drugs, (e.g., individual thyroid protection).	Section	6.7.1
7.	Each licensee shall establish a mechanism for recommending protective actions to the appropriate state and local authorities. These shall include Emergency Action Levels corresponding to projected dose to the population-at-risk, in accordance with Appendix 1 and with the recommendations set forth in Tables 2.1 and 2.2 of the Manual or Protective Action Guides and Protective Actions for Nuclear Incidents (EPA-520/1-75-001). As specified in Appendix 1, prompt notification shall be made directly to the offsite authorities responsible for implementing		Sections Table	4.1, 6.5.1 6-1

	protective measures within the plume exposure pathway Emergency Planning Zone.		
8.	Each licensee's plan shall contain time estimates for evacuation within the plume exposure EPZ. These shall be in accordance with Appendix 4.	Appendix	E
9.	Each state and local organization shall establish a capability for implementing protective measures based upon protective action guides and other criteria. This shall be consistent with the recommendations of EPA regarding exposure resulting from passage of radioactive airborne plumes, (EPA-520/1-75-001) and with those of DHEW (DHHS)/FDA regarding radioactive contamination of human food and animal feeds as published in the Federal Register of December 1, 1978 (43 FR 58790).	N/A	
10.	The organization's plans to implement protective measures for the plume exposure pathway shall include:		
a.	Maps showing evacuation routes, evacuation areas, preselected radiological sampling and monitoring points, relocation centers in host areas, and shelter areas; (identification of radiological sampling and monitoring points shall include the designators in Table J-1 or an equivalent uniform system described in the plan);	Appendix Figure	E 2-4, 2-5
b.	Maps showing population distribution around the nuclear facility. This shall be by evacuation areas (licensees shall also present the information in a sector format);	Figure Appendix	2-3, 2-4 E
c.	Means for notifying all segments of the transient and resident population;	Sections	6.5.1, 7.5.4
d.	Means for protecting those persons whose mobility may be impaired due to such factors as institutional or other confinement;	N/A	
e.	Provisions for the use of radioprotective drugs, particularly for emergency workers and institutionalized persons within the plume exposure EPZ whose immediate evacuation may be infeasible or very difficult, including quantities, storage, and means of distribution.	N/A	
f.	State and local organizations' plans should include the method by which decisions by the State Health Department for administering radioprotective drugs to the general population are made during an emergency and the predetermined conditions under which such drugs may be used by offsite emergency workers;[1]	N/A	
g.	Means of relocation;	N/A	

h.	Relocation centers in host areas which are at least 5 miles, and preferably 10 miles, beyond the boundaries of the plume exposure emergency planning zone; (see J.12).	N/A
i.	Projected traffic capacities of evacuation routes under emergency conditions;	N/A
j.	Control of access to evacuated areas and organization responsibilities for such control;	N/A
k.	Identification of and means for dealing with potential impediments (e.g., seasonal impassability of roads) to use of evacuation routes, and contingency measures;	N/A
l.	Time estimates for evacuation of various sectors and distances based on a dynamic analysis (time-motion study under various conditions) for the plume exposure pathway emergency planning zone (see Appendix 4); and	N/A
m.	The bases for the choice or recommended protective actions from the plume exposure pathway during emergency conditions. This shall include expected local protection afforded in residential units or other shelter for direct and inhalation exposure, as well as evacuation time estimates.	Section 6.5.1 Appendix E

2/ The following reports may be considered in determining protection afforded.

(1) "Public Protection Strategies for Potential Nuclear Reactor Accidents Sheltering Concepts with Existing Public and Private Structures" (SAND 77-1725), Sandia Laboratory.
(2) "Examination of Offsite Radiological Emergency Measures for Nuclear Reactor Accidents Involving Core Melt" (SAND 78-0454), Sandia Laboratory.
(3) "Protective Action Evaluation Part II, Evacuation and Sheltering as Protective Actions Against Nuclear Accidents Involving Gaseous Releases" (EPA 520/1-78-001B), U.S. Environmental Protection Agency.

