



ANNEX F Radiological Operations

I. PURPOSE

This annex provides for an effective radiological protection program designed to minimize the potentially devastating effects of a nuclear attack. Included are procedures for monitoring and evaluating nuclear weapons effects as well as operational plans for decontamination, if needed.

II. SITUATION AND ASSUMPTIONS

If an enemy attack upon the United States were to occur, nuclear weapons possibly would be used. Such an attack could result in radioactive fallout being deposited over a large area of the nation. A surface burst upwind of East Baton Rouge Parish could cover all of the Parish and the surrounding parishes with radioactive materials.

III. CONCEPT OF OPERATIONS

A. General

It is important to provide an effective radiation monitoring and reporting system within the Parish with a monitoring capability under either a wartime situation or a peacetime radioactive materials accident. Another vital part of recovery is the decontamination program used to reduce the radiological health hazard.

B. Phases of Emergency Management

1. Prevention

- a. Obtain equipment for detecting radiation.
- b. Determine possible locations for decontamination stations.

2. Mitigation

- a. Selection and training of Radiological Defense (RADEF) Officer and staff.
- b. Establish a radiological program.

3. Preparedness

- a. Recruit, train, assign, and furnish capable personnel to man and operate the Parish Radiological Detection System.



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- b. Develop radiological analyzing capabilities so that emergency operations may be conducted under fallout conditions.
 - c. Educate the general public in radiological protection measures on a continuing basis to develop an expeditious and effective response to fallout conditions in order for them to provide protection for themselves.
4. Increased Readiness
- a. Review plans to ensure workability. Make all necessary changes.
 - b. Accelerate training of additional personnel. This includes both EOC Radiological Staff and at least two persons assigned to each monitoring unit.
 - c. Ensure that all radiological detection instruments are in operating condition. Distribute instruments from bulk storage to all previously designated locations and personnel.
 - d. Conduct operational check of radiological reporting communications system.
 - e. Ensure that the EOC Radiological Staff personnel can be contacted for rapid manning of the Radiological Analysis Section upon receipt of an attack warning.
 - f. The Parish RADEF Officer will check to ensure that the Radiological Analysis Section has all the maps, displays, forms, supplies, etc., necessary for 14 day operations. Articles needed will be requisitioned immediately from the State RADEF Officer or other sources, as necessary.
5. Response Phase
- a. All Radiological Detection System personnel proceed to their assigned locations.
 - b. All monitor teams report their readiness state to the Parish EOC.
 - c. The Parish RADEF Officer will report the Parish Radiological Detection System's state of readiness to the State RADEF Officer.
 - d. The Parish Radiological Detection System will function as described in Appendix 2, SOGs.



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6. Recovery Phase
 - a. Initiate outside monitoring to determine location and intensity of fallout.
 - b. Ensure that all emergency services teams contain a properly equipped radiological monitoring team. All personnel will wear individual dosimeters.
 - c. Aerial monitoring is a State responsibility and will be requested through the STATE RADEF Officer. This capability is limited and must be cleared by the U.S. Air Force.
 - d. Vital facilities and equipment will be monitored and plans to decontaminate them will be initiated following the priority listing established by the Mayor-President.
 - e. Individual radiation exposure records will be maintained on all personnel for operational control purposes and inclusion in their medical records.
 - f. Any individual receiving the maximum allowable dose radiation will be removed from any further exposure to outside of shelter radiation.
 - g. A request for emergency workers to exceed the peacetime Environmental Protection Agency general protective action guidelines will be made to the Nuclear Regulatory Commission (NRC) through the LA Department of Environment Quality.
 - h. The Director of MOHSEP will be briefed daily on the East Baton Rouge Parish radiological situation, including EOC personnel radiation exposure levels, and the surrounding parish's radiological situation.

IV. ORGANIZATION & ASSIGNMENT OF RESPONSIBILITIES

- A. The organization of the Parish Radiological Detection System consists of an EOC Analysis Section, Field Monitoring Stations, Emergency Services Support Monitor Teams and Shelter Monitor Teams.
 1. The EOC Analysis Section will be composed of a RADEF Officer and an Assistant RADEF Officer, a Decontamination Officer, and a sufficient number of analysts and plotters to man the Section on a 24-hour basis.
 2. Field Monitor Stations and Monitor Teams will consist of at least two trained monitors.

