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DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
EMERGENCY PLAN

APPROVED:

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NUCLEAR REGULATORY COMMISSION

Docket No. 50-413/414 OL Official Exh. No. EP-3
In the matter of Catawba
Staff _____ IDENTIFIED ☒
Applicant ☒ RECEIVED ☒
Intervenor _____ REJECTED _____
Conf. Offr. _____
Contractor _____ DATE 5/3/84
Other _____ Witness Cont 147 Panel
Reporter Ly

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G PDR

Dated - August 1980
Revision 3 - June 1983

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
EMERGENCY PLAN

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INTRODUCTION

A. PURPOSE

This Emergency Plan for the Catawba Nuclear Station is established for the protection of life and property in all emergency and accident situations. It particularly applies to those radiological situations (radiation, contamination and reactor accidents) where the health and safety of station personnel and the general public may be involved; but it also includes other general industrial emergency and accident conditions involving radioactive materials such as fire, vehicular accidents, natural disasters, medical injury or illness and industrial security.

The plan described herein will be implemented at Catawba by incorporating it into detailed station Emergency Procedures; as such, it will be coordinated with station operating, radiological control, industrial security procedures and corporate emergency plans.

B. SCOPE

The Emergency Plan is a coordinated effort involving station personnel; station facilities and equipment; the emergency resources of the Crisis Management Plan of the Duke Power Company corporate organizations; emergency services of various local, state and federal agencies having appropriate jurisdiction or concern for public health and safety, particularly the radiological-emergency and emergency plans of local county Preparedness Agencies; Emergency Preparedness Division of South Carolina Adjutant General, the South Carolina Department of Health and Environmental Control, Bureau of Radiological Health; the North Carolina Department of Crime Control and Public Safety, and the North Carolina Human Resources Department, Radiation Protection Branch.

The Emergency Plan organization and the emergency organizations that have responsibilities in the management of an emergency condition at the station are identified throughout the Plan. The Emergency Planning Zone concept is shown in NUREG-0654, Rev. 1, and is utilized in this plan.

The key elements of the Emergency Plan include:

- a. An essentially uniform means of reporting and handling any emergency or accident situation.
- b. A graded emergency classification system of increasing severity, based on specific criteria, Emergency Action Levels (EAL) and a method for relating EAL's to Protective Action Guides (PAG).
- c. A corporate Crisis Management Plan which is integrated into the station Emergency Plan.

- d. Interaction with the emergency plans of appropriate local, state and federal agencies concerned with public health and safety in the event of a reactor accident.

The Emergency Plan is compatible with facility design features, site, layout and site location, with respect to such considerations as access routes, surrounding population distributions and lake and land use.

Agreements have been made with local, state and federal authorities for coordination of activities in the event of an emergency. Local agencies provide fire protection, medical support, and ambulance rescue service upon request. In addition, the emergency plans of the Emergency Preparedness Agencies of the counties involved provides assistance and logistical support in the event that evacuation of portions of the Plume Exposure Emergency Planning Zone becomes necessary. The disaster plans of the Emergency Preparedness Agencies in York County where the station is located, and of the Emergency Management Agencies in the adjacent counties (Mecklenburg and Gaston) as they relate to the protection of the public who may be affected by an accident situation at Catawba, all include the following aspects:

- a. Notification of their own Emergency Preparedness Agency personnel and other emergency services involved in their Emergency Plans.
- b. Law enforcement and traffic control.
- c. Notification or warning of persons in affected areas.
- d. Evacuation as necessary to designated schools or other public buildings out of the affected area, where shelter, food, overnight accommodations, medical care, etc., would be made available.
- e. Assistance and cooperation with related agencies in other counties, Duke Power Company and other state and federal agencies.

Means have been developed for notification and coordination of emergency activities with persons and groups onsite as well as within the Exclusion Area, including portions on Lake Wylie which might be affected by an accident, as well as water authorities of nearby cities and industries downstream.

Duke Power intends to meet all of the requirements for early warning of the public and will continuously evaluate the resources necessary to provide this capability.

Radiological emergency situations, if they occur at all, are expected for the most part, to be highly localized, and only station property and station personnel are subject to any major hazard. Cognizance has been taken of the fact that construction crews are onsite during

operation of Unit 1 for construction of Unit 2. Members of the public are also within the Exclusion Area at various times (highway traffic, station visitors, boating and recreation on Lake Wylie, etc.). In case of a major accidental release of radioactivity, the general public and property in the Emergency Planning Zone may also be affected. The plan includes for the protection of all persons in the plume exposure pathway, as well as in the ingestion pathway, of the Emergency Planning Zone.

C. PLANNING BASIS

The basis for this plan is the upgraded 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. The overall objective of the Emergency Plan is to provide for early detection, warning and protective action response and recommendations for emergency conditions at Catawba that may affect the station proper and/or off-site areas. The range of emergency conditions is very large, starting with a zero point requiring no planning at all, up to planning for the worst possible accident scenario, regardless of its extremely low likelihood. Although the planning basis is independent of specific accident scenarios, a number of emergency conditions were considered in the development of this plan, including core melt release sequences.

The planning basis also considers time frames between initial accident recognition, response actions, and recommendation of appropriate protective actions in the event a potential for, or an actual release of radioactive materials is taking place. Knowledge of the potential for and the kinds of radioactive materials released, duration of the release and the time available to activate protective response on-site and off-site is important in determining what instructions/recommendations are to be given. Location of the population affected and communication mechanisms to those authorities responsible for activating protective action is also an important part of the planning basis.

Emergency preparedness is related to two predominant exposure pathways. They are:

Plume exposure pathway - The principle exposure sources from this pathway are:

Whole body external exposure to gamma radiation from the plume and from deposited material; and inhalation exposure from the passing radioactive plume.

The duration of the release leading to potential exposure could range from one-half hour to several days. For the Plume exposure pathway, shelter and/or evacuation would likely be the principle immediate protective action recommended. This protective action will generally involve a 360° area around the station to a distance of about two to five miles, although initial effort would be in the general downwind

direction. This concept is indicated in Figure 1 of NUREG 0654, Response Area For Emergency Planning. The precise boundaries of such protective action zones are largely determined by political boundaries. do not fit the precise pattern of Figure 1, NUREG 0654. The ability to best reduce potential exposure under actual conditions will determine the appropriate response by plant, corporate, state and local organizations.

Ingestion exposure pathway - The principle exposure from this pathway would be from ingestion of contaminated water or foodstuffs. The duration of potential exposure could range in length from hours to months. For the ingestion exposure pathway, the planning effort involves the identification of major exposure pathways from contaminated food and water and the associated control points and methods. The ingestion pathway exposures in general would represent a longer term problem, although some early protective actions to minimize subsequent contamination of milk or other supplies should be initiated (e.g. remove cows from pasture and put on stored feed).

The area that could be affected should an accident happen at Catawba is called the Emergency Planning Zone (EPZ). This area has a radius beginning at Catawba and extending out to about 50 miles. The choice of the size of the EPZ is defined in NUREG-0654 and below. In a particular emergency, protective actions might well be restricted to a small portion of the EPZ. On the other hand, for the worst possible accident conditions, protective actions may need to be taken to the outer parameters of the EPZ.

In regard to the area over which planning efforts should be carried out, the EPZ is defined both for the "short term" plume exposure pathway (Figure i-1) and for the "longer term" ingestion exposure pathway (Figure i-2) in accordance with NUREG-0654, Rev. 1.

The size of the plume exposure EPZ (about 10 miles) is based primarily on the following considerations:

Projected doses from traditional design basis accidents with release to the environment would not exceed Protective Action Guide levels outside the 10 mile zone.

Projected doses from most core melt sequences with release to the environment would not exceed Protective Action Guide levels outside the 10 mile zone.

For the worse core melt sequences with release to the environment immediate life threatening doses would generally not occur outside the 10 mile zone.

Detailed planning within the 10 mile EPZ will provide a substantial base for expansion of response efforts if the need arises.

The size of the ingestion exposure EPZ (about 50 miles radius) is based on the following considerations:

The downwind range within which significant contamination could occur would generally be limited to about 50 miles from Catawba because of wind shifts during a release and because of long travel times.

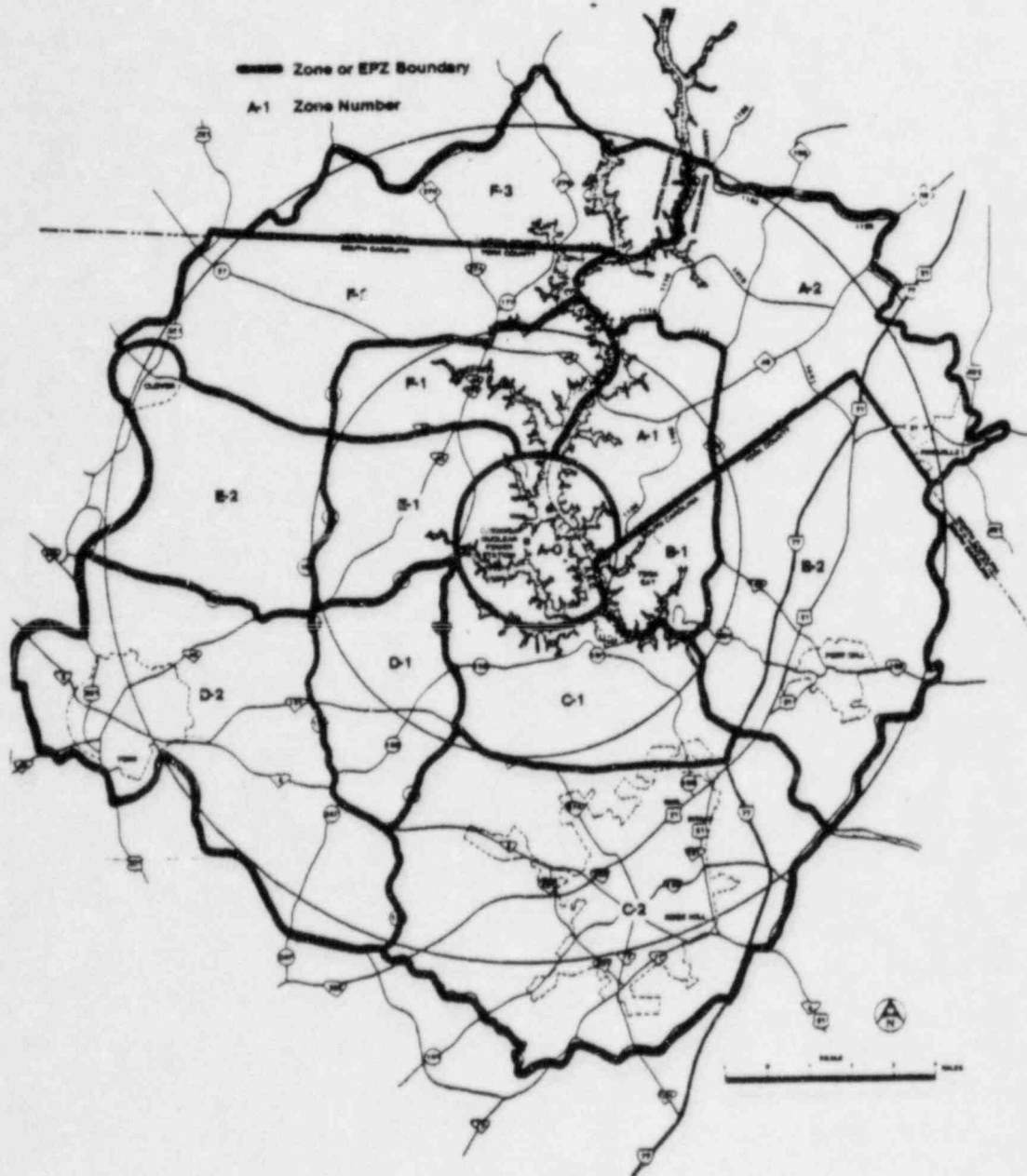
There may be conversion of atmospheric iodine, (i.e., iodine suspended in the atmosphere for long time periods) to chemical forms which do not readily enter the ingestion pathway.

Much of any particulate material in a radioactive plume would have been deposited on the ground within about 50 miles of the station.

The likelihood of exceeding ingestion pathway Protective Action Guide levels at 50 miles is comparable to the likelihood of exceeding plume exposure pathway Protective Action Guides at 10 miles.

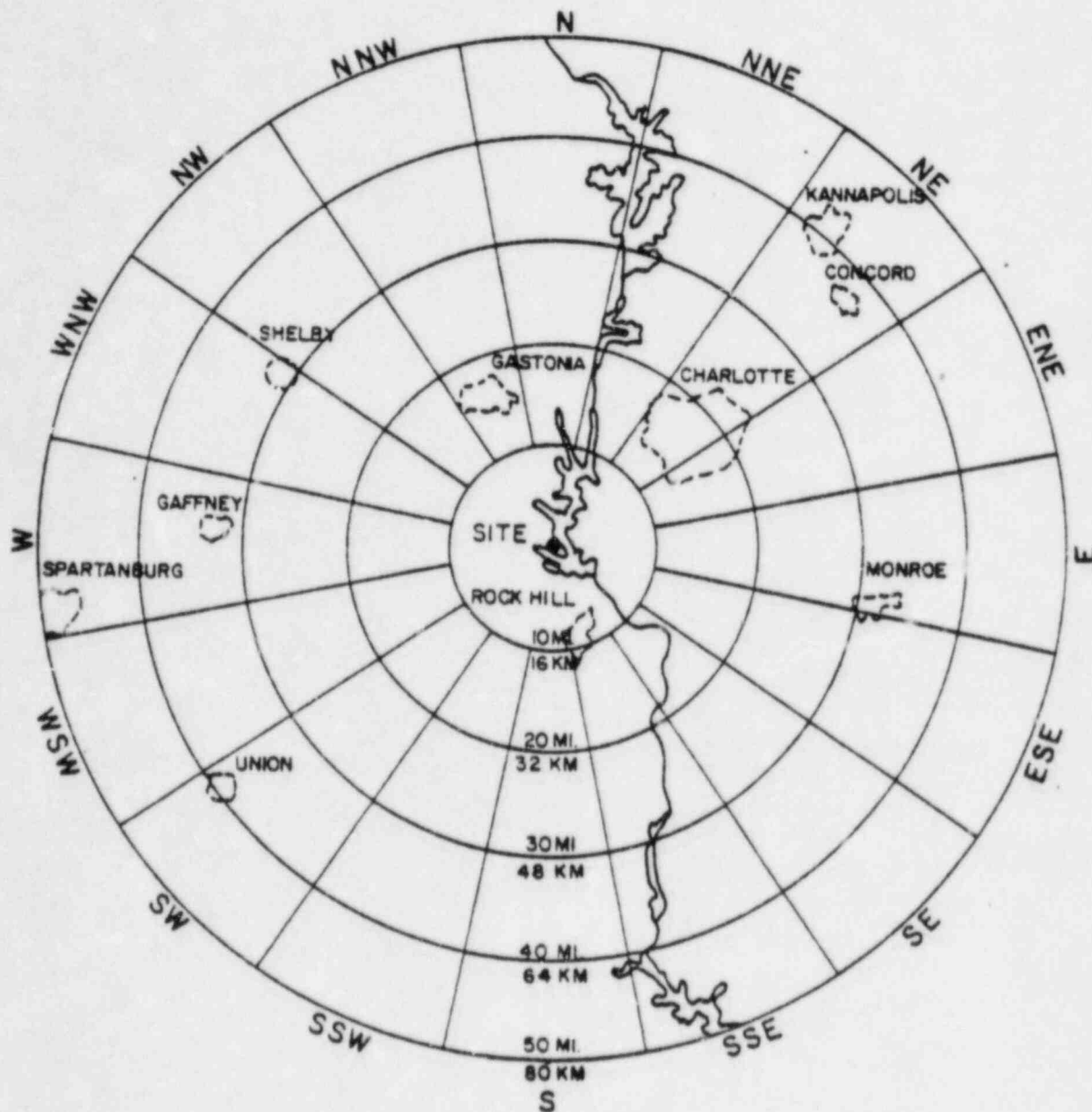
DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE i-1

10 MILE EPZ



DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE 1-2

50 MILE EPZ



A. Assignment of Responsibility

Planning Objective

To assure that State, Local, Federal, private sector, Duke Power Corporate and Catawba Nuclear Station organizations that are part of the overall response organization within the Catawba Emergency Planning Zone are identified.