11.	Each state shall specify the protective measures to beused for the ingestion pathway, including the methods for protecting the public form consumption of contaminated food-stuffs. This shall include criteria for deciding whether dairy animals should be put on stored feed. The plan shall identify procedures for detecting contamination, for estimating the dose commitment consequences of uncontrolled ingestion, and for imposing protection procedures such as impoundment, decontamination, processing, decay, product diversion, and preservation. Maps for recording survey and monitoring data, key land use data (e.g., farming), dairies, food processing plants, water sheds, water supply intake and treatment plants and reservoirs shall be maintained. Provisions for maps showing detailed crop information may be by including reference to their availability and location and a plan for their use. The maps shall start at the facility and include all of the 50-mile ingestion pathway EPZ. Up-to-date	N/A

lists of the name and location of all facilities which regularly process milk products and other large amounts of food or agricultural products originating in the ingestion pathway Emergency Planning Zone, but located elsewhere, shall be maintained.

12. Each organization shall describe the means for registering and monitoring of evacuees at relocation centers in host areas. The personnel and equipment available should be capable of monitoring within about a 12 hour period all residents and transients in the plume exposure EPZ arriving at relocation centers. — N/A

K. Radiological Exposure Control

Planning Standard

Means for controlling radiological exposures, in an emergency, are established for emergency workers. The means for controlling radiological exposures shall include exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides.

Evaluation Criteria			Cross Reference to Plan	
1.	Each licensee shall establish onsite exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Actions Guides (EPA 520/1-75/001) for:			
	a.	removal of injured persons;	Section	6.7
	b.	undertaking corrective actions;	Section	6.7
	c.	performing assessment actions;	Section	6.7
	d.	providing first aid;	Section	6.7
	e.	performing personnel decontamination;	Section	6.7
	f.	providing ambulance service; and	Section	6.7
	g.	providing medical treatment services.	Section	6.7
2.	Each licensee shall provide an onsite radiation protection program to be implemented during emergencies, including methods to implement exposure guidelines. The plan shall identify individual(s), by position or title, who can authorize emergency workers to receive doses in excess of 10 CFR Part 20 limits. Procedures shall be worked out in advance for permitting onsite volunteers to receive radiation exposures in the course of carrying out lifesaving and other emergency activities. These procedures shall include expeditious decision making and a reasonable consideration of relative risks.		Section	6.7.1
3.	a.	Each organization shall make provision for 24-hour-per-day capability to determine the doses received by emergency personnel involved in any nuclear accident, including volunteers. Each organization shall make provisions for distribution of dosimeters, both self-reading and permanent record devices.	Section	6.7.1

	b.	Each organization shall ensure that dosimeters are read at appropriate frequencies and provide for maintaining dose records for emergency workers involved in any nuclear accident.	Section	6.7.1
4.		Each state and local organization shall establish the decision chain for authorizing emergency workers to incur exposures in excess of the EPA General Public Protective Action Guides (i.e., EPA PAGs for emergency workers and lifesaving activities).	N/A	
5.	a.	Each organization as appropriate, shall specify action levels for determining the need for decontamination.	Sections	6.6, 6.7
	b.	Each organization, as appropriate, shall establish the means for radiological decontamination of emergency personnel wounds, supplies, instruments and equipment, and for waste disposal.	Section	6.7.2, 6.7.3, 6.7.4
6.		Each licensee shall provide onsite contamination control measures including:		
	a.	area access control;	Section	6.6
	b.	drinking water and food supplies;	Table	B-1
	c.	criteria for permitting return of areas and items to normal use, see Draft ANSI 13.12.	Section	9.0
7.		Each licensee shall provide the capability for decontaminating relocated onsite personnel, including provisions for extra clothing and decontaminants suitable for the type of contamination expected, with particular attention given to radioiodine contamination of the skin.	Section	6.7.2

L. Medical and Public Health Support

Planning Standard

Arrangements are made for medical services for contaminated injured individuals.☐

	Evaluation Criteria	Cross Reference to Plan	
1.	Each organization shall arrange for local and backup hospital and medical services having the capability for evaluation of radiation exposure and uptake, including assurance that persons providing these services are adequately prepared to handle contaminated individuals.	Sections	5.6.1, 6.7.4

1/ The availability of an integrated emergency medical services system and a public health emergency plan serving the area in which the facility is located and, as a minimum, equivalent to the Public Health Service Guide for Developing Health Disaster Plans, 1974, and to the requirements of an emergency medical services system as outlined in the Emergency Medical Services System Act of 1974 (P.L. 93-154 and amendments in 1979 P.L. 96-142), should be a part of and consistent with overall state or local disaster control plans and should be compatible with the specific overall emergency response plan for the facility.