V. DIRECTION AND CONTROL



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A. East Baton Rouge Parish, when affected by an emergency at River Bend Station, is responsible for initial radiological emergency operations within its jurisdiction. The Parish will coordinate such action through the Director of MOHSEP and through the Parish Emergency Response Organization. The Mayor-President of East Baton Rouge Parish or his designee (hereinafter referred to as the Mayor-President), through the Director of MOHSEP, will provide the necessary direction and control to initiate actions and conduct emergency operations required to protect the population of East Baton Rouge Parish from an emergency at River Bend Station.

B. The City Council, Mayor-President and MOHSEP staff will operate from the EOC at the following location:

ATM/EOC
3773 Harding Boulevard
Baton Rouge, LA 70807

and will direct the emergency functions within the constituted government structure. Operations can be conducted in the MOHSEP Mobile Command Post for on-scene operations or operations at an alternate location. Should it become necessary, emergency operations can be conducted from the alternate EOC facility located at:

Louisiana State Police Headquarters
7919 Independence Boulevard
Baton Rouge, LA 70806

C. The Director of MOHSEP is responsible for coordination and implementation of all plans and procedures, recruitment and training of all staff and other personnel necessary to handle emergency operations, subject to the direction and control of the executive heads of government, and under the direction and control of the Governor and GOHSEP.

D. The ultimate final authority for all emergency actions in response to all emergencies rests with the Governor of Louisiana. The Governor, in turn, will receive consultation and advice from various local, state, and federal agencies on emergency actions to be taken.

E. Monitor teams will report to the EOC by telephone or radio. The Parish EOC and the State EOC reporting will be done by telephone or radio.

F. Generally, staff assignments to the EOC will include representatives of the following:

1. Mayor-President of E.B.R. Parish
2. MOHSEP
3. East Baton Rouge Parish Sheriff's Office
4. Public Information Officer
5. Radiological Officer/Asst. Radiological Officer
6. Communicator



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7. American Red Cross
8. Baton Rouge Police Department
9. Baton Rouge Fire Department
10. East Baton Rouge Parish School Board
11. Department of Environmental Quality
12. Emergency Medical Services
13. Louisiana State Police
14. Capital Transportation Corporation

VI. CONTINUITY OF GOVERNMENT

- A. In the absence of the Mayor-President, responsibility will be delegated according to the Organizational Chart in the Basic Plan for continuity of Parish Government.

VII. ADMINISTRATION AND LOGISTICS

- A. Personnel
 1. Radiological Detection System personnel are mostly firemen.
- B. Equipment
 1. All radiological equipment is state-owned and is requisitioned from the Radiological Instrument Maintenance and Calibration Facility at the Governor's Office of Homeland Security and Emergency Preparedness. Instrument repair is carried out at the Radiological Instrument Maintenance and Calibration Facility.
- C. Supplies
 1. All normal administrative supplies are requisitioned from parish stocks.
 2. Supplies peculiar to radiological operations may be reproduced locally or requisitioned from the State RADEF Officer.
- D. Radiological Monitoring Locations
 1. Radiological Monitor reporting locations are listed in Appendix 2.
- E. Decontamination
 1. Decontamination operations are described in Appendix 3.
- F. Monitoring Procedures



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1. All monitoring will be performed in accordance with the Handbook for Radiological Monitors, SM5.1.

VIII. PLAN DEVELOPMENT AND MAINTENANCE

The Director of MOHSEP will be responsible for the development and implementation of this annex. He/She will maintain the annex through periodic review, testing and updating.

IX. AUTHORITIES/REFERENCES

A. Authority

1. State

- a. The Louisiana Disaster Assistance Act of 1993
- b. The Louisiana Executive Order No. EWE93-22
- c. The Louisiana Environmental Affairs Act, La. R.S. 30:1051 et seq.

2. Local

Ordinances or resolutions enacted pursuant to requirements or authorities cited in the Plan.

3. Federal

Federal Civil Defense Act of 1950, as amended, 50 USCA App. 2251 et seq.

B. References

1. State

The State of Louisiana Emergency Operations Plan.

2. Federal

- a. U.S. Nuclear Regulatory Commission and FEMA, "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.
- b. Code of Federal Regulations, Title 10, Parts 50 and 70.