A.1.a Organization

The principle organizations that are part of the overall response organization within the Catawba Emergency Planning Zone are listed below:

Federal (Note 1)

The principle Federal agencies that can provide assistance are:

Nuclear Regulatory Commission
Department of Energy
Environmental Protection Agency
Department of Health and Human Services
Food and Drug Administration
Department of Defense
Federal Emergency Management Agency
Department of Agriculture
Department of Transportation
National Weather Service
Oak Ridge National Laboratories

South Carolina State

The Emergency Preparedness Division of the S.C. Adjutant General (Note 2)
The Department of Health and Environmental Control
Bureau of Radiological Health

North Carolina State

The Department of Crime Control and Public Safety, Emergency Preparedness Division (Note 2)
The Department of Human Resources, Radiation Protection Section

Local Government

The county governments and municipal governments (within the counties) to include the emergency service departments and other agencies interrelated to these local governments within the 10-mile EPZ (plume exposure pathway) of Catawba Nuclear Station are:

York
Gaston
Mecklenburg

The county governments (and municipal governments within the counties) to include the emergency service departments and other agencies interrelated to these local governments within a 50-mile EPZ (ingestion exposure pathway) of Catawba Nuclear Station are:

-South Carolina (Note 1)

Cherokee	Lancaster
Chester	Newberry
Chesterfield	Spartanburg
Fairfield	Union
Kershaw	York

-North Carolina (Note 1)

Anson	Cleveland	Mecklenburg	Union
Burke	Gaston	Rowan	
Cabarrus	Iredell	Rutherford	
Catawba	Lincoln	Stanley	

Note 1: Agreement letters with these agencies are not a part of the Catawba Nuclear Station Emergency Plan unless specifically noted in A-3.

Note 2: This agency has the principle state responsibility for emergency response.

Private Sector

The principle organizations in the private sector that are part of the overall response organization for the EPZ are:

Westinghouse
Southern Bell Telephone Company
The Independent Telephone Companies
Radio and Television Stations
Bethel Volunteer Fire Department
Clover Rescue Squad

Various vendors such as Rad Service and K-MAC
Charlotte Memorial Hospital and Medical Center
Piedmont Emergency Medicine Associates

Member's Southeastern Electric Exchange
The Salvation Army
The American Red Cross
Piedmont Medical Center (Rock Hill, SC)

A.1.b Concept of Operations

All emergencies or accident situations at the station are handled initially by the Shift Supervisor. When an abnormal situation occurs, the Shift Supervisor is able, utilizing station operating and emergency procedures and from background, training and experience, to determine if the abnormal situation is an emergency condition. During the course of the emergency condition and as response personnel are notified, and emergency centers are activated (O.S.C., T.S.C., C.M.C.), the Shift Supervisor is the person in charge, and assumes the position of the Emergency Coordinator until the arrival of the Station Manager. When the Station Manager arrives and relieves the Shift Supervisor of the Emergency Coordinator function, he becomes the person in charge or the decision maker. When the Crisis Management Center (CMC) is activated and operational, the Recovery Manager at the CMC is responsible for company emergency response.

The Control Room at the station is the initial center for coordination of emergency response for all emergency conditions. For emergencies classified as Alert, Site Emergency and General Emergency, the Emergency Coordinator shall activate the Technical Support Center (TSC) and the Operations Support Center (OSC).

The TSC acts in support of the command and control function of the Control Room and provides an area for other station personnel who have expertise in all areas of plant operation to support the emergency condition. This facility is equipped with communication equipment, Operator Aid Computer (OAC) terminals, line printers, off-site and on-site computer access, plant drawings, specifications, manuals, procedures and other materials and equipment to support its function. Personnel in the T.S.C. will be able to assess the accident condition and make responsible recommendations to the Control Room, the CMC and off-site agencies as necessary to provide for the safety of plant personnel and members of the general public. As the C.M.C. becomes operational, it will assume many of the functions of the T.S.C. and will rely on the T.S.C. as a vital link to the station. The T.S.C. will provide the C.M.C. with up-to-date plant parameters, which will allow this facility to perform its assigned tasks in accordance with the Crisis Management Plan.

A.1.c Block Diagram of Organization Interrelationships (See CMP)

A.1.d Key Decision Making

During the course of any emergency condition at Catawba, several persons have the potential to be "in charge" or to be the "Key

Decision Maker". Prior to T.S.C. activation and arrival of the Station Manager, the Shift Supervisor becomes the Emergency Coordinator at the Station and is in charge. When the Station Manager arrives on-site and assumes the Emergency Coordinator position, he becomes the person in charge of emergency response and becomes the key decision maker. After C.M.C. is activated and becomes operational, the Recovery Manager is responsible for company emergency response.

A.1.e 24 Hour Emergency Response

The Catawba Station emergency response organization beginning with the Control Room through the T.S.C. is capable of responding to an emergency 24 hours per day, 7 days per week. Section E.2. describes the notification scheme within the station emergency response organization.

A.2.a Responsibility For and Functions of Emergency Response Organization

See Table A-1 of Crisis Management Plan.

A.2.b Legal Basis For Authority

(See State and County Plans)

A.3 Agreement Letters For Emergency Response Support

Appendix 5 contains letters of agreement with the following organizations:

Piedmont Medical Center
Charlotte Memorial Hospital and Medical Center
Municipal-County Emergency Preparedness Agency of York County
Bethel Volunteer Fire Department
Clover Rescue Squad
Department of Emergency Management, Mecklenburg County
Department of Emergency Management Gaston County
North Carolina Department of Crime Control and Public Safety
South Carolina Department of Health and Environmental Control
Piedmont Emergency Medicine Associates

NOTE: Agreements with other agencies are found in the Crisis Management Plan Appendix 5.

A.4 Individual Responsible for Continuity of Resources

The emergency response organization is capable of continuous (24 hour/day) operation for an extended period of time. The Recovery Manager at the Crisis Management Center is the individual responsible for assuring continuity of resources within the Crisis Management Organization.

B. Onsite Emergency Organization

B.1 Plant Staff Under Emergency Conditions

Figure B.-2 shows the emergency organization of plant staff personnel for all shifts. The relationship of these personnel to their normal responsibilities and duties is unchanged during an emergency condition.

B.2 Station Emergency Coordinator

Initial activities at Catawba during any emergency condition are directed by the Shift Supervisor from the Control Room. The Shift Supervisor shall assume the functions of the Emergency Coordinator until the arrival of the Station Manager or his designee at which time the Station Manager will assume the responsibility of the Emergency Coordinator. The Emergency Coordinator will have the authority and the responsibility to immediately and unilaterally initiate any emergency actions including:

- a. Provide protective action recommendations to authorities responsible for implementing off-site emergency measures. This authority shall not be delegated to other elements of the emergency organization.
- b. Notification and activation of the Station, Corporate, County/City, South Carolina, North Carolina and the Nuclear Regulatory Commission emergency organizations having a response role.
- c. Continued assessment of actual or potential consequences both on-site and off-site throughout the evolution of the emergency condition.
- d. Effective implementation of emergency measures in the environs including protective actions for affected areas, implementation of emergency monitoring teams and facilities to evaluate the environmental consequences of the emergency condition, prompt notification and communications with off-site authorities.
- e. Continued maintenance of an adequate state of emergency preparedness until the emergency situation has been effectively managed and the station is returned to a normal or safe operating condition.

B.3 Station Emergency Coordinator (Line of Succession)

The Emergency Coordinator function as described above in paragraph B.2 will later be assumed by the Recovery Manager at the Crisis Management Center as this corporate organization is staffed and ready to take over its functions.

This assumption of the Emergency Coordinator functions will take place for the Alert, Site Area Emergency and General Emergency categories.

B.4 Protective Action Recommendations

The functional responsibilities of the Emergency Coordinator are described in paragraph B.2. Protective Action recommendations to state and local authorities is initially vested with the Shift Supervisor/Emergency Coordinator. As the Crisis Management Center becomes operational, the Recovery Manager is the person who is responsible for making protective action recommendations.

B.5 Minimum Staffing Requirements

The positions, title and major tasks to be performed by the persons assigned to the functional areas of emergency activity at the station are described below. These assignments shall cover the emergency functions in Figure B-1. The minimum on-shift staffing are as indicated in Figure B-1. The capability to augment on-shift resources after declaration of an emergency are as indicated in Figure B-1. The functional tasks to be performed by persons assigned to the areas of emergency activity are as follows and shown in Figure B-2:

The Shift Supervisor on duty will ensure that all actions required by any initiating Emergency Procedure or by any emergency condition have been performed and that all actions necessary for the protection of persons and property are being taken. The Shift Supervisor upon being relieved of the Emergency Coordinator functions shall continue to take all actions necessary to ensure that any emergency situation is brought under control.

The Station Manager (Emergency Coordinator) or in his absence a designated alternate, shall have complete responsibility for activation of the Technical Support Center and the Corporate Crisis Management Plan. He shall staff the Technical Support Center with those personnel deemed necessary to effectively assess the emergency condition. He shall institute those procedures necessary to allow the Control Room to gain immediate control of the emergency condition. The Station Manager will have direct communications via telephone or radio with the Recovery Manager at the Crisis Management Center, each county Emergency Operating Center, the North and South Carolina State Emergency Response Team and via telephone to the Nuclear Regulatory Commission. He shall maintain lines of communication and consultation with these agencies to ensure that they are informed of the emergency condition at all times in accordance with the Emergency Plan.

The Superintendent of Operations when designated shall assume the duties of the Station Manager. He will provide expertise to the Station Manager and the Shift Supervisor regarding solutions to

operational problems. He shall ensure that each operating shift is manned with competent personnel trained and prepared to manage all emergency conditions, and he shall augment his personnel resources as necessary to accomplish this goal. He shall provide technical expertise to other members of the Technical Support Center and shall work closely with the Superintendent of Maintenance in restoring station equipment to an operational status during and after the emergency condition.

The Superintendent of Technical Services when designated shall assume the duties of the Station Manager. He will provide expertise to the Station Manager and the Shift Supervisor regarding solutions to operational problems. He shall provide technical expertise to the other members of the Technical Support Center in the areas of Health Physics, Chemistry, Performance and Reactor Engineering and in Licensing and Engineering support programs. He shall ensure that all areas of responsibility under his direction are staffed with competent personnel properly trained and prepared to support any operational emergency conditions.

The Superintendent of Maintenance when designated shall assume the duties of the Station Manager. He will provide expertise to the Station Manager and the Shift Supervisor regarding solutions to operational problems. He shall provide technical expertise to the other members of the T.S.C. in areas of Mechanical Maintenance, Planning, Instrument and Electrical Maintenance and Materials Support. He will ensure that all areas of responsibility under his direction are staffed with competent personnel properly trained and prepared to support any operational emergency conditions.

The Superintendent of Administration when designated shall assume the duties of the Station Manager. He will provide technical expertise to the Station Manager and the Shift Supervisor regarding solutions to administrative problems associated with emergency conditions at the station. He shall provide technical expertise to other members of the Technical Support Center in the areas of Security, Administrative Coordination and Training/Safety. He shall ensure that all areas under his direction are staffed and prepared to manage administrative support for any emergency condition.

The Operating Engineer shall assume the duties of the Superintendent of Operations when so designated. He will provide technical expertise to the Superintendent of Operations and other members of the Technical Support Center as required. He will assist the Superintendent of Operations in coordinating Operations activities during the Emergency condition by developing work schedules, equipment and material procurement, guidance and assistance to the Shift Supervisor, communication with the Crisis Management Center incident report preparation and other support functions as needed or required to restore the plant status to normal. He shall ensure that all areas under his direction are staffed and prepared to manage operational support for any emergency condition.

The Assistant Operating Engineer shall assume the duties of the Operating Engineer when so designated. He will provide technical expertise to the Superintendent of Operations, the Operating Engineer and other members of the Technical Support Center as required. He shall assist the Operating Engineer in assessment and evaluation of the emergency condition and in any other areas of expertise deemed necessary to the Technical Support Center organization.

The Health Physics section of the T.S.C. shall consist of the Station Health Physicist or his designated alternate, a Field Monitoring Coordinator, a Data Analysis Coordinator, Health Physics Coordinator and a Radio Operator and other Health Physics personnel as deemed necessary by the Station Health Physicist to support the Health Physics functions during the emergency condition.

NOTE: The Field Monitoring teams shall be predesignated in procedure HP/O/B/1009/04.

The Station Health Physicist shall assume the duties of the Superintendent of Technical Services when so designated. He will provide technical expertise to the Superintendent of Technical Services, the Station Manager and other members of the Technical Support Center as required.

The Health Physics section shall be responsible for gathering and compiling on-site and off-site radiological monitoring data from N.R.C., State, Corporate and Station radiological monitoring and evaluation teams and for providing this information to other members of the Technical Support Center as required. The Station Health Physicist shall provide for the calculation and distribution of off-site dose determinations for releases of radioactive materials to the atmosphere. The Station Health Physicist shall make recommendations to the Station Manager through the Superintendent of Technical Services on Protective Actions deemed necessary for limiting exposures to station personnel and members of the general public.

The Station Health Physicist shall also work closely with the appropriate members of the Corporate Crisis Management Center to ensure that radiological hazards during any emergency condition are minimized. The Station Health Physicist shall ensure that all areas under his direction are staffed and prepared to manage Health Physics support for any emergency condition.

The Station Chemist shall assume the duties of the Superintendent of Technical Services when so designated. He will provide technical expertise to the Superintendent of Technical Services and to other members of the Technical Support Center as required. He is responsible for coordinating chemical technical support and for initiating necessary action to insure adequate chemical sampling and evaluation to support the emergency condition. The Station Chemist shall ensure that all areas under his direction are staffed and prepared to manage Chemistry support for any emergency condition.

The Performance Engineer shall assume the duties of the Superintendent of Technical Services when so designated. He will provide technical expertise to the Superintendent of Technical Services and to other members of the Technical Support Center as required. He will assure that adequate levels of technical and engineering manpower are available to: manage test procedure review, carryout special test procedures, ensure control and accountability of special nuclear materials, and evaluate plant and reactor performance. The Performance Engineer shall ensure that all areas under his direction are staffed and prepared to manage Performance support for any emergency condition.

The Reactor Engineer shall assume the duties of the Performance Engineer or the Superintendent of Technical Services when so designated. He will provide technical expertise to the Performance Engineer and to other members of the Technical Support Center as required. The Reactor Engineer shall ensure that all areas under his direction are staffed and prepared to manage technical support for any emergency condition.