2.	Each licensee shall provide for onsite first aid capability	Section	6.7
3.	Each state shall develop lists indicating the location of public, private and military hospitals and other emergency medical services facilities within the state or contiguous states considered capable of providing medical support for any contaminated injured individual. The listing shall include the name, location, type of facility and capacity and any special radiological capabilities. These emergency medical services should be able to radiologically monitor contamination personnel, and have facilities and trained personnel able to care for contaminated injured persons.	N/A	
4.	Each organization shall arrange for transporting victims of radiological accidents to medical support facilities.	Sections	5.6.1, 6.7.3

M. Recovery and Reentry Planning and Postaccident Operations

Planning Standard

General plans for recovery and reentry are developed.

	Evaluation Criteria	Cross Reference to Plan	
1.	Each organization, as appropriate, shall develop general plans and procedures for reentry and recovery and describe the means by which decisions to relax protective measures (e.g., allow reentry into an evacuated area) are reached. This process should consider both existing and potential conditions.	Sections	5.5, 9.0
2.	Each licensee plan shall contain the position/title, authority and responsibilities of individuals who will fill key positions in the facility recovery organization. This organization shall include technical personnel with responsibilities to develop, evaluate and direct recovery and reentry operations. The recovery organization recommended by the Atomic Industrial Forum's "Nuclear Power Plant Emergency Response Plan" dated October 11, 1979, is an acceptable framework.	Sections	5.4.2, 5.5, 9.0
3.	Each licensee and state plan shall specify means for informing members of the response organizations that a recovery operation is to be initiated, and of any changes in the organizational structure that may occur.	Section	9.0
4.	Each plan shall establish a method for periodically estimating total population exposure.	Section	9.0

N. Exercises and Drills

Planning Standard

Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills are (will be) corrected.

		Evaluation Criteria	Cross Reference to Plan
1.	a.	An exercise is an event that tests the integrated capability and a major portion of the basic elements existing within emergency preparedness plans and organizations. The emergency preparedness exercise shall simulate an emergency that results in offsite radiological releases which would require response by offsite authorities. Exercises shall be conducted as set forth in NRC and FEMA rules.	Section 8.3
	b.	An exercise shall include mobilization of stateand local personnel and resources adequate to erify the capability to respond to an accident scenario requiring response. The organization shall provide for a critique of the annual exercise by federal and state observers/evaluators. The scenario should be varied from year to year such that all major elements of the plans and preparedness organizations are tested within a five-year period. Each organization should make provisions to start an exercise between 6:00 p.m. and midnight, and another between midnight and 6:00 a.m. once every six years. Exercises should be conducted under various weather conditions. Some exercises should be unannounced.	Section 8.3

2. A drill is a supervised instruction period aimed at testing, developing and maintaining skills in a particular operation. A drill is often a component of an exercise. A drill shall be supervised and evaluated by a qualified drill instructor. Each organization shall conduct drills, in addition to the annual exercise at the frequencies indicated below:

a. Communication Drills — Section 8.3.2

Communications with state and local governments within the plume exposure pathway Emergency Planning Zone shall be tested monthly. Communications with federal emergency response organizations and states within the ingestion pathway shall be tested quarterly. Communications between the nuclear facility, state and local emergency operations centers, and field assessment teams shall be tested annually. Communication drills shall also include the aspect of understanding the content of messages.

b. Fire Drills — Section 8.3.2

Fire drills shall be conducted in accordance with the plant (nuclear facility) technical specifications.

c. Medical Emergency Drills — Section 8.3.2

A medical emergency drill involving a simulated contaminated individual which contains provisions for participation by the local support services agencies (i.e., ambulance and offsite

medical treatment facility) shall be conducted annually. The offsite portions of the medical drill may be performed as part of the required annual exercise.