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- c. Code of Federal Regulations, Title 44, Parts 350 and 351.
- d. Federal Radiological Emergency Response Plan (FRERP) November 1985; Federal Emergency Management Agency.
- e. Federal Emergency Management Agency, "Guidance on Off-Site Emergency Radiation Measurement Systems, Phase 1 - Airborne Release: FEMA-REP-2, September 1980.
- f. Federal Disaster Act of 1974, P.L.93-288.
- g. U.S. Nuclear Regulatory Commission, "Final Safety Analysis Report, Site Characteristics":
 - 1.) Waterford Steam Electric Station, Unit No. 3, Taft, Louisiana
 - 2.) Grand Gulf Nuclear Station, Port Gibson, Mississippi.
 - 3.) River Bend Station, St. Francisville, Louisiana.
- h. U.S. Environmental Protection Agency, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", September 1975, as revised.
- i. U.S. Department of Energy, Federal Radiological Monitoring and Assessment Plan (FRMAP).
- j. FEMA NRC Memoranda of Understanding.
- k. U.S. Food and Drug Administration, "Accidental Radioactive Contamination of Human Food and Animal Feeds; Recommendations for State and Local Agencies", October, 1982.

X. GLOSSARY/DEFINITIONS

1. **Access Control Point** - A pre-designated location manned by Parish Sheriff's Deputies, the State Police, or by the National Guard in order to prevent entry into the risk area during an accident. These points will be located on or immediately beyond the perimeter of the risk.
2. **Central Resource Receiving Point** - A predetermined location outside the plume exposure pathway Emergency Planning Zone (EPZ) suitable for the reception and distribution of supplies and equipment.
3. **Decontamination** - Procedures taken to remove and contain radiological contamination on persons or contamination present on supplies, instruments, equipment, or vehicles.



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These procedures will usually involve showering by persons and washing or disposing of clothing and other contaminated items.

4. **Decontamination Survey** - The process by which persons and vehicles are monitored to determine the presence and/or level of contamination. Such surveys will be performed with the use of a Geiger-Mueller survey meter (Geiger Counter), or similar device.
5. **Dose Rate** - The amount of radiation, which an individual can potentially receive per unit of time.
6. **Dosimeter** - an instrument worn by an individual to measure the total dose of radiation received over a specified period of time.
7. **Emergency** - Any condition existing outside the bounds of nuclear operating sites owned or licensed by a Federal agency, and further, any condition existing within or outside of the jurisdictional confines of a facility licensed or registered by the Louisiana Department of Environmental Quality and arising from the presence of by-product material, or any other radioactive material or source of radiation which is endangering or could reasonably be expected to endanger the health and safety of the public or to contaminate the environment.
8. **Emergency Medical Assistance Program (EMAP)** - A program developed by the individual fixed nuclear facilities, in coordination with State and risk Parish government and supporting hospitals, which provides the basis for handling on-site medical emergencies, whether or not the injured/ill persons are radioactively contaminated or irradiated.
9. **Emergency Operations Center (EOC)** - A facility used by State or Local government to direct operations in the event of an emergency.
10. **Emergency Operations Facility (EOF)** - A licensee facility near the plant for the management of overall emergency response, the coordination of radiological assessment and for the management of recovery operations. The EOF is designed to provide assistance in the decision making process for the protection of public health and safety and to control radiological monitoring teams and facilities on-site and off-site.
11. **Emergency Planning Zone (EPZ)** - A generic area defined about a nuclear facility to facilitate off-site emergency planning and develop a significant response base. It is defined for the plume and ingestion exposure pathways.
12. **Emergency Workers** - Persons acting in an official capacity to carry out functions and responsibilities inside the plume exposure pathway EPZ during an accident. As such, these individuals are under different criteria for protection than the general public.



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13. **Field Monitoring Team (FMT)** - A team of Louisiana Department of Environmental Quality personnel dispatched to the plume or ingestion exposure pathway EPZ at the time of an accident to perform radiological environmental sampling.
14. **Fixed Nuclear Facility Accident (hereinafter called an "accident")** - An accident at a fixed nuclear facility that can be categorized in one of the following four emergency classes:
 - a. **Notification of Unusual Event** - Events are in process or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring off-site response or monitoring are expected unless further degradation of safety systems occurs.
 - b. **Alert** - Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any releases expected to be limited to small fractions of the Environmental Protection Agency (EPA) Protective Action Guideline exposure levels.
 - c. **Site Area Emergency** - Events are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public. Any releases not expected to exceed EPA Protective Action Guideline exposure levels except near site boundary.
 - d. **General Emergency** - Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Releases can reasonably be expected to exceed EPA Protective Action Guideline exposure levels off-site for more than the immediate site area.
15. **Ingestion Exposure Pathway** - The process by which people are indirectly exposed to radiological contamination. The principal exposures from this pathway are from ingestion of contaminated water or foods such as milk or fresh vegetables. The duration of principal exposures could range in length from hours to months. The EPZ for this pathway consists of an area of about 50 miles in radius around a fixed nuclear facility.
16. **Licensee** - Holder of or applicant for a license to operate a fixed nuclear power facility.
17. **Local Government** - The legal governing body of any parish, municipality or subdivision of the state. For the purposes of this Plan, the term "local" will refer to offices or agencies of Parish Government and any organization functioning within the Parish and having an emergency response role.