The Licensing and Projects Engineer shall assume the duties of the Superintendent of Technical Services when so designated. He will provide technical expertise to the Superintendent of Technical Services and to other members of the Technical Support Center as required. He is responsible for coordinating station activities with regulating agencies, coordinating the reporting and investigation of all incidents and for providing review of appropriate station technical matters. The Licensing and Projects Engineer shall ensure that all areas under his direction are staffed and prepared to manage technical support for any emergency condition.

The Instrument and Electrical Engineer shall assume the duties of the Superintendent of Maintenance when so designated. He will provide technical expertise to the Superintendent of Maintenance and to other members of the Technical Support Center as required. He is responsible for maintaining all station I&E equipment in an operational state. The Instrument and Electrical Engineer shall ensure that all areas under his direction are staffed and prepared to manage I&E support for any emergency condition.

The Planning Engineer shall assume the duties of the Superintendent of Maintenance when so designated. He will provide technical expertise to the Superintendent of Maintenance and to other members of the Technical Support Center as required. He is responsible for the implementation and evaluation of the Maintenance Management Program and for the administration of the materials procurement programs. The Planning Engineer shall ensure that all areas under his direction are staffed and prepared to manage Planning and Materials support for any emergency condition.

The Mechanical Maintenance Engineer shall assume the duties of the Superintendent of Maintenance when so designated. He will provide technical expertise to the Superintendent of Maintenance and to other

members of the Technical Support Center as required. He is responsible for preventive and actual maintenance for all station mechanical equipment and facilities. The Mechanical Maintenance Engineer shall ensure that all areas under his direction are staffed and prepared to manage Maintenance support for any emergency condition.

The Chief of Security shall assume the duties of the Superintendent of Administration when so designated. He will provide technical expertise to the Superintendent of Administration and to other members of the Technical Support Center as required. He is responsible for coordinating Security, Utility Services and Food Vending Services for the Station. The Chief of Security shall ensure that all areas under his direction are staffed and prepared to manage Security for any emergency condition.

The Administrative Coordinator shall assume the duties of the Superintendent of Administration when so designated. She will provide technical expertise to the Superintendent of Administration and to other members of the Technical Support Center as required. She is responsible for coordinating and maintaining general administrative functions and support at the Station. The Administrative Coordinator shall ensure that all areas under her direction are staffed and prepared to manage administrative functions during any emergency condition.

The Training and Safety Coordinator shall assume the duties of the Superintendent of Administration when so designated. She will provide technical expertise to the Superintendent of Administration and to other members of the Technical Support Center as required. She is responsible for coordinating the station training and safety activities plus Fire Protection and Medical Services in support of the emergency organization. The Training and Safety Coordinator shall ensure that all areas under her direction are staffed and prepared to provide needed training and safety evaluations during any emergency condition.

B.6 Onsite Functional Area Interfaces

See Figures B-1, B-2 and B-3 of Crisis Management Plan.

B.7 Corporate Support of Onsite Emergency Organization

Corporate Management, Administrative and Technical Support personnel are given in Section B of the Crisis Management Plan.

B.8 Contractor and Private Organization

Contractor and private organizations are provided for in Section B of the Crisis Management Plan.

B.9 Local Agency Support Service

State, local and county agencies responsible for public health and safety work through the Emergency Preparedness Agency's Emergency Operations Center in the affected county until the State Emergency Response Team establishes its headquarters; Mecklenburg and Gaston counties, North Carolina; York Municipal-County Emergency Preparedness Agency, York County, South Carolina. The Crisis Management Center coordinates with the agencies necessary to support the emergency condition. Agencies that have agreed to provide support, as necessary to Catawba Nuclear Station and surrounding areas, are listed below:

B.9.a Law Enforcement, Emergency Traffic Control, Related Police Matters

York County Sheriff's Department (York, SC)
South Carolina Highway Patrol (SC Highway Patrol, Dist. 4, Chester, SC)

B.9.b Early Warning or Evacuation of the Populace

1. Department of Emergency Preparedness, York Municipal-County, (Rock Hill, SC)
2. Department of Emergency Management, Gaston County (Gastonia, NC)
3. Department of Emergency Management, Mecklenburg County (Charlotte, NC)
4. South Carolina Department of Health and Environmental Control, Bureau of Radiological Health (Columbia, SC)
5. North Carolina Department of Crime Control and Public Safety (Raleigh, NC)

B.9.c Radiological Emergency Monitoring Assistance

1. US/D.O.E Radiological Assistance Team, Savannah River Operations Office (Aiken, SC)
2. South Carolina Department of Health and Environmental Control, Bureau of Radiological Health, (Columbia, SC)
3. North Carolina Department of Human Resources, Radiation Protection Branch (Raleigh, NC)
4. Civil Air Patrol, North Carolina Wing (Charlotte, NC)

B.9.d Hospitals, Medical Support

1. Piedmont Medical Center (Rock Hill, SC)
2. Charlotte Memorial Hospital and Medical Center (Charlotte, NC)
3. Piedmont Emergency Medicine Associates (Rock Hill, SC)
4. REACTS Facility, D.O.E. (Oak Ridge, Tenn.)

B.9.e Ambulance Service

1. Piedmont Medical Center (Rock Hill, SC)
2. Clover Rescue Squad (Clover, SC)

B.9.f Fire-Fighting

1. Bethel Volunteer Fire Department (Clover, SC)

B.9.g Public Health and Safety, Evaluation of the Radiological Situation.

1. York County Health Department (Rock Hill, SC)
2. South Carolina Department of Health and Environmental Control, Bureau of Radiological Health (Columbia, SC)
3. North Carolina Department of Human Resources, Radiation Protection Branch (Raleigh, NC)

B.9.h Agreements have been made with local, state and federal agencies to provide fire protection, medical support, ambulance and rescue service. Implementation of the emergency plans of the Emergency Preparedness Agencies of three adjacent counties will provide assistance and logistics support if evacuation of portions of the ten mile EPZ becomes necessary. The emergency plans of the Emergency Preparedness Agencies in York County where the station is located, and in Mecklenburg and Gaston Counties, North Carolina, as they relate to the protection of the public who may be affected by an emergency at Catawba, all address the following aspects:

1. Notification of their own personnel and other agencies involved, including the Sheriff's Department, the Highway Patrol, police, rescue squads, fire departments and the Red Cross.
2. Law enforcement and traffic control.
3. Notification or warning of persons in affected areas
4. Evacuation, as necessary, to designated schools or other public buildings out of the affected area, where shelter, food, overnight accommodations, communications, medical care, etc. would be made available.
5. Assistance and cooperation with related agencies in other counties, Duke Power Company, and other state and federal agencies.

NOTE: Summary written agreements with the agencies that have various responsibilities for emergency preparedness support and for emergency response in the public domain are included in the Appendix 5.

CATAWBA NUCLEAR PLANT
MINIMUM STAFFING REQUIREMENTS FOR EMERGENCIES

Major Functional Area (Location)	Major Tasks	Position, Title or Expertise	On Shift	Capability 45 min	Additions 75 min
Plant Operations and Assessment of Operational Aspects		Shift Supervisor (SRO)	1	--	--
		Asst. Shift Supervisor (SRO)	1	--	--
		Control Room Operators (RO)	2	--	--
		Auxiliary Operators	2	--	--
Emergency Direction and Control (Emergency (2) Coordinator)	Off-Site Communications	Shift Technical Advisor	1(1)	--	--
		Shift Supervisor or Designated Facility Manager			
		Operations Person	1	1	2
		Notify licensee, State, local and Federal personnel & maintain communication			
Radiological Accident Assessment and Support of Operational Accident Assessment	Crisis Management Center (CMC)	Recovery Manager	--	--	1(4)
	Offsite Dose Assessment	Senior Health Physics (HP) Expertise		1	
	Offsite Surveys		--	2	2
	Onsite (out-of-plant)		--	1	1
	In-plant surveys	HP Technicians	1	1	1
	Chemistry/Radiochemistry	Chemistry Technicians	1	--	1
Plant System Engineering, Repair and Corrective Actions	Technical Support	Shift Technical Advisor	1(1)	--	--
		Core/Thermal Hydraulics	--	1	
		Electrical	--	--	1
		Mechanical	--	--	1
	Repair and Corrective Actions	Mechanical Maintenance/Rad Waste Operator	1(1)	--	1
		Electrical Maintenance/Instrument and Control	1(1)	1	1(5)
		(I&E) Technician	--	1	--

FIGURE B-1
(CONT.)
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CATAWBA NUCLEAR STATION
MINIMUM STAFFING REQUIREMENTS FOR EMERGENCIES

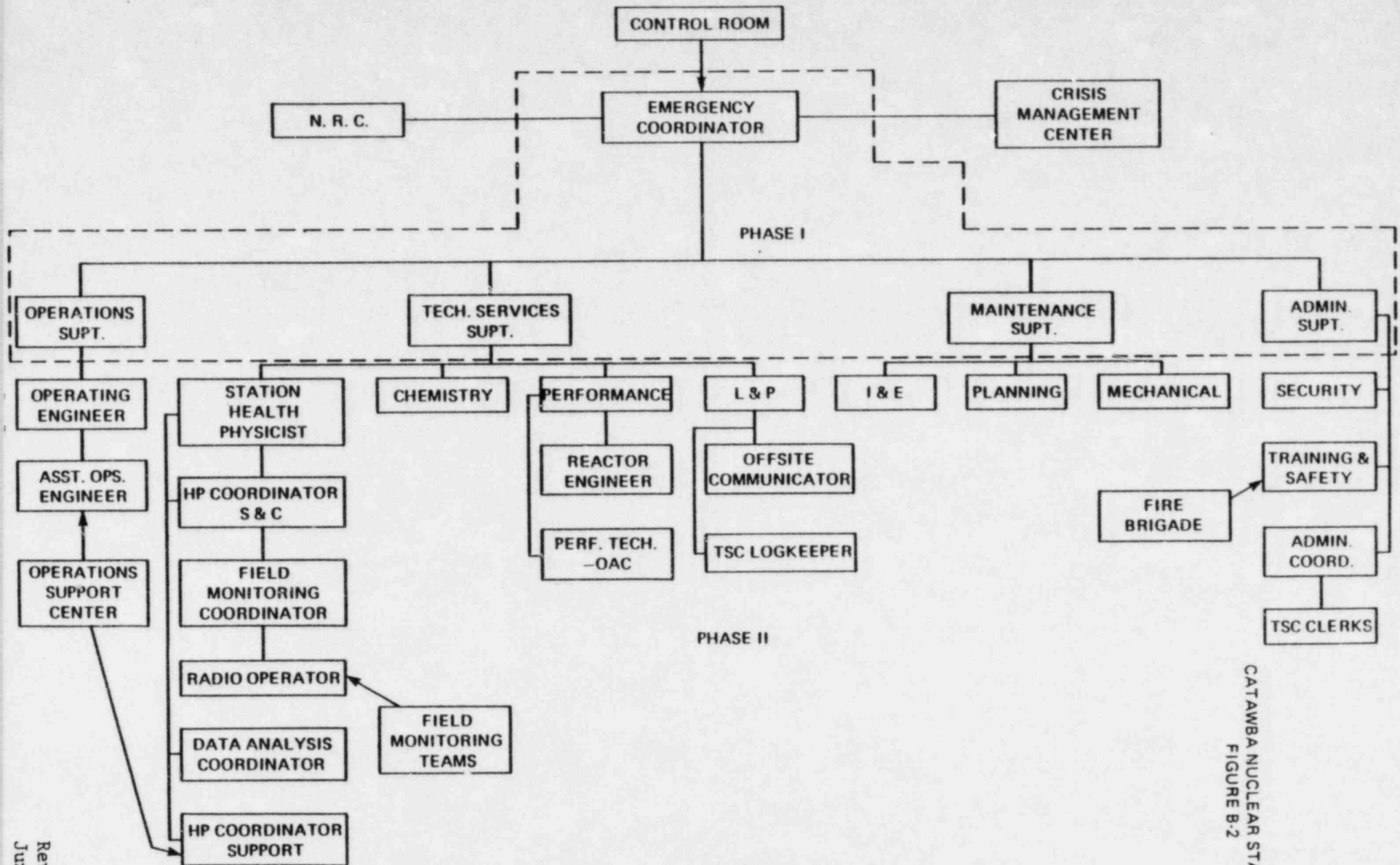
Major Functional Area (Location)	Major Tasks	Position, Title or Expertise	On Shift	Capability for 45 Min	Additions 75 min
Protective Actions (In-Plant)	Radiation Protection: a. Access Control b. HP Coverage for repair, cor- rective actions, search and rescue first aid & fire- fighting c. Personnel moni- toring d. Dosimetry	HP Technicians	2(1)	2	2
Firefighting	--	--	Fire Brigade per tech- nical Specifi- cations 2(1)	Local Support	
Rescue Operations and First Aid Site Access Control and Personnel Accountability	-- Security, fire- fighting, communi- cations, personnel accountability	-- Security Personnel	All per Security Plan	Local support	
		TOTAL	10	11	15

CATAWBA NUCLEAR STATION
MINIMUM STAFFING REQUIREMENTS FOR EMERGENCIES

Notes:

- (1) May be provided by shift personnel assigned other functions. This capability may be limited in nature until relief personnel arrive on-site.
- (2) Overall direction of facility response to be assumed by CMC Recovery Manager when all centers are fully manned. Director of minute-to-minute facility operations remains with senior manager in Technical Support Center or Control Room.
- (3) May be performed by engineering aide to Shift Supervisor.
- (4) Recovery Manager position will be filled by the Emergency Coordinator until the Recovery Manager arrives at the CMC and assumes this function.
- (5) Electrical Maintenance and Instrument and Control Technicians are within the same group at Catawba.

TECHNICAL SUPPORT CENTER INTERFACES



CATAWBA NUCLEAR STATION
FIGURE B-2

C. Emergency Response Support and Resources

C.1.a. Individuals Authorized to Request Federal Assistance

See Crisis Management Plan - C.1.a

C.1.b. Federal Resources Arrival Time

See Crisis Management Plan - C.1.b

C.1.c. Crisis Management Resources Available to Federal Response Organization

See Crisis Management Plan - C.1.c

C.2.a State and County Representation at Crisis Management Center (CMC)

See Crisis Management Plan - C.2.a

C.2.b Local Agency Liason

See Crisis Management Plan - C.2.b

C.3 Radiological Laboratories - Available and Capability

Laboratory facilities include mobile emergency monitoring capabilities available through the SC Department of Health and Environmental Control, Bureau of Radiological Health; NC Department of Human Resources, Radiation Protection Branch and the DOE Radiological Assistance Team. In addition, the station has an emergency vehicle and 3 other Station vehicles set up for warning and mobile-assessment purposes. Fixed facilities are available for gross counting, and spectral analysis in the station counting laboratory and at the nearby Duke Power Environmental Laboratory (45 miles) and at the Training and Technology Center. Other facilities within the Duke System at McGuire Nuclear Station (45 miles) and at Oconee Nuclear Station (160 miles) could provide further analysis support within a short period of time (1-4 hours). The above radiological laboratories are available on a 24 hour a day basis and could provide their services and equipment on demand.

C.4 Emergency Support From Other Organization

See Crisis Management Plan - C.4

D. Emergency Classification System

This section of the Catawba Emergency Plan generally describes each of the four classes of emergency. The four classes are as follows:

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

D.1/ Emergency Classification - Initiating Conditions, Emergency

D.2 Action Levels

Each class of emergency is described below. Figures D-1, D-2, D-3, D-4 show Initiating Conditions, Emergency Action Levels, F.S.A.R. accident conditions and the appropriate Emergency Procedure/Document.