d. Radiological Monitoring Drills — Section 8.3.2

Plant environs and radiological monitoring drills (onsite and offsite) shall be conducted annually. These drills shall include collection and analysis of all sample media (e.g., water, vegetation, soil and air), and provisions for communications and record keeping. The state drills need not be at each site.
Where appropriate, local organizations shall participate.

e. Health Physics Drills — Section 8.3.2

(1) Health Physics drills shall be conducted semiannually which involve response to, and analysis of, simulated elevated airborne and liquid samples and direct radiation measurements in the environment. The state drills need not be at each site.

(2) Analysis of inplant liquid samples with actual elevated radiation levels including use of the post-accident sampling system shall be included in Health Physics drills by licensees annually.

3. Each organization shall describe how exercises and drills are to be carried out to allow free play for decision making and to meet the following objectives. Pending the development of exercise scenarios and exercise evaluation guidance by NRC and FEMA the scenarios for use in exercises and drills shall include but not be limited to, the following:

a. The basic objective(s) of each drill and exercise and appropriate evaluation criteria; — Section 8.3.1

b. The date(s), time period, place(s) and participating organizations; — Section 8.3.1

c. The simulated events; — Section 8.3.1

d. A time schedule of real and simulated initiating events; — Section 8.3.1

e. A 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; and — Section 8.3.1

f. A description of the arrangements for and advance materials to be provided to official observers. — Section 8.3.1

4. Official observers from federal, state or local governments will observe, evaluate, and critique the required exercises. A critique shall be scheduled at the conclusion of the exercise to evaluate the ability of organizations to respond as called for in the plan. The critique shall be conducted as soon as practicable after the exercise, and a formal evaluation should result from the critique. — Section 8.3.1

5.	Each organization shall establish means for evaluating observer and participant comments on areas needing improvement, including emergency plan procedural changes, and for assigning responsibility for implementing corrective actions. Each organization shall establish management control used to ensure that corrective actions are implemented.	Sections	8.3, 8.4, 8.5

O. Radiological Emergency Response Training

Planning Standard

Radiological emergency response training is provided to those who may be called on to assist in an emergency.

	Evaluation Criteria	Cross Reference to Plan	
1.	Each organization shall assure the training of appropriate individuals.	Sections	8.1, 8.2, 8.4
a.	Each facility to which the plant applies shall provide site specific emergency response training for those offsite emergency organizations who may be called upon to provide assistance in the event of an emergency.[1]	Sections	8.2, 8.4
b.	Each offsite response organization shall participate in and receive training. Where mutual aid agreements exist between local agencies such as fire, police and ambulance/rescue, the training shall also be offered to the other departments who are members of the mutual aid district.	N/A	

1/ Training for hospital personnel, ambulance/rescue, police and fire departments shall include the procedures for notification, basic radiation protection, and their expected roles. For those local services support organizations who will enter the site, training shall also include site access procedures and the identity (by position and title) of the individual in the onsite emergency organization who will control the organizations' support activities. Offsite emergency response support personnel should be provided with appropriate identification cards where required.

2.	The training program for members of the onsite emergency organization shall, besides classroom training, include practical drills in which each individual demonstrates ability to perform his assigned emergency function. During the practical drills, on-the-spot correction of erroneous performance shall be made and a demonstration of the proper performance offered by the instructor.	Section	8.3
3.	Training for individuals assigned to licensee first aid teams shall include courses equivalent to Red Cross Multi-Media.	Section	6.7.2
4.	Each organization shall establish a training program for instructing and qualifying personnel who will implement radiological emergency response plans. The specialized initial training and periodic retraining programs (including the scope, nature and frequency) shall be provided in the following categories:	Section	8.2

a. Directors or coordinators of the response organizations;
b. Personnel responsible for accident assessment;
c. Radiological monitoring teams and radiological analysis personnel;
d. Police, security and fire fighting personnel;
e. Repair and damage control/correctional action teams (onsite);
f. First aid and rescue personnel;
g. Local support services personnel including Civil Defense/Emergency Service personnel;
h. Medical support personnel;
i. Licensee's headquarters support personnel;

2/ If state and local governments lack the capability and resources to accomplish this training, they may look to the licensee and the Federal government (FEMA) for assistance in this training.