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18. **Main Evacuation Routes** - Those roadways identified in advance in state and risk parish plans as the principal routes leading from the plume exposure pathway EPZ for use by vehicles in the event of an accident requiring evacuation.
19. **Pick-up Point(s) (PPPs)** – Pre-designated location(s) at which members of the general public without automobiles or other means of transportation will be provided transportation out of the plume exposure pathway EPZ.
20. **Plume Exposure Pathway** - The process by which people are directly exposed to radiation. The principal exposures from this pathway would be whole body external exposure to gamma radiation from the plume and deposited materials, and inhalation exposure from the passing plume. The duration of principal exposures could range in length from hours to days. The EPZ for this pathway consists of an area of about 10 miles in radius around a fixed nuclear facility.
21. **Projected Dose** - A calculated or estimated dose which the population at risk may potentially receive as a result of an accident if protective actions are not taken.
22. **Protective Action** - A specific action which may be taken to minimize or eliminate a hazard to the health and safety of people within a risk area. Protective actions identified in this plan are access control, sheltering, evacuation and respiratory protection, which may be implemented individually or in combination.
23. **Protective Action Guide (PAG)** - Projected radiological dose or dose commitment values to individuals in the general population which warrant taking protective action.
24. **Protective Action Section (PAS)** - An area within the plume exposure pathway EPZ where the implementation of protective action or actions may be deemed necessary at the time of an accident. In Mississippi, these geographical areas are known as Protective Action Areas (PAA).
25. **Protective Response** - The implementation of a protective action or combination of protective actions by governmental agencies at the time of an accident to eliminate or reduce radiation exposure to the public.
26. **Radiation** - Gamma rays, x-rays, alpha and beta particles, as well as electromagnetic radiation consisting of associated and interacting electric and magnetic waves.
27. **Radiation Dose** - The quantity of radiation energy imparted to the body or any portion of the body without regard for the type of radiation.
28. **Radiological Monitoring Point** - A pre designated location at which radiological data is gathered through automatic or manual environmental sampling.



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29. **Radioprotective Drugs** - Compounds containing stable iodine in sufficient quantities to saturate the thyroid, thereby blocking partially or wholly the absorption and increasing the elimination of radioiodine by the human body.
30. **Reception Center** - A pre-designated site outside the plume exposure pathway EPZ at which evacuees will be registered, monitored for contamination, decontaminated if necessary, and directed to shelters if desired.
31. **Respiratory Protection** - Those actions taken at the time of an accident intended to minimize the inhalation of airborne contamination.
32. **Risk Parish** - A parish located partially or wholly within the plume exposure pathway EPZ of a fixed nuclear facility.
33. **Shelter** - A facility established outside the plume exposure pathway EPZ at the time of an accident for the purpose of providing food, shelter, and medical care on a short or long-term basis for persons evacuating the risk area.
34. **Sheltering** - Action taken by the public to protect against radiological exposure which include remaining indoors, closing doors, and windows and decreasing building ventilation during and following the passage of a radioactive plume.
35. **Support Parish** - Generally, a parish outside the plume exposure pathway EPZ of a fixed nuclear facility that, through prior agreement, will provide resource support to a risk parish in the event of an accident. East Baton Rouge Parish serves primarily as a support parish even though partially included within the River Bend Station plume exposure pathway EPZ.
36. **Traffic Control Point** – Pre-designated location established on a main evacuation route to be manned by emergency workers. These locations will be manned for the purpose of controlling traffic flow during an accident requiring evacuation of all or a portion of the plume exposure pathway EPZ.

XI. APPENDICES TO ANNEX

- 1.) Organizational Chart
- 2.) Standard Operating Procedure
- 3.) Decontamination
- 4.) Radiological Materials Incidents
- 5.) Radiological Expansion for Crisis Relocation