NOTIFICATION OF UNUSUAL EVENT

This classification applies to unusual events in progress or which may have occurred that indicate a potential degradation of the level of safety of the plant. Examples of situations or occurrences in this classification are as described in Figure D.1, Accident Conditions/Emergency Procedures. Response actions for Emergencies are listed in Figure D-1.A, Response to Emergencies.

ALERT

This classification applies to events that are in process or have occurred which involve an actual or potential substantial degradation in the level of safety of the plant. Examples of situations or occurrences in this classification are as described in Figure D.2, Accident Conditions/Emergency Procedures. Response actions for Emergencies are listed in Figure D.2.A, Response to Emergencies.

SITE AREA EMERGENCY

This classification applies to events that are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public. Examples of situations or occurrences in this classification are as described in Figure D.3, Accident Conditions/Emergency Response. Response actions for Emergencies are listed in Figure D.3.A, Response to Emergencies.

GENERAL EMERGENCY

This classification applies to events that are in process or have occurred which involve actual or imminent substantial core. Examples of situations or occurrences in this classification are described in Figure D.4 Accident Conditions/Emergency Procedures. Response actions for Emergencies are listed in Figure D.4.A, Response to Emergencies.

D.3 State and Local Organization - Emergency Classification System

See State and Local plans.

D.4 State and Local Organization - Procedure For Taking Emergency Actions

See State and Local plans.

CATAWBA NUCLEAR STATION
Figure D.1.A
Response to Emergencies

<u>Class</u>	<u>Licensee Actions</u>	<u>State and/or Local Offsite Authority Actions</u>
<p>NOTIFICATION OF UNUSUAL EVENT</p> <p><u>Class Description</u></p> <p>Unusual 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 offsite response or monitoring are expected unless further degradation of safety systems occurs.</p> <p><u>Purpose</u></p> <p>Purpose of offsite notification is to (1) assure that the first step in any response later found to be necessary has been carried out, (2) bring the operating staff to a state of readiness, and (3) provide systematic handling of unusual events information and decisionmaking.</p>	<ol style="list-style-type: none"> 1. Promptly inform State and/or local offsite authorities of nature of unusual condition as soon as discovered. 2. Augment on-shift resources as needed. 3. Assess and respond. 4. Escalate to a more severe class, if appropriate. <p style="text-align: center;">or</p> <ol style="list-style-type: none"> 5. Close out with verbal summary to offsite authorities; followed by written summary within 24 hours. 	<ol style="list-style-type: none"> 1. Provide fire or security assistance if requested. 2. Escalate to a more severe class, if appropriate. 3. Stand by until verbal closeout.

FIGURE D-1
CLASS: NOTIFICATION OF UNUSUAL EVENT
ACCIDENT CONDITIONS/EMERGENCY PROCEDURES

Notification of Unusual Event Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
1. Emergency Core Cooling Initiated (ECCS) and discharge to vessel.	Safety Injection signal verification by redundant indication.	Inadvertent operation of ECCS during Power Operation, Loss of Reactor Coolant from small ruptured pipe.	EP/1/A/5000/01, EP/1/A/5000/1B, EP/1/A/5000/1C, EP/1/A/5000/05, AP/1/A/5500/10, EP/1/A/5000/1D, EP/1/A/5000/1E
2. Radiological effluent Technical Specification limits exceeded.	EMF-31, 35, 36, 37, 49 and 50 indicate Tech Specs exceeded.	Waste Gas Decay Tank Rupture Liquid Waste Storage Tank Rupture	Tech Specs 3/.11, Environmental Tech Specs HP/0/B/1009/13 HP/0/B/1009/14
3. Fuel damage indication (in NC System): a. High coolant activity sample exceeding Tech Specs. b. Failed Fuel Monitor indicates Mechanical Clad Failure greater than 1% to 5% or 0.1% equivalent fuel failures within 30 minutes.	a. > 1 Ci/gram Dose Equivalent I-131 or > 100 μ Ci/gram E- gross activity. NOTE: These calculations available from counting facility on request. b. Increase in I-131 concentration by 7 μ Ci/ml over a 30 minute period, or I-131 concentration is in the range of 70 μ Ci/ml to 350 μ Ci/ml verified by increased EMF-48 readings and laboratory readings and laboratory analysis.	Loss of Coolant Accident	EP/1/A/5000/1C AP/1/A/5000/18
4. Abnormal coolant temperature and/or pressure or abnormal Reactor fuel temperature.	Figure 2.1-1 Tech Specs exceeded and Core Sub-cooling Monitor less than acceptable (Below Curve)	Accidental Depressurization of Coolant System Loss of Forced Reactor Coolant Flow Loss of Coolant Accident	AP/1/A/5500/11, AP/1/A/5500/04, EP/1/A/5000/1C, EP/1/A/5000/2B, EP/1/A/5000/1A

FIGURE D-1
CLASS: NOTIFICATION OF UNUSUAL EVENT
ACCIDENT CONDITIONS/EMERGENCY PROCEDURES

Notification of Unusual Event Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
<p>5. Exceeding either primary/secondary leak rate Technical Specifications or primary leak rate Technical Specifications.</p>	<p>Any pressure boundary leakage</p> <ul style="list-style-type: none"> > 1 gpm total P/S leakage > 500 gpd from any S/G > 10 gpm identified primary leakage > 1 gpm unidentified leakage > 40 gpm controlled leakage at 2235 psig > 1 gpm from NC pressure isolation valve 		<p>EP/1/A/5000/01, EP/1/A/5000/1C, EP/1/A/5000/1E, AP/1/A/5500/10</p>
<p>6. Failure of a safety or relief valve in a safety related system to close, following reduction of applicable pressure. (Primary System [NC] or Main Steam [SM]).</p>	<p>Valid acoustical monitor indication of valve failure.</p>	<p>Accident Depressurization of Reactor Coolant System</p>	<p>EP/1/A/5000/1C, AP/1/A/5500/11, EP/1/A/5000/1D, EP/1/A/5000/1E</p>
<p>7. Loss of offsite power or loss of onsite AC power capability.</p>	<p>Undervoltage alarm on 7KV buses or blackout load sequencer actuated.</p>	<p>Loss of offsite power to station auxiliaries</p>	<p>EP/1/A/5000/04, AP/1/A/5500/07</p>
<p>8. Loss of containment integrity requiring shutdown by Technical Specifications (3/4.6.1).</p>	<p>Any automatic containment isolation valve found to be open and inoperable and unisolable, or both air lock doors on a lock inoperable, or penetrations fail leak test per Tech. Spec. when contain integrity is required.</p>		<p>AP/1/A/5500/24</p>
<p>9. Loss of engineered safety feature or fire protection system function requiring shutdown by Technical Specifications (e.g., malfunction, personnel error, or procedural inadequacy).</p>	<p>ESF actuation system found inoperable or fire suppression Water System found inoperable per Tech. Spec.</p>	<p>Loss of external electrical load. Loss of offsite power to station auxiliaries.</p>	<p>EP/1/A/5000/04, Tech. Spec. 3/4.5, 3/4.7.10, 3/4.7.11</p>
<p>10. Fire within the Protected Area lasting more than 10 minutes.</p>	<p>Observation or fire detection alarm with confirming observation of a fire lasting more than 10 minutes.</p>		<p>Station Directive 2 12.1</p>

D.3.2

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FIGURE D-
CLASS: NOTIFICATION OF UNUSUAL EVENT
ACCIDENT CONDITIONS/EMERGENCY PROCEDURES

Notification Of Unusual Event Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
11. Indications or alarms on process or effluent parameters not functional in Control Room to an extent requiring plant shutdown or other significant loss of assessment or communication capability (e.g., plant computer, meteorological instrumentation).	Loss of process or effluent radiation monitoring system or loss of all meteorological instrumentation onsite or loss of all radio/telephone communications capability offsite.	Loss of offsite power to station auxiliaries loss of Instrument Air	AP/1/A/5500/22, EP/1/A/5000/04 AP/1/A/5500/07
12. Security threat or attempted entry or attempted sabotage.	AS notified by Security force.		Station Security Plan AP/0/A/5500/33
13. Natural phenomenon being experienced or projected beyond usual levels Analysis		Tornado, Missile Impact,	
a. Any earthquake felt in plant or detected on station seismic instrumentation.	a. (<.08gH, <.053gV), Annunciator Alarm		RP/0/A/5500/07
b. 50-year flood or low water, hurricane surge, seiche (lake tidal wave).	b. As observed.		RP/0/A/5500/06
c. Any tornado on site	c. As observed.		RP/0/A/5500/06
d. Any hurricane	d. Winds > 73 mph from National Weather Service Information		RP/0/A/5500/06
14. Other hazards being experienced or projected.			
a. Aircraft crash onsite or unusual aircraft activity over facility.	a. As observed.		RP/0/A/5500/09
b. Train derailment onsite.	b. As observed.		RP/0/A/5500/09
c. Near site or onsite explosion	c. As observed.		RP/0/A/5500/08
d. Near site or onsite toxic or flammable gas release	d. As observed.		RP/0/A/5500/08
e. Turbine failure causing rapid plant shutdown.	e. Turbine trip and observation of turbine malfunction or failure.		AP/0/A/5500/23 EP/1/A/5000/20

FIGURE D-1
CLASS: NOTIFICATION OF UNUSUAL EVENT
ACCIDENT CONDITIONS/EMERGENCY PROCEDURES

Notification of Unusual Event Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
15. Other plant conditions exist that in the judgement of the Shift Supervisor, the Operations Duty Engineer, the Superintendent of Operations or the Station Manager warrant increased awareness of local authorities or require plant shutdown under technical Specification requirements or involve other than normal controlled shutdown (e.g., cooldown rate exceeding Technical Specification limits, pipe cracking found during operation).	As determined by the Shift Supervisor/Emergency Coordinator.		As applicable
16. Transportation of contaminated injured individual from site to offsite medical facility.	As observed.		Station Directive 2.11.1 HP/O/B/1009/08
17. Rapid depressurization of secondary side.	As observed.	Accidental Depressurization of Main Steam System	EP/1/A/5000/01 EP/1/A/5000/1D

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CATAWBA NUCLEAR PLANT
Figure D.2.A
Response to Emergencies

<u>Class</u>	<u>Licensee Actions</u>	<u>State and/or Local Offsite Authority Actions</u>
<p>LERT</p> <p><u>Class Description</u></p> <p>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 EPA Protective Action guideline exposure levels.</p> <p><u>Purpose</u></p> <p>Purpose of offsite alert is to (1) assure that emergency personnel are readily available to respond if situation becomes more serious or to perform confirmatory radiation monitoring if required, and (2) provide offsite authorities current status information.</p>	<ol style="list-style-type: none"> Promptly inform State and/or local authorities of alert status and reason for alert as soon as discovered. Augment resources and activate on-site Technical Support Center and on-site operational support center. Bring Emergency Operations Facility (EOF) and other key emergency personnel to standby status. Assess and respond. Dispatch on-site monitoring teams and associated communications. Provide periodic plant status updates to offsite authorities (at least every 15 minutes). Provide periodic meteorological assessments to offsite authorities and, if any releases are occurring, dose estimates for actual releases. Escalate to a more severe class, if appropriate. <p style="text-align: center;">OR</p> <ol style="list-style-type: none"> Close out or recommend reduction in emergency class by verbal summary to offsite authorities followed by written summary within 8 hours of closeout or class reduction. 	<ol style="list-style-type: none"> Provide fire or security assistance if requested. Augment resources and bring primary response centers and EBS to standby status. Alert to standby status key emergency personnel including monitoring teams and associated communications. Provide confirmatory offsite radiation monitoring and ingestion pathway dose projections if actual releases substantially exceed technical specification limits. Escalate to a more severe class, if appropriate. Maintain alert status until verbal closeout or reduction of emergency class.

FIGURE D-2
CLASS: A'RT
ACCIDENT CONDITIONS/EM NCY PROCEDURES

Alert Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
1. Severe loss of fuel cladding. Mechanical Clad failure.	a. Very high coolant activity sample indicating an increase of 70 μ Ci/ml in 30 minutes <u>or</u> 350 to 750 μ Ci/ml total I-131 coolant activity. b. Failed fuel monitor (EMF48) <u>or</u> lab analysis indicates increase greater than 1% fuel failures within 30 minutes <u>or</u> 5% to 25% total fuel failure.	Loss of Coolant Accident	EP/1/A/5000/01 EP/1/A/5000/1C EP/1/A/5000/2B AP/0/A/5500/31 AP/0/A/5500/18
2. Rapid gross failure of one Steam Generator tube with loss of offsite power.	Pressurizer low pressure alarm and reactor trip and pressurizer low level alarm and pressurizer low pressure safety injection signal and undervoltage alarm on 7KV buses. EMF 33 and 34 radiation alarms.	Steam Generator Tube Rupture	EP/1/A/5000/01 EP/1/A/5000/1E EP/1/A/5000/10 EP/1/A/5000/04 AP/1/A/5500/07
* 3. Rapid failure of more than 10 Steam Generator tubes.	Several hundred gpm primary to secondary leak rate indicated by: a. Pressurizer low pressure alarm and reactor trip and pressurizer low level alarm and pressurizer low pressure safety injection signal and undervoltage alarm on 7 KV buses. EMF 33 and 34 radiation alarms. b. Steam Generator level increasing in one or more generator(s) and falling in the others due to a reactor trip.	Steam Generator Tube Rupture	EP/1/A/5000/1E EP/1/A/5000/01

FIGURE D-2
CLASS: ALEX.
ACCIDENT CONDITIONS/EMERGENCY PROCEDURES

Alert Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
4. Steam line break with significant primary to secondary leak rate.	Greater than 10 gpm, rapidly decreasing reactor coolant flow, pressurizer pressure and level and: a. Steam line differential pressure safety injection signal and increased Containment Building pressure if break is in containment. b. High steam flow and Lo-Lo flow, or low steam pressure safety injection signal for rupture downstream of MSIV's.	Steam Generator Tube Rupture Minor Secondary System Pipe Break Major Secondary System Tube Rupture	EP/1/A/5000/01 EP/1/A/5000/1E EP/1/A/5000/1D EP/1/A/5000/2E
5. Primary coolant leak rate greater than 50 gpm.	Leak > 50 gpm as indicated by calculation or other indication. (i.e., sump level).	Partial loss of Reactor Coolant Flow Loss of Reactor Coolant from Small Ruptured Pipes Loss of Coolant Accident	EP/1/A/5000/01 EP/1/A/5000/1C AP/1/A/5500/10
6. High radiation levels or high airborne contamination which indicates a severe degradation in the control of radioactive materials.	Increase by a factor of 1000 in radiation monitor reading within the station	Waste Gas Decay Tank Rupture Steam Generator Tube Rupture Loss of Coolant Accident	EP/1/A/5000/01 HP/0/B/1009/09 HP/0/B/1009/13 EP/1/A/5000/1C EP/1/A/5000/1E
7. Loss of offsite power and loss of all onsite AC power for up to 15 minutes. (See Site Area Emergency RP/0/A/5000/04 for extended loss.)	Undervoltage alarm on 7 kV buses and blackout load sequencers actuated.	Loss of off-site power to station auxiliaries (Station Black-out)	EP/1/A/5000/04 AP/1/A/5500/07