* NRC and FEMA encourage state and local governments which have these capabilities to continue to include them in their training programs.

j. Personnel responsible for transmission of emergency information and instructions.

5.	Each organization shall provide for the initial and annual retraining of personnel personnel with emergency response responsibilities.	Section 8.2

P. Responsibility for the Planning Effort: Development, Periodic Review and Distribution of Emergency Plans

Planning Standard

Responsibilities for plan development and review and for distribution of emergency plans are established, and planners are properly trained.

	Evaluation Criteria	Cross Reference to Plan
1.	Each organization shall provide for the training of individuals responsible for the planning effort.	Section 8.4
2.	Each organization shall identify by title the individual with the overall authority and responsibility for radiological emergency response planning.	Sections 8.1, 8.4
3.	Each organization shall designate an Emergency Planning Coordinator with responsibility for the development and updating of emergency plans and coordination of these plans with other response organizations.	Sections 8.1, 8.4
4.	Each organization shall update its plan and agreements as needed, review and certify it to be current on an annual basis. The update shall take into account changes identified by drills and exercises.	Sections 8.4, 8.5
5.	The emergency response plans and approved changes to the plans shall be forwarded to all organizations and	Section 8.5

	appropriate individuals with responsibility for implementation of the plans. Revised pages shall be dated and marked to show where changes have been made.		
6.	Each plan shall contain a detailed listing of supporting plans and their source.	Appendix	F
7.	Each plan shall contain as an appendix listing, by title, procedures required to implement the plan. The listing shall include the section(s) of the plan to be implemented by each procedure.	Appendix	A
8.	Each plan shall contain a specific table of contents. Plans submitted for review should be cross-referenced to these criteria.	Appendix	G
9.	Each licensee shall arrange for and conduct independent reviews of the emergency preparedness program at least every 12 months. (An independent review is one conducted by any competent organization either internal or external to the licensee's organization, but who are not immediately responsible for the emergency preparedness program.) The review shall include the emergency plan, its implementing procedures and practices, training, readiness testing, equipment, and interfaces with state and local governments. Management controls shall be implemented for evaluation and correction of review findings. The result of the review, along with recommendations for improvements, shall be documented, reported to appropriate licensee corporate and plant management, and involved federal, state and local organizations, and retained for a period of five years.	Section	8.5
10.	Each organization shall provide for updating telephone numbers in emergency procedures at least quarterly.	Section	8.6

APPENDIX H

I. News Media Emergency Information Program for GGNS

II. Public Education and Information Program for GGNS

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INTRODUCTION

This section of the Emergency Plan deals with responses to an emergency in relation to news media activities, employee information, inquiry response, and coordination of public information activities with local, state, and federal agencies. It also describes the training to be conducted to ensure effective dissemination of information during an emergency.

The first part of this section is a brief synopsis of the overall news media emergency information program organized according to emergency classifications. This is implemented by 01-S-10-6, 10-S-01-6, 10-S-01-34.

The final part of this document is a description of public information-education activities underway for residents in the Grand Gulf area and the general public.

I. NEWS MEDIA EMERGENCY INFORMATION PROGRAM

1.0 PURPOSE

The News Media Emergency Information Program establishes the means of keeping media personnel informed of an emergency situation at Grand Gulf Nuclear Station (GGNS).

2.0 RESPONSIBILITIES FOR ACTIVATING THE PROGRAM

Activation of the news media program begins with a call from the GGNS Computer Notification System or Emergency Director to the Company Spokesperson.

The Company Spokesperson determines, following consultation with the Emergency Director, whether the situation warrants media notification. Initial decisions are determined to a great extent by the classification given to the incident, of which there are four.

3.0 Deleted

4.0 OVERALL INFORMATION FLOW

4.1 Company Spokesperson

GGNS management or designee fills the Company Spokesperson position throughout an emergency.