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FIGURE D-2
CLASS: ALEK
ACCIDENT CONDITIONS/EMERGENCY PROCEDURES

Alert Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
8. Loss of all onsite DC power.	DC bus undervoltage alarms on all buses.		Tech. Specs. 3/4.8.2.3 Tech. Specs. 3/4.8.2.4
9. Coolant pump seizure leading to fuel failure.	Reactor coolant pump auto trip alarm and reactor trip on low coolant flow and failed fuel monitor on EMF-48 indicating increase greater than 1% fuel failures within 30 minutes or 5% total fuel failures.	Partial loss of Reactor Coolant Flow Single Reactor Coolant Pump Locked Retor	AP/1/A/5500/08, EP/1/A/5000/2B, AP/1/A/5500/04
10. Complete loss of functions needed for plant cold shutdown.	RHR not functional and inability to maintain natural or forced circulation.	Loss of Instrument Air Loss of Off-Site Power	AP/1/A/5500/22, EP/1/A/5000/04, AP/1/A/5500/19
11. Failure of the reactor protection system to initiate and complete a scram which brings the reactor subcritical.	Reactor remains critical after all attempts to trip reactor have been completed.		EP/1/A/5000/03
12. Fuel damage accident with release of radioactivity to containment or fuel handling building.	EMF-15, 17, 38, 39, 40 or 42 Radiation alarm and observation of damage to spent fuel assembly following an accident in fuel handling areas that, in the opinion of the Shift Supervisor, may have resulted in damaged spent fuel.	Fuel Handling Accident Inadvertent loading of fuel Assembly into an Improper Position	EP/1/A/5000/01, AP/1/A/5000/18 AP/1/A/5500/25 EP/1/A/5000/2E
13. Fire potentially affecting safety systems.	Observation of a fire that could affect safety systems.		Tech. Specs. 3/4.7.10 and 11
14. Most of all alarms (annunciators) lost.	As observed.	Loss of Off-Site Power	EP/1/A/5000/04 AP/1/A/5500/07

FIGURE D-2
CLASS: / IT
ACCIDENT CONDITIONS/EM NCY PROCEDURES

Alert Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
15. Airborne radiological effluents greater than 10 times Technical Specifications instantaneous limits (an instantaneous rate which, if continued over 2 hours, would result in about 1 mr at the Site Boundary under average meteorological conditions or whenever effluent monitors or radiological monitoring detect these levels).	EMF-35 Low Range off-scale 4 High Range $\geq 1 \times 10^4$ cpm 6 EMF-36 Low Range $\geq 2 \times 10^6$ cpm 2 High Range $\geq 5 \times 10^2$ cpm	Waste Gas Decay Tank Rupture Liquid Waste Storage Tank Rupture Steam Generator Tube Rupture	EP/1/A/5000/01 EP/1/A/5000/1C HP/0/B/1009/13 HP/0/B/1009/14 EP/1/A/5000/1E
16. Ongoing Security compromise.	As reported by Security Force.		Station Security Plan
17. Severe natural phenomena being experienced or projected.			
a. Earthquake greater than Operational Basis Earthquake Levels	a. $> 0.08gH$, $> 0.053gV$, Alarms (AD-4)		RP/0/A/5500/07
b. Flood, low water, hurricane surge, seiche near design levels. (Lake tidal wave).	b. As observed.		RP/0/A/5500/06
c. Any tornado striking facility.	c. As observed.	Tornado Missile Impact	RP/0/A/5500/06
d. Hurricane winds near design basis level.	d. Winds > 95 mph from National Weather Service Information.		RP/0/A/5500/06
18. Other hazards being experienced or projected:			
* a. Aircraft crash on facility.	a. As observed.	Tornado Missile Impact	RP/0/A/5500/09
b. Missile impacts from whatever source on facility.			
c. Known explosion damage to facility affecting plant operation.	c. As observed.		RP/0/A/5500/09

FIGURE D-2
CLASS: ALL
ACCIDENT CONDITIONS/EMERGENCY PROCEDURES

Alert Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
d. Entry into facility environs of toxic or flammable gases.	d. As observed		RP/0/A/5500/08
e. Turbine failure causing casing penetration.	e. Turbine trip and observation of turbine malfunction or alarm.	Loss of External Electric load and/or Turbine Trip	RP/0/A/5500/09
19. Other plant conditions exist that in the judgement of the Shift Supervisor, the Operations Duty Engineer, the Superintendent of Operations, or the Plant Manager warrant precautionary activation of Technical Support Center and near-site Crisis Management Center.	As determined by Shift Supervisor Emergency Coordinator		As dictated by Plant Conditions
20. Evacuation of Control Room anticipated or required with control of shutdown systems established from local station.	As determined by Shift Supervisor Emergency Coordinator		AP/1/A/5500/17 OP/1/A/6100/04

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CATAWBA NUCLEAR STATION
Figure D.3.A
Response to Emergencies

<u>Class</u>	<u>Licensee Actions</u>	<u>State and/or Local Offsite Authority Actions</u>
SITE AREA EMERGENCY		
<u>Class Description</u>		
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.		
<u>Purpose</u>		
Purpose of the site area emergency declaration is to (1) assure that response centers are manned, (2) assure that monitoring teams are dispatched, (3) assure that personnel required for evacuation of near-site areas are at duty stations if situation becomes more serious, (4) provide consultation with offsite authorities, and (5) provide updates for the public through offsite authorities.		
	1. Promptly inform State and/or local offsite authorities of site area emergency status and reason for emergency as soon as discovered.	1. Provide any assistance requested.
	2. Augment resources by activating on-site Technical Support Center, on-site operational support center and near-site Emergency Operations Facility (EOF).	2. If sheltering near the site is desirable, activate public notification system within at least two miles of the plant.
	3. Assess and respond.	3. Provide public within at least about 10 miles periodic updates on emergency status.
	4. Dispatch on-site and offsite monitoring teams and associated communications.	4. Augment resources by activating primary response centers.
	5. Dedicate an individual for plant status updates to offsite authorities and periodic pressure briefings (perhaps joint with offsite authorities).	5. Dispatch key emergency personnel including monitoring teams and associated communications.
	6. Make senior technical and management staff onsite available for consultation with NRC and State on a periodic basis	6. Alert to standby status other emergency personnel (e.g., those needed for evacuation) and dispatch personnel to near-site duty stations.
	7. Provide meteorological and dose estimates to offsite authorities for actual releases via a dedicated individual or automated data transmission.	7. Provide offsite monitoring results to licensee, DOE and others and jointly assess them.
	8. Provide release and dose projections based on available plant condition information and foreseeable contingencies.	8. Continuously assess information from licensee and offsite monitoring with regard to changes to protective actions already initiated for public and mobilizing evacuation resources.
	9. Escalate to <u>general emergency</u> class, if appropriate.	9. Recommend placing milk animals within 2 miles on stored feed and assess need to extend distance.
	10. Close out or recommend reduction in emergency class by briefing of offsite authorities at EOF and by phone followed by written summary within 8 hours of closeout or class reduction.	10. Provide press briefings, perhaps with licensee.
		11. Escalate to <u>general emergency</u> class, if appropriate.
		12. Maintain site area emergency status until closeout or reduction of emergency class.

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FIGURE D-3
CLASS: SITE AREA EMERGENCY
ACCIDENT CONDITIONS/EMERGENCY PROCEDURES

Site Area Emergency Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
1. Known loss of coolant accident greater than makeup pump capacity.	Pressurizer low pressure reactor trip and pressurizer low pressure safety injection signal and high containment building pressure, (INSP- 5040, 5050, 5060, 5070) and high containment building sump level, (INIP-5260, 5270) and high containment humidity, (INSP-5400, 5410) and EMF 38, 39 and 40 radiation alarm.	Accidental Depressurization of the Reactor Coolant System. Loss of Coolant Accident. Partial Loss of Reactor Coolant Flow.	EP/1/A/5000/01 EP/1/A/5000/1C AP/1/A/5500/10 EP/1/A/5000/2E
2. Degraded core with possible loss of coolable geometry (indicators should include instrumentation to detect inadequate core cooling, coolant activity and/or containment radioactivity levels).	<u>Inadequate Core Cooling</u> a. Core exit thermocouples indicate > 1200°F. b. Rx vessel level W/R indicates < full with any NC pump on and abnormal containment conditions and core exit thermocouples > 700°F. c. (later) <u>Mechanical Clad Failure</u> > 25% failed fuel indicated by > 1750 μ Ci/ml I-131. <u>Severe Fuel Overtemperature</u> 1% to 10% failed fuel indicated by 1300 to 13,000 μ Ci/ml I-131. <u>Fuel Melt</u> .5% to 5% failed fuel indicated by 1180 to 11,800 μ Ci/ml I-131.	Complete Loss of Forced Reactor Coolant Flow, Major Reactor Coolant System Pipe Rupture, Partial Loss of Reactor Coolant Flow.	EP/1/A/5000/01 AP/0/A/5500/31 AP/0/A/5500/04 EP/1/A/5000/2B EP/1/A/5000/1C

FIGURE D-3
CLASS: SITE AREA EMERGENCY
ACCIDENT CONDITIONS/EMERGENCY PROCEDURES

Site Area Emergency Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
3. Rapid failure of more than 10 steam generators tubes with loss of off-site power (e.g., several hundred gpm primary to secondary leak rate).	Pressurizer low pressure alarm and reactor trip, and pressurizer low level alarm, and EMF 33 and 34 radiation alarm and undervoltage alarm on 7 KV buses and steam generator water level rapidly increasing in one or more steam generator falling in the others and pressure level rapidly decreasing, (INCP-5151, 5160, 5172) and possible lifting of steam generator PRV's and/or safety valves.	Accidental Depressurization of Main Steam System Steam Generator Tube Rupture	EP/1/A/5000/1E EP/1/A/5000/01 EP/1/A/5000/04 HP/0/B/1009/03 HP/0/B/1009/13 HP/0/B/1009/12
4. Steam line break with greater than 50 gpm primary to secondary leakage and indication of fuel damage.	Rapidly decreasing reactor coolant lavg, pressurizer pressure and level. Steam line differential pressure safety injection signal and High Containment Building pressure, if steam line break is in containment, (INSP-5040, 5050, 5060, 5070) and EMF-51A and/or B alarm, or high steam flow and Lo-Lo lavg or low steam pressure safety injection signal and EMF-48 radiation alarm.	Steam Generator Tube Rupture Accidental Depressurization of Reactor Coolant System	EP/1/A/5000/1E EP/1/A/5000/01 EP/1/A/5000/1D HP/0, B/1009/13 HP/0/B/1009/03 EP/1/A/5000/2E
5. Loss of off-site power and loss of on-site AC power for more than 15 minutes.	Undervoltage alarms on 7 KV buses.	Loss of Off-Site Power to Station	EP/1/A/5000/04 AP/1/A/5500/07
6. Loss of all vital on-site DC power for more than 15 minutes.	Blackout load sequencers actuated. DC bus undervoltage all buses and indications as in 5 above.		Tech. Specs. 3/4.8.2.3, 3/4.8.2.4
7. Complete loss of functions needed for plant hot shutdown.	Inability to establish charging pump injection and inability to establish emergency feedwater flow or inability to establish component cooling water flow.		EP/1/A/5000/04 EP/1/A/5000/2D AP/1/A/5500/19 AP/1/A/5500/21 AP/1/A/5500/06 EP/1/A/5000/2B OP/0/B/6100/13

FIGURE D-3
CLASS: SITE AREA EMERGENCY
ACCIDENT CONDITIONS/EMERGENCY PROCEDURES

Site Area Emergency Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
8. Transient requiring operation of shutdown systems with failure to scram (continued power generation but no core damage immediately evident)	Reactor remains critical after all attempts to trip reactor have been completed.		EP/1/A/5000/03
9. Major damage to spent fuel in containment or fuel handling building (e.g., large object damages fuel or water loss below fuel level).	EMF-15, 17, 38, 39, 40 or 42 Radiation alarm and observation of major damage to spent fuel assemblies or water level below fuel level following an accident in fuel handling areas that, in the opinion of the Shift Supervisor, may have resulted in damaged spent fuel.	Fuel Handling Accident Tornado Missile Impact, Spent Fuel Analysis	AP/1/A/5500/25 EP/1/A/5000/2E
10. Fire compromising the functions of safety systems.	Observation of a major fire that defeats redundant safety system or functions.		Tech. Specs. 3/4.7.10 and 11
11. Most or all alarms (annunciators) lost for more than 15 minutes and plant is not in cold shutdown or plant transient initiated while all alarms lost.	As determined by the Shift Supervisor/ Emergency Coordinator.		AP/1/A/5500/07 EP/1/A/5000/04
12. Effluent monitors detect levels corresponding to greater than 50 mr/hr for 1/2 hour or greater than 500 mr/hr Whole Body for two minutes (or five times these levels to the thyroid) at the site boundary for adverse meteorology. (See Note 2)	For EMF-35 - Low Range, offscale High Range $\geq 8 \times 10^3$ cpm (See Note 1) For EMF-36 - Low Range, 5 $\geq 3 \times 10^5$ cpm High range 1 $\geq 7 \times 10^5$ cpm (See Note 1) For EMF-37 - Change of 143 cpm/minute for 30 minutes or a change of 1430 cpm/minute for 2 minutes. (See Note 1)	Waste Decay Tank Rupture Liquid Waste Storage Tank Rupture	HP/0/B/1009/13 HP/0/B/1009/14 EP/1/A/5000/1C

FIGURE D-3
CLASS: SITE AREA EMERGENCY
ACCIDENT CONDITIONS/EMERGENCY PROCEDURES

Site Area Emergency Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
<p><u>NOTE 1:</u> These values are worst case calculations and may not reflect more favorable weather conditions.</p> <p><u>NOTE 2:</u> These dose rates are projected based on other plant parameters (e.g., radiation level in containment with leak rate appropriate for existing containment pressure) or are measured in the environs. (EPA Protective Action Guidelines are projected to be exceeded outside the site boundary.)</p>			
* 13. Imminent loss of physical control of the plant.	Physical attack on the plant including imminent occupancy of Control Room and auxiliary shutdown panels.		Station Security Plan AP/1/A/5500/17
14. Severe natural phenomena being experienced or projected with plant not in cold shutdown.			
a. Earthquake greater than SSE (Safe Shutdown Earthquake) levels.	(>.15gH, >.1gV) as determined by monitoring seismic instrumentation and recording devices.		RP/0/A/5500/07
b. Flood, low water, hurricane surge, seiche greater than design levels (lake tidal waves) or failure of protection of vital equipment at lower levels.	As determined by Shift Supervisor Emergency Coordinator		RP/0/A/5500/06
c. Winds in excess of design levels.	Winds > 95 mph from National Weather Service Information.	Tornado Missile Impact	RP/0/A/5500/06

FIGURE D-3
CLASS: SITE AREA EMERGENCY
ACCIDENT CONDITIONS/EMERGENCY PROCEDURES

Site Area Emergency Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
15. Other hazards being experienced or projected with plant not in cold shutdown.		Tornado Missile Impact, Spent Fuel Analysis	
a. Aircraft crash affecting vital structures by impact or fire.	Aircraft crash causing damage or fire to Containment Building, Control Room, Auxiliary Building, Fuel Building or Intake Structure.		RP/0/A/5500/09
b. Severe damage to safe shutdown equipment from missiles or explosion.	Loss of functions needed for hot shutdown as in Item 7.		RP/0/A/5500/09
c. Entry of toxic or flammable gases into vital areas.	Entry of uncontrolled toxic or flammable gases into Control Room, Cable Spreading Room, Containment Building, Switchgear Room, Auxiliary Shutdown Panels or Diesel Rooms.		RP/0/A/5500/08
16. Other plant conditions exist that in the judgement of the Shift Supervisor, the Operations Duty Engineer, the Superintendent of Operations or the Plant Manager warrant activation of emergency centers and monitoring teams and a precautionary public notification.	As determined by Shift Supervisor Emergency Coordinator.		As dictated by Plant Conditions
17. Evacuation of Control Room and control of shutdown systems not established from local stations in 15 minutes.	As determined by Shift Supervisor Emergency Coordinator.		AP/1/A/5500/17 OP/0/B/6100/13

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CATAWBA NUCLEAR PLANT
Figure D.4.A
Response to Emergencies

Class	Licensee Actions	State and/or Local Offsite Authority Actions
GENERAL EMERGENCY		
<u>Class Description</u> 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 be reasonably expected to exceed EPA Protective Action Guidelines exposure levels offsite for more than the immediate site area.		
<u>Purpose</u> Purpose of the general emergency declaration is to (1) initiate predetermined protective actions for the public, (2) provide continuous assessment of information from licensee and offsite organization measurements, (3) initiate additional measures as indicated by actual or potential releases, (4) provide consultation with offsite authorities and (5) provide updates for the public through offsite authorities.		
1.	1. Promptly inform State and/or local offsite authorities of general emergency status and reason for emergency as soon as discovered (Parallel notification of State/Local).	1. Provide any assistance requested.
2.	2. Augment resources by activating on-site Technical Support Center, on-site Operational Support Center and near-site Crisis Management Center (CMC).	2. Activate immediate public notification of emergency status and provide public periodic updates.
3.	3. Assess and respond.	3. Recommend sheltering for 2 mile radius and 5 miles downwind and assess need to extend distances. Consider advisability of evacuation (projected time available vs. estimated evacuation time.)
4.	4. Dispatch on-site and offsite monitoring teams and associated communications.	4. Augment resources by activating primary response centers.
5.	5. Dedicate an individual for plant status updates to offsite authorities and periodic press briefings (perhaps joint with offsite authorities).	5. Dispatch key emergency personnel including monitoring teams and associated communications.
6.	6. Make senior technical and management staff onsite available for consultation with NRC and State on a periodic basis.	6. Dispatch other emergency personnel to duty stations within 5 mile radius and alert all others to standby status.
7.	7. Provide meteorological and dose estimates to offsite authorities for actual release via a dedicated individual or automated data transmission.	7. Provide offsite monitoring results to licensee, DOE and others and jointly assess them
8.	8. Provide release and dose projections based on available plant condition information on foreseeable contingencies.	8. Continuously assess information from licensee and offsite monitoring with regard to changes to protective actions already initiated for public and mobilizing evacuation resources.
9.	9. Close out or recommend reduction of emergency class by briefing of offsite authorities at EOP and by phone followed by written summary within 8 hours of closeout or class reduction.	9. Recommend placing milk animals within 10 miles on stored feed and assess need to extend distance.
		10. Provide press briefings, perhaps with licensee.
		11. Maintain general emergency status until closeout or reduction of emergency class.

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FIGURE D-4
CLASS: GENERAL E, NCY
ACCIDENT CONDITIONS/EMERGENCY PROCEDURES

General Emergency Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
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<p>1. Effluent monitors detect levels corresponding to 1 rem/hr Whole Body or 5 rem/hr Thyroid at the Site boundary under actual meteorological conditions.</p>	<p>As observed by Control Room personnel.</p>	<p>Waste Gas Decay Tank Rupture Liquid Waste Storage Tank Rupture Loss of Coolant Accident</p>	<p>HP/O/B/1009/13 HP/O/B/1009/14 EP/1/A/5000/1C</p>
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NOTE 1: These dose rates are projected based on other plant parameters (e.g., radiation levels in containment with leak rate appropriate for existing containment pressure with some confirmation from effluent monitors) or are measured in the environs.

EMF-37 Change of 2800 cpm/minute over any time interval. (These values are worst case calculations and may not reflect more favorable weather conditions).

NOTE 2: Consider evacuation only within about 2 miles of a site boundary unless these levels are exceeded by a factor of 10 or projected to continue for 10 hours or EPA Protective Action Guideline exposure levels are predicted to be exceeded at longer distances.

FIGURE D-4
CLASS: GENERAL EMERGENCY
ACCIDENT CONDITIONS/EMERGENCY PROCEDURES

General Emergency Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
<p>2. Loss of 2 of 3 fission product barriers with a potential loss of 3rd barrier, (e.g., loss of core geometry and primary coolant boundary and high potential for loss of containment).</p> <p>NOTE: Consider 2 mile precautionary evacuation. If more than gap activity released, (120 Ci/ml Noble Gases and Iodines) extended this to 5 miles downwind.</p>	<p>1. Loss of coolant accident as identified in Site Area Emergency, Item 1 and incomplete containment isolation.</p> <p>2. Loss of coolant accident as identified in Site Area Emergency, Item 1, and Containment Monitor alarms (EMF-53A and/or B) greater than 10 R/hr and containment pressure greater than 14.8 psig for at least 2 minutes.</p>	<p>Loss of Coolant Accident Steam Generator Tube Rupture</p>	<p>EP/1/A/5000/01 EP/1/A/5000/1C EP/1/A/5000/1E AP/1/A/5500/24 EP/1/A/5000/2E</p>
<p>3. Loss of physical control of the facility</p> <p>NOTE: Consider 2 mile precautionary evacuation.</p>	<p>Physical attack of the facility has resulted in occupation of the Control Room and auxiliary shutdown facility.</p>		<p>Station Security Plan AP/1/A/5500/17 OP/0/B/6100/13</p>
<p>4. Other plant conditions exist, from whatever source, that in the judgement of the Shift Supervisor, the Operations Duty Engineer, the Superintendent of Operations or the Plant Manager make release of large amounts of radioactivity in a short time period possible (e.g., any core melt situation).</p>	<p>As determined by the Shift Supervisor Emergency Coordinator and verified by EAL's defined in Implementing Procedures utilized up to this point.</p>		<p>As dictated by plant conditions EP/1/A/5000/01 EP/1/A/5000/1C EP/1/A/5000/2B HP/0/B/1009/18</p>

FIGURE D-4
CLASS: GENERAL EMERGENCY
ACCIDENT CONDITIONS/EMERGENCY PROCEDURES

General Emergency Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
Examples Sequences:			
A. Small and large LOCA's with failure of ECCS to perform leading to severe core degradation or melt. (Several hours available for response.)	Safety injection signal plus reactor trip and: 1. Safety injection and RHR pumps not running. 2. Flow indications for safety injection read "0". 3. High containment sump level.	Partial Loss of Reactor Coolant Flow Loss of Reactor Coolant from Small Ruptured Pipe Loss of Coolant Accident	EP/1/A/5000/1C EP/1/A/5000/01 AP/1/A/5500/19 EP/1/A/5000/2B EP/1/A/5000/2E
B. Transient initiated by loss of feedwater and condensate systems (principle heat removal system) followed by failure of emergency feedwater system for extended period. Core melting is possible in several hours with ultimate failure of containment likely if the core melts.	Reactor trip on Lo-Lo Steam Generator level and wide range generator level toward offscale low on all steam generators and emergency feedwater flow indicator indicate "0" flow or emergency feedwater pumps not running and cannot be restored within 30 minutes or 3% reactor power and loss of both main feedwater pumps.	Major Secondary System Pipe Rupture Loss of Coolant Accident Loss of Normal Feedwater Turbine Trip	EP/1/A/5000/01 EP/1/A/5000/1D AP/1/A/5500/06 EP/1/A/5000/1C EP/1/A/5000/2D
C. Transient requiring operation of shutdown systems with failure to scram. Core damage is likely. Additional failure of the core cooling and makeup system would lead to core melt.	Reactor remains critical after all attempts to trip the reactor are complete and flow indicators on safety injection and RHR show "0" flow after initiation (NVP-5440, NDP-5190, 5191, 5180, 5181, NIP-5120, 5450) or safety injection initiated.		EP/1/A/5000/03 AP/1/A/5500/19 EP/1/A/5000/2B EP/1/A/5000/01 EP/1/A/5000/1C
D. Failure of offsite and onsite power along with total loss of emergency feedwater makeup capability for several hours could lead to eventual core melt and likely failure of containment.	Undervoltage alarms on 7 KV buses and blackout load sequencers actuated and auxiliary feedwater pump(s) fail to start.	Loss of Offsite Power to Station	EP/1/A/5000/04 AP/1/A/5500/06 AP/1/A/5500/07 EP/1/A/5000/2D

FIGURE D-1
CLASS: GENERAL EMERGENCY
ACCIDENT CONDITIONS/EMERGENCY PROCEDURES

General Emergency Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
E. Small LOCA and initially successful ECCS. Subsequent failure of containment heat removal system over several hours could lead to core melt and likely to failure of containment.	Pressurizer low pressure reactor trip and pressurizer low pressure safety injection signal and RHR flow indicators show "0" flow after greater than 2 hours (NRP-5190, 5191, 5180, 5181) and RCS T ⁰ is rising, containment air handling system failure to function.	Loss of Reactor Coolant From Small Ruptured Pipe Loss of Contant Accident	EP/1/A/5000/1C EP/1/A/5000/01 AP/1/A/5500/19 HP/0/B/1009/18 EP/1/A/5000/2D EP/1/A/5000/2E

NOTE 1: For melt sequences or for failure of containment isolation systems, the most likely failure mode is melt through with release of gases.

NOTE 2: For core melt sequences where significant releases are not yet taking place and large amounts of fission products are not yet in the containment atmosphere, consider 2 mile precautionary evacuation. Consider 5 mile downwind evacuation (45° to 95° sector) if large amounts of fission products (greater than Gap activity) are in the containment atmosphere. Recommend sheltering in other parts of the plume exposure Emergency Planning Zone under this circumstance.

FIGURE D-
CLASS: GENERAL EMERGENCY
ACCIDENT CONDITIONS/EMERGENCY PROCEDURES

General Emergency Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
<p>NOTE 3: For core melt sequences where significant releases from containment are not yet taking place and containment failure leading to a direct atmospheric release is likely in the sequence but not imminent and large amounts of fission products in addition to noble gases are in the containment atmosphere, consider precautionary evacuation to 5 miles and 10 mile downwind evacuation.</p>			
<p>NOTE 4: For core melt sequences where large amounts of fission products other than noble gases are in the containment atmosphere and containment failure is judged imminent, recommend shelter for those areas where evacuation cannot be completed before transport of activity to that location.</p>			
<p>NOTE 5: As release information becomes available, adjust these actions in accordance with dose projections, time available to evacuate and estimate evacuation time given current conditions.</p>			
5. Any major internal or external events (e.g., fires, earthquakes substantially beyond design levels) which could cause massive common damage to plant systems.	As determined by the Shift Supervisor/Emergency Coordinator		RP/O/A/5500/07 RP/O/A/5500/09

E. Notification Methodology

E.1 Notification of Response Organization

This section identifies specific emergency responses and related criteria that specify when these measures are to be implemented. Emergency measures discussed in this section include notification of and activation of an emergency class and its associated emergency organization; assessment actions; corrective actions; protective actions and aid to affected persons.

E.2 Activation of Emergency Organization

This section describes the necessary communication steps to be taken to alert or activate emergency personnel for each class of emergency listed in Section D. The notification format and message authentication technique to offsite authorities shall be in accordance with the appropriate emergency procedure (Figure E-1).

a. Notification of Unusual Event

The Shift Supervisor on duty is to be notified immediately of all initiating conditions indicative of an "Unusual Event" in process or that has occurred which indicates a potential degradation in the level of safety of the plant. (See Figure D-1 for examples of initiating conditions in this classification.)

NOTE: This emergency classification is further defined in Catawba Nuclear Station Emergency Response Procedure RP/O/A/5000/01, Classification of Emergency.

The Shift Supervisor assumes the functions of the Emergency Coordinator and shall ensure that all actions required by any initiating Emergency Procedure have been performed and that all actions necessary for the protection of persons and property are being taken.

The Emergency Coordinator shall assure notification of:

1. Operations Duty Engineer
2. Station Manager
3. Superintendent of Operations
4. Superintendent of Technical Services
5. Superintendent of Maintenance
6. Superintendent of Administration
7. License and Projects Engineer
8. Construction Project Manager
9. Manager of the Catawba Special Group

for any initiating condition listed in Figure D-1.

The Emergency Coordinator shall assure notification of the Nuclear Production Duty Engineer who notifies the Recovery Manager and Corporate Communications for any initiating condition listed in Figure D-1.

The Emergency Coordinator shall assure prompt notification of State and Local offsite authorities (North Carolina, South Carolina, York County, Gaston County and Mecklenburg County Warning Points or Emergency Operations Centers, if established), the NRC Operations Center via the Emergency Notification System and the Senior Station NRC representative of the Unusual Event and the reason for the emergency for any initiating condition listed in Figure D-1.

Notification format and message authentication technique to offsite authorities shall be in accordance with Catawba Nuclear Station Emergency Response Procedure RP/O/A/5000/02, Notification of Unusual Event.

The Emergency Coordinator shall augment onshift resources to assess and respond to the emergency situation as needed to ensure the protection of persons and property.

The Emergency Coordinator will assess the emergency condition and determine the need to remain in a Notification of Unusual Event, escalate to a more severe class or close out the emergency.

The Licensing and Projects Engineer or his designee will close out the Emergency with verbal summary to offsite authorities, notified above, followed by written summary within 24 hours.

b. Alert

The Shift Supervisor on duty is to be notified immediately of all initiating conditions indicative of an "Alert" classification in process or that have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. (See Figure D-2 for examples of initiating conditions in this classification.)

NOTE: This Emergency Classification is further defined in Catawba Nuclear Station Emergency Response Procedure, RP/O/A/5000/01, Classification of Emergency.

The Shift Supervisor shall ensure that all actions required by any initiating Emergency Procedure have been performed and that all actions necessary for the protection of persons and property are being taken.

NOTE: The Shift Supervisor assumes the function of the Emergency Coordinator until the arrival of the Station Manager or his designee at which time the Station Manager or his designee assumes the responsibility of the Emergency Coordinator.

The Emergency Coordinator shall assure notification of the:

1. Operations Duty Engineer
2. Station Manager
3. Superintendent of Operations
4. Superintendent of Technical Services
5. Superintendent of Maintenance
6. Superintendent of Administration
7. License and Projects Engineer
8. Construction Project Manager
9. Manager of the Catawba Special Group

for any initiating condition listed in Figure D-2.

The Emergency Coordinator shall assure notification of the Nuclear Production Duty Engineer who notifies the Recovery Manager and Corporate Communications for any initiating condition listed in Figure D-2. The Emergency Coordinator, upon discussions with the Recovery Manager, shall determine if activation of the Crisis Management Organization is necessary and if so required will advise the Nuclear Production Duty Engineer to implement the Crisis Management Plan.

The Emergency Coordinator shall assure prompt notification of State and Local offsite authorities (North Carolina, South Carolina, York County, Gaston County and Mecklenburg County Warning Points or Emergency Operations Centers, if established), the NRC Operations Center via the Emergency Notification System and the Senior Station NRC Representative of the Alert and the reason for the emergency for any initiating condition listed in Figure D-2.

Notification format and message authentication technique to offsite authorities shall be in accordance with Catawba Nuclear Station Emergency Response Procedure RP/O/A/5000/03, Alert.

The Emergency Coordinator shall augment onsite resources by notification and activation of the onsite Technical Support Center, and the onsite Operations Support Center in accordance with Catawba Nuclear Station Directive 3.8.4.

The Emergency Coordinator in the Technical Support Center will assess and respond to the emergency by:

1. Dispatching onsite monitoring teams with associated communication equipment in accordance with Catawba Nuclear Station Health Physics Procedure HP/O/B/1009/09, Guidelines for Accident and Emergency Response.
2. Providing periodic plant status updates to offsite authorities (at least every 30 minutes or as agreed otherwise).
3. Providing periodic meteorological assessments to offsite authorities and, if any releases are occurring, dose estimates for actual releases.

NOTE: These functions will be provided through the Crisis Management Center if it is operational.

Protective action recommendations shall be directed to the affected County and State Warning Point (EOC if established) if required.

The Emergency Coordinator will assess the emergency condition and determine the need to remain in an Alert Status, escalate to a more severe class, reduce the emergency class or close out the emergency.

The Station Manager, or his designee, will close out the emergency with a verbal summary to offsite authorities followed by a written summary within eight (8) hours.

c. Site Area Emergency

The Shift Supervisor on duty is to be notified immediately of all initiating conditions indicative of a "Site Area Emergency" in process or which have occurred which involve actual or likely major failures of plant functions needed for protection of the public. (See Table D-3 for examples of initiating conditions in this classification.)

NOTE: This Emergency Classification is further defined in Catawba Nuclear Station Emergency Response Procedure RP/O/A/5000/01, Classification of Emergency.

The Shift Supervisor shall ensure that all actions required by the initiating Emergency Procedure have been performed and that all actions necessary for the protection of persons and property are being taken.

NOTE: The Shift Supervisor assumes the function of the Emergency Coordinator until the arrival of the Station Manager or his designee at which time the Station Manager or his designee assumes the responsibility of the Emergency Coordinator.

The Emergency Coordinator shall assure notification of:

1. Operations Duty Engineer
2. Station Manager
3. Superintendent of Operations
4. Superintendent of Technical Services
5. Superintendent of Maintenance
6. Superintendent of Administration
7. License and Projects Engineer
8. Construction Project Manager
9. Manager of the Catawba Special Group

for any initiating condition listed in Figure D-3.

The Emergency Coordinator shall assure notification of the Nuclear Production Duty Engineer and shall advise that the Crisis Management Plan be activated.

The Emergency Coordinator shall assure prompt notification of State and Local offsite authorities (North Carolina, South Carolina, York County, Gaston County and Mecklenburg County Warning Points or EOC's, if established), the NRC Operations Center via the Emergency Notification System and the Senior Station NRC Representative of the Site Area Emergency and the reason for the emergency for any initiating condition listed in Figure D-3.

Notification format and message authentication technique to offsite authorities shall be in accordance with Catawba Nuclear Station Emergency Response Procedure RP/O/A/5000/04, Site Area Emergency.

The Emergency Coordinator shall augment onsite resources by notification and activation of the Technical Support Center and the onsite Operations Support Center in accordance with Catawba Nuclear Station Directive 3.8.4.

The Emergency Coordinator may order the evacuation of non-essential station personnel to the Evacuation-Relocation Site if the emergency situation warrants.

The Emergency Coordinator, in direct contact with the onsite Technical Support Center and the Crisis Management Center, will assess and respond to the emergency by:

1. Dispatching the Onsite and Offsite Monitoring Teams with associated communications.
2. Providing meteorological and dose estimates to offsite authorities for actual releases via a dedicated individual or automated data transmission.

3. Providing release and dose projections based on available plant condition information and foreseeable contingencies to offsite authorities.
4. Providing a dedicated individual for plant status updates to offsite authorities and periodic press briefings.
5. Providing senior technical and management staff onsite available for consultation with the NRC and State on a periodic basis.

NOTE: These functions will be provided through the Crisis Management Center when it is operational.

The Emergency Coordinator will assure notification of all Catawba Nuclear Station management not notified thus far for those initiating conditions or implementation of any Emergency Procedure affecting these personnel in accordance with Catawba Nuclear Station Emergency Response Procedure RP/O/A/5000/04, Site Area Emergency.

If evaluation indicates that a potential for or an actual release of radioactive materials will result in offsite exposures, protective action recommendations shall be directed to the affected County and State Warning Point, (EOC if established).

The Emergency Coordinator, in coordination with the Recovery Manager at the Crisis Management Center, will assess the emergency condition and determine the need to remain in Site Area Emergency, escalate to a more severe class, reduce the emergency class or close out the emergency.

The Recovery Manager at the Crisis Management Center will close out or recommend reduction of the emergency class by briefing of offsite authorities at the Crisis Management Center or phone if necessary, followed by written summary within eight (8) hours.

d. General Emergency

The Shift Supervisor on duty is to be notified immediately of all initiating conditions indicative of a "General Emergency" in process or which have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. (See Figure D-4 for examples of initiating conditions in this classification.)

NOTE: This emergency classification is further defined in Catawba Nuclear Station Emergency Response Procedure, RP/O/A/5000/01, Classification of Emergency.

The Shift Supervisor shall ensure that all actions required by the initiating Emergency Procedure have been performed and that all actions necessary for the protection of persons and property are being taken.

NOTE: The Shift Supervisor assumes the function of the Emergency Coordinator until the arrival of the Station Manager or his designee at which time the Station Manager or his designee assumes the responsibility of the Emergency Coordinator.

The Emergency Coordinator shall assure notification of:

1. Operations Duty Engineer
2. Station Manager
3. Superintendent of Operations
4. Superintendent of Technical Services
5. Superintendent of Maintenance
6. Superintendent of Administration
7. License and Projects Engineer
8. Construction Project Manager
9. Manager of the Catawba Special Group

for any initiating condition listed in Figure D-4.

The Emergency Coordinator shall assure notification of the Nuclear Production Duty Engineer and shall advise that the Crisis Management Plan be activated.

The Emergency Coordinator shall assure prompt notification of State and Local offsite authorities (North Carolina, South Carolina, York County, Gaston County and Mecklenburg County Warning Points or EOC's, if established), the NRC Operations Center via the Emergency Notification System and the Senior Station NRC Representative of the General Emergency and the reason for the emergency for any initiating condition listed in Figure D-4.

Notification format and message authentication technique to offsite authorities shall be in accordance with Catawba Nuclear Station Emergency Response Procedure RP/O/A/5000/05, General Emergency.

The Emergency Coordinator shall augment onsite resources by notification and activation of the Technical Support Center, and the onsite Operations Support Center in accordance with Catawba Nuclear Station Directive 3.8.4.

The Emergency Coordinator shall order the evacuation of all non-essential station personnel to the Evacuation-Relocation Site.

The Emergency Coordinator, in direct contact with the onsite Technical Support Center and the Crisis Management Center, will assess and respond to the emergency by:

1. Dispatching the Onsite and Offsite Monitoring Teams with associated communications.
2. Providing meteorological and dose estimate to offsite authorities for actual releases via a dedicated individual or automated data transmission.
3. Providing release and dose projections based on available plant condition information and foreseeable contingencies to offsite authorities.
4. Providing a dedicated individual for plant status updates to offsite authorities and periodic press briefings.
5. Providing senior technical and management staff onsite available for consultation with the NRC and State on a periodic basis.

NOTE: These functions will be provided through the Crisis Management Center when it is operational.

The Emergency Coordinator will assure notification of all Catawba Nuclear Station Management not notified thus far for those initiating conditions or implementation of any Emergency Procedure affecting these personnel in accordance with Catawba Nuclear Station Emergency Response Procedure RP/O/A/5000/05, General Emergency.

The Emergency Coordinator shall make a recommendation to the offsite authorities for the immediate sheltering of the two-mile radius area and up to 5 miles downwind and shall make follow up protective action recommendations as soon as possible.

The Emergency Coordinator, in coordination with the Recovery Manager at the Crisis Management Center, will assess the emergency condition and determine the need to remain in a General Emergency, reduce the emergency class or close out the emergency.

The Recovery Manager at the Crisis Management Center will close out the emergency class by briefing the offsite authorities at the Crisis Management Center, or by phone if necessary, followed by written summary within eight (8) hours.

As described earlier, Emergency Procedures provide the Emergency Coordinator with the mechanism to alert, notify and activate emergency response personnel. The Emergency Coordinator is responsible for notifying the station superintendents who are then responsible for notifying and activating those personnel within their groups who will be required to support the emergency condition in the Technical Support Center and the Operations Support Center. The Emergency Coordinator also activates the Crisis Management Center through the Recovery Manager or his alternate as described in the Crisis Management Plan, (See Figure E-2, Crisis Management Center Activation Format).

E.3 Emergency Message Format (Initial)

Figure E-1, Warning Message: Nuclear Facility to State/Local Government contains information about the class of emergency, whether a release is taking place, the potentially affected areas and whether protective actions may be necessary.

E.4 Emergency Message Format (Follow-Up)

Figure E-1, Warning Message: Nuclear Facility to State/Local Government contains provisions for follow-up information if it is known and appropriate.

E.5 State and Local Organization Disseminating Public Information

State and Local plans provide for disseminating information in Initial and Follow-up Messages to the public.

E.6 Alert and Notification System

The Alert and Notification System for Catawba Nuclear Station will include an acoustic alerting signal and notification of the public by commercial broadcast (EBS). The system is designed to meet the acceptance criteria of Section B of Appendix 3, NUREG-0654, FEMA-REP-1, Rev. 1. As a back-up, State and Local plans maintain the alert mechanism via emergency vehicles, PA Systems, etc. to also alert the public to monitor commercial broadcast for emergency information. See Appendix 3, Alert and Notification System Plan.

A system of fixed sirens will be installed and operational in the 10 mile area around Catawba Nuclear Station (according to regulations in effect at the time). A backup means of alerting and notification is described in the State and County Plans. This backup method includes area-wide emergency service vehicles traversing the area and giving both an alert signal and notification message.

Each county will control the activation of the sirens within its boundaries.

Duke Power Company will cooperate with FEMA and the state/local governments in their sampling of the residents to assess the ability to hear the alerting signal, the public's awareness of the meaning of the prompt notification message, and the availability of emergency information.

The sirens for the Catawba Nuclear Station will be in place prior to Unit #1 startup at which time more specific information will be included.

The siren system will be tested and maintained in accordance with the following schedule:

<u>Test or Maintenance</u>	<u>Period</u>
Silent Test	Every two weeks - log entry
Growl Test	Quarterly and when Preventive Maintenance is performed
Complete Cycle Test	Annually in conjunction with formal exercises
Preventive Maintenance	Annually

The silent test will be performed by county personnel. The quarterly test will be performed by Duke and the counties. During this test, a review of the activation counter will be made to assure the siren has received the silent test signals. The annual test will be a cooperative effort of all involved. Preventive Maintenance of the sirens will be done by Duke Power Company personnel. Maintenance of the radio controls (Tone Encoders) will be performed by those organizations who maintain the county radio system.

The EBS System is the primary notification system. Backups include the use of county vehicles with audio equipment and other media communications.

E.7 Supporting Information for Public Information Message

See Crisis Management Plan Section E.7.

WARNING MESSAGE: NUCLEAR FACILITY TO STATE/LOCAL GOVERNMENT

Instructions:

CATAWBA NUCLEAR STATION
FIGURE E-1

A. For Sender:

1. Complete Part I for the Initial Warning Message.
2. Complete Parts I & II for followup messages.

B. For Receiver:

1. Record the date, time and your name in the area below.
2. Authenticate this message by verifying the code word or by calling back to the facility. (See Part I .5)

Time: _____ Date: _____

Message Received By: _____

PART I

1. This is: _____
(Insert name of facility)
2. My name is: _____
3. This message (number__):
_____(a) Reports a real emergency.
_____(b) Is an exercise message.
4. My telephone number/extension is: _____
5. Message authentication: _____
(Verify code word or call back to the facility)
6. The class of the emergency is: _____(a) Notification of Unusual Event
_____(b) Alert
_____(c) Site Emergency
_____(d) General Emergency
7. This classification of emergency was declared at: _____ (a.m./p.m.) on _____ (date).
8. The initiating event causing the emergency classification is: _____

9. The emergency condition: _____(a) Does not involve the release of radioactive materials from the plant.
_____(b) Involves the potential for a release, but no release is occurring.
_____(c) Involves a release of radioactive material.

10. We recommend the following protective action:

- _____ (a) No protective action is recommended at this time.
- _____ (b) People living in zones _____ remain indoors with the doors and windows closed.
- _____ (c) People in zones _____ evacuate their homes and businesses.
- _____ (d) Pregnant women and children in zones _____ remain indoors with the doors and windows closed.
- _____ (e) Pregnant women and children in zones _____ evacuate to the nearest shelter/reception center.
- _____ (f) Other recommendations: _____

11. There will be:

- _____ (a) A followup message
- _____ (b) No further communications

12. I repeat, this message:

- _____ (a) Reports an actual emergency
- _____ (b) Is an exercise message

13. RELAY THIS INFORMATION TO THE PERSONS INDICATED ON YOUR ALERT PROCEDURE FOR AN INCIDENT AT A NUCLEAR FACILITY.

END OF INITIAL WARNING MESSAGE

PART II

1. The type of actual or projected release is:

- _____ (a) Airborne
- _____ (b) Waterborne
- _____ (c) Surface spill
- _____ (d) Other

2. The source and description of the release is: _____

3. _____ (a) Release began/will begin at ____ a.m./p.m.; time since reactor trip is ____ hours.

- _____ (b) The estimated duration of the release is ____ hours.

4. Dose projection base data:

Radiological release: _____ curies, or _____ curies/sec.

Windspeed: _____ mph

Wind direction: From _____ °

Stability class: _____ (A,B,C,D E,F, or G)

Release height: _____ Ft.

Dose conversion factor: _____ R/hr/Ci/m³ (whole body)

_____ R/hr/Ci/m³ (Child Thyroid)

Precipitation: _____

Temperature at the site: _____ °F

5. Dose projections:

Dose Commitment

Distance	Whole Body Rem/hour	(Child Thyroid) Rem/hour of inhalation
Site boundary		
2 miles		
5 miles		
10 miles		

Projected Integrated Dose In Rem

Distance	Whole Body	Child Thyroid
Site Boundary		
2 miles		
5 miles		
10 miles		

6. Field measurement of dose rate or contamination (if available): _____

7. Emergency actions underway at the facility include: _____

8. Onsite support needed from offsite organizations: _____

9. Plant status:

(a) Reactor is: not tripped/tripped

(b) Plant is at: _____ % power/hot shutdown/cold shutdown/cooling down

(c) Prognosis is: stable/improving/degrading/unknown.

10. I repeat, this message:

_____ (a) Reports an actual emergency.

_____ (b) Is an exercise message.

11. Do you have any questions?

*****END OF FOLLOW-UP MESSAGE*****

NOTE: Record the name, title, date, time, and warning point notified. (Senders)

Record the name title, date, time, and persons notified per alert procedure. (Receivers)

1.	_____	_____	_____
	(name)		(title)
	_____	_____	_____
	(date)	(time)	(warning point)
2.	_____	_____	_____
	(name)		(title)
	_____	_____	_____
	(date)	(time)	(warning point)
3.	_____	_____	_____
	(name)		(title)
	_____	_____	_____
	(date)	(time)	(warning point)
4.	_____	_____	_____
	(name)		(title)
	_____	_____	_____
	(date)	(time)	(warning point)
5.	_____	_____	_____
	(name)		(title)
	_____	_____	_____
	(date)	(time)	(warning point)
6.	_____	_____	_____
	(name)		(title)
	_____	_____	_____
	(date)	(time)	(warning point)
7.	_____	_____	_____
	(name)		(title)
	_____	_____	_____
	(date)	(time)	(warning point)

EMERGENCY MESSAGE FORMAT
Nuclear Station To
Nuclear Production Duty Engineer

Operating Unit Engineer/Duty Engineer shall contact:

Name: _____ Phone: (704) 373-5491
(Nuclear Production Duty Engineer)
Date: _____ Time: _____

Provide CMC Notification through the Nuclear Production Duty Engineer.

1. This is _____ at _____ Station.
(Name and Title)
2. This _____ is _____ is not a drill. An _____ unusual event _____ alert
_____ site area emergency _____ General emergency was declared by the
Emergency Coordinator at _____ on Unit number _____.
(Time)
3. Initiating condition: (Give as close to the emergency plan description
as possible together with station parameters used to determine emergency
status). _____

4. Corrective measures being taken: _____

5. There _____ have _____ have not been any injuries to plant personnel.
6. Release of radioactivity: _____ is taking place _____ is not taking place
and is/is not affecting the CMC.
7. NRC _____ Yes _____ No; State _____ Yes _____ No; Counties _____ Yes _____ No;
have been notified.
8. The Crisis Management Team should/should not be activated. Corporate
Communications & Company Management should be notified.
9. I can be reached at _____ for follow-up information.
(Telephone number)
10. Additional Comments: _____

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE E-3

TECHNICAL SUPPORT CENTER
ACTIVATION CHECKLIST

This checklist is to be completed by the Emergency Coordinator prior to informing the Shift Supervisor or Recovery Manager that the Technical Support Center is ready to assume its responsibilities.

1. — Adequate personnel are available in the TSC to support the Emergency Condition and are ready to perform their roles.
2. _____ Telephones, radios, furniture arrangements, etc. are setup and functional.
3. _____ The Offsite Communicator is prepared to take over contact with State and Local agencies.
4. _____ Technical Support Center activated at _____ hours on _____/_____/_____ (Date).

Shift Supervisor advised of TSC activation, _____ hours on _____/_____/_____ (Date).

Emergency Coordinator

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE E-4

EMERGENCY RESPONSE ORGANIZATION
EMERGENCY ACTIVATION MESSAGE

The Shift Supervisor/Emergency Coordinator shall contact those personnel listed on Enclosure 4.1 of the appropriate notification procedure, who are to activate their portion of the Onsite Emergency Response Organization. Each individual contacted will use this form to contact other members of their group.

Your name _____ Date _____
Person who contacted you _____ Your Group _____
Persons you contacted with this message _____
_____ (if any)

Message Format

1. This is _____ (caller's name).
2. I am notifying you of a drill/actual emergency at Catawba Nuclear Station, Unit No. _____.
3. At this time the class of emergency is: _____ Alert; _____ Site Area Emergency; _____ General Emergency.
4. You are to activate your portion of the Emergency Response Organization.
5. Specific Instructions (if any) _____

6. Please return a copy of this completed format to the Emergency Preparedness Coordinator.

F. Emergency Communications

F.1.a. 24 Hour Notification Capability

In the event of an emergency at Catawba Nuclear Station, 24 hour per day notification to and activation of the state/local emergency response network is established. All state/local warning points are manned 24 hours per day. This communications link consists of the following:

- (1) Dedicated ring-down telephone system to the county warning points and EOC's within the 10 mile EPZ.
- (2) Dedicated telephone capability to the county and state warning points/EOC's.
- (3) Dedicated radio network to the county warning points within the 10 mile EPZ.

These links are available from Catawba Control Room, as shown in Figure F-1 and the Technical Support Center as shown in Figure F-2.

F.1.b. Communications With State/Local Governments

Initially, the Catawba Control Room and then the T.S.C./C.M.C. as these facilities are staffed, have primary and backup means of communications with the County/State Warning Points/EOC's. A backup radio system also serves as the primary communication link with monitoring teams in the field, as shown in Figure F-3.

F.1.c. Communication With Federal Organizations

The Catawba Control Room, T.S.C. and C.M.C. all have N.R.C. Emergency Notification System (ENS) capability. The T.S.C. and C.M.C. have N.R.C. Health Physics Network (HPN) capability as a backup to the ENS System.

F.1.d. Communication Between Station, CMC, Local EOC's and Monitoring Teams

Provision for communications between the Catawba Control Room or T.S.C. and the C.M.C., county and state EOC's is provided by dedicated telephone capability. The emergency radio link described above is the backup. The emergency radio also provides for communications between the Control Room, T.S.C. and/or C.M.C. to the radiological monitoring teams in the field.

F.1.e. Activation of Emergency Personnel

Notification, alerting and activation of emergency response personnel at the station is described in Section E.2. The Crisis Management Plan describes the methodology for the notification, alerting and activation of personnel within the Crisis Management Organization.

F.1.f. Communication Between NRC, CMC and Monitoring Teams

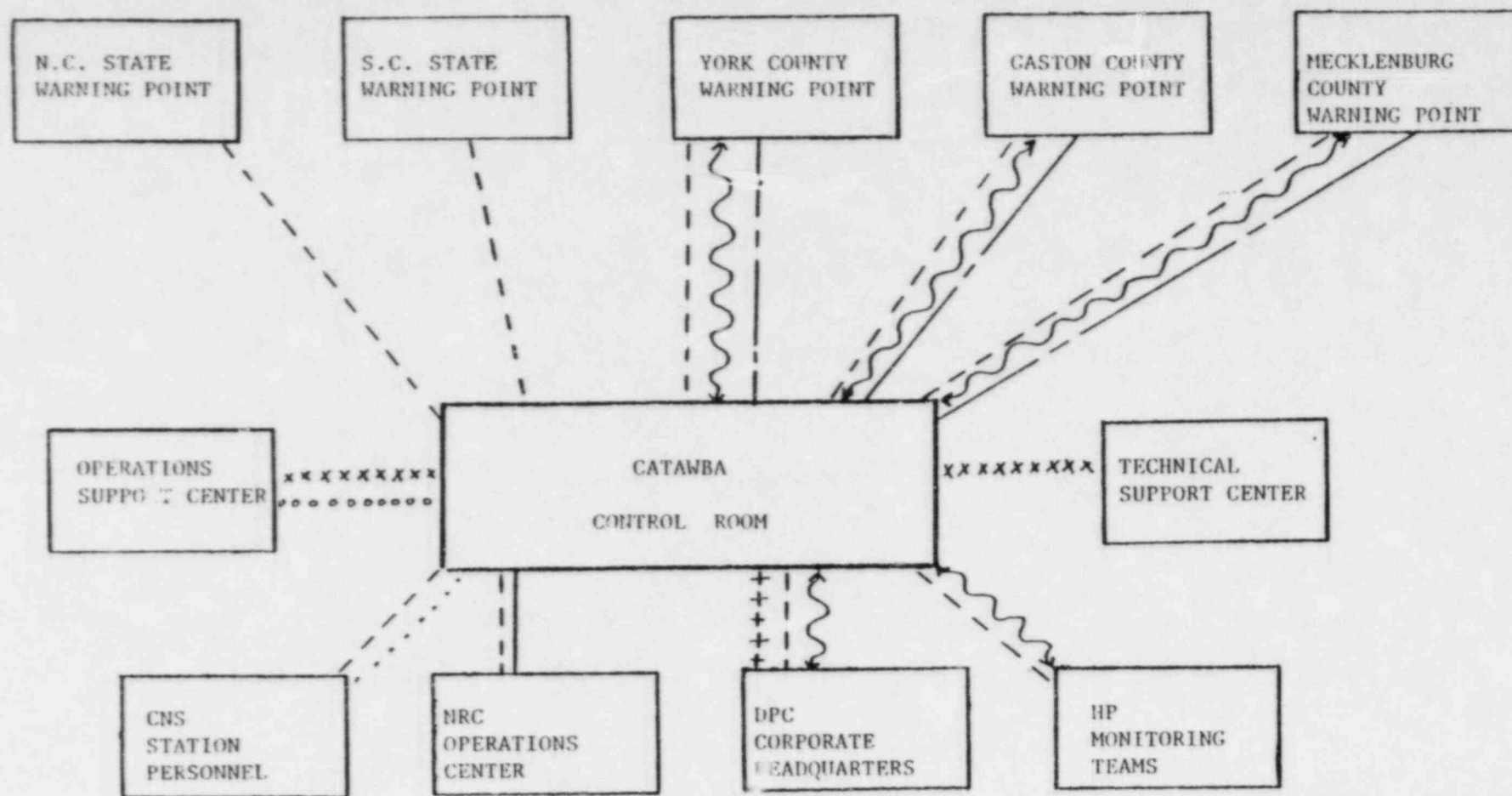
Communications between Catawba Control Room/T.S.C. to the N.R.C. Operations Center is via the Emergency Notification System (ENS), Bell Telephone or Health Physics Network (HPN). Communications from the Catawba Control Room/T.S.C. to the regional office is via the normal Bell capability or via the HPN network described above. Communications between the Offsite Radiological Coordinator at the C.M.C. to N.R.C. Emergency Operations centers is via the (ENS) or (HPN) or Bell Telephone lines.

F.2. Medical Support Communication

Communications to local medical facilities is via commercial telephone lines from dedicated station telephones. Radio communications are possible through the York County Communication Center to ambulance and hospital facilities.

F.3. Communications System Testing

Communications between the Catawba Nuclear Station and state/local warning points are tested monthly, communications between the station and Federal emergency response facilities and states within the 50 mile injection pathway are conducted quarterly, communications with state/local EOC's and field assessment teams are conducted annually. Catawba Nuclear Station Procedure PT/O/B/4600/05, Coordination of Communication defines the above communication checks.



Legend

- (1) ENS & HPN to HRC
- (2) Ring Down Phones to Counties
- (3) Bell Telephone Lines
- (4) Microwave Lines
- (5) Station Telephone Lines
- (6) Radio
- (7) Intercom
- (8) Pager System

Figure F-1
CATAWBA NUCLEAR STATION
EMERGENCY COMMUNICATION
(Prior to TSC/CMC Activation)

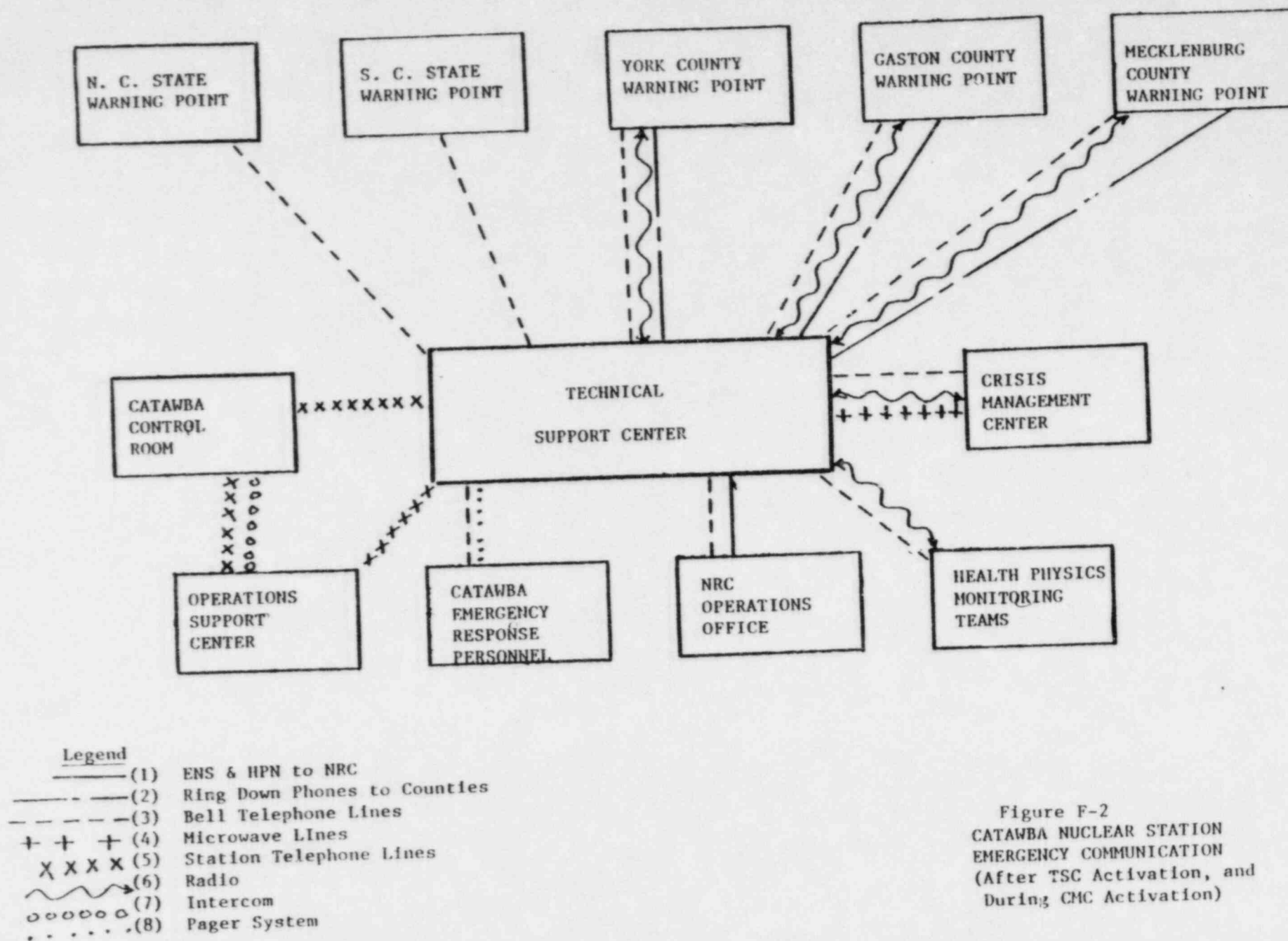


Figure F-2
CATAWBA NUCLEAR STATION
EMERGENCY COMMUNICATION
(After TSC Activation, and
During CMC Activation)

G. Public Information and Education

G.1/G.2 Public Education and Information Program

See Crisis Management Plan Section G.1/G.2.

Brochures (Figure G-1) will be posted in public places, placed in York and Mecklenburg/Gaston County recreational park areas, state parks in the 10 mile EPZ, hotels and motels. These brochures will be distributed on an annual basis. (See Distribution List Figure G-2 to be provided later.)

G.3 Crisis News

G.3.a Contact

See Crisis Management Plan Section G.3.a.

G.3.b. Space

See Crisis Management Plan Section G.3.b.

G.4. Spokesperson - News Release

G.4.a. Spokesperson

See Crisis Management Plan Section G.4.a.

G.4.b. Information Exchange

See Crisis Management Plan Section G.4.b.

G.4.c. Rumor Control

See Crisis Management Plan Section G.4.c.

G.5. News Media Training

See Crisis Management Plan Section G.5.

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE G-2

BROCHURE DISTRIBUTION LIST

(LATER)

H. Emergency Facilities and Equipment

H.1 Technical Support Center (TSC) Operations Support Center (OSC)

- H.1.a Control Room. The Control Room is utilized for evaluation and control of the initial phase of an emergency, including corrective actions and notification and activation of Catawba, Duke Power, state and local emergency response organizations. The Control Room has redundant (telephone and alternate