4.2 Unusual Event

Normally only the Company Spokesperson is called. He / she may:

a. Stand by and follow developments
b. Consider additional notifications
c. Consider drafting news bulletin

4.3 Alert/Site Area Emergency/General Emergency

Actions initiated at the Alert level continue through a Site Area Emergency and General Emergency. At these levels of an emergency the EOF sends information to the Company Spokesperson, or designee.

4.3.1 Company Spokesperson:

a. Reports to the Joint Information Center
b. Establishes contact with the EOF
c. Coordinates directly with State representatives at the JIC
d. Ensures that the Inquiry Response is activated and provided with news bulletins to use in response to inquires from the media and public.
e. Issues news bulletins and conducts news briefings once the JIC is operational

4.3.2 Inquiry Response Coordinator:

a. Reports to the JIC
b. Ensures that the Inquiry Response is operational and establishes contact with the JIC
c. Ensures that current news bulletins are provided to the Inquiry Response Staff

4.3.3 News Briefings - News briefings are conducted at the JIC as needed and news media inquiries are referred to the JIC. Copies of news bulletins are also available to the Inquiry Response and the Entergy Operations CEC.

4.3.4 Coordinating News Releases from the JIC - GGNS Personnel issue bulletins concerning conditions at the plant. Statements relative to offsite conditions and

operations are done by the Governor's Press Secretary and/or the Director of the Mississippi Emergency Management Agency or their designee.

Statements relative to Louisiana conditions and operations are done by a representative for the State of Louisiana.

4.3.5 Contacts with other agencies - The JIC assumes responsibility when it is activated for sharing bulletin messages with CCCD, TPHS/EP, MEMA, LDEQ, NRC Regional Office, and other government agencies with representatives at the JIC. The JIC is responsible for sending bulletin messages to the Entergy Operations CEC, Inquiry Response, and SMEPA.

5.0 EXCEPTIONS

Exceptions to this information flow plan are made in case of either a rapidly developing - or rapidly terminating - emergency at Grand Gulf.

5.1 Rapidly Developing Emergency - In this circumstance the Company Spokesperson, in consultation with the ED, is authorized to issue news bulletins.

5.2 Rapidly Terminating Emergency - In this case a public statement is developed by the Company Spokesperson detailing the nature of the incident and telling how it was resolved. This statement is given to the news media as rapidly as possible.

6.0 TRAINING

Individuals involved in the GGNS News Media Emergency Information Program complete training activities and participate in drills/ exercises in order to be thoroughly familiar with their duties. Training is documented by the Manager, Emergency Preparedness.

6.1 News Media Training - An annual program is provided to acquaint the news media with the methodology for obtaining information during an emergency as well as information about overall emergency preparedness for GGNS. The training includes information about the plant, radiation, and the roles of emergency news centers.

6.2 Overall Training - Appropriate training activities are conducted annually for those involved in the News Media Emergency Information Program.

II. PUBLIC EDUCATION AND INFORMATION PROGRAM FOR GGNS

1.0 Purpose and Objectives

This program acquaints the general public with the emergency preparedness plans made in connection with the operation of Grand Gulf Nuclear Station (GGNS) located in Claiborne County in Southwest Mississippi.

Entergy Operations, Inc., operator of the facility, has established a policy of full disclosure of any incident relating to the safety of operation of the plant.
Entergy Operations therefore, maintains a free and open relationship with the public and others concerned with the safety of operations in the vicinity of GGNS.

2.0 Methods To Reach The Public Prior To Emergency Situations

Several communication methods are used to acquaint the public with plans made for their protection during any emergency at GGNS. These methods are described below:

2.1 Material Placed in Schools: Literature is offered to schools in the area, both in Claiborne County and Tensas Parish. The information tells locations of shelters and reception centers for students in Claiborne County, Mississippi, and Tensas Parish, Louisiana.

2.2 Distribution of an Emergency Information Publication:

This publication contains basic information on nuclear power and emergency planning to aid the public during any emergency. Mass distribution of the publication in the Claiborne County and Tensas Parish areas is conducted annually.

2.3 Display of Posters: One of the ways to acquaint the overall population, especially transients, with the emergency plans is the placing in public places of posters with a map of the evacuation routes and other pertinent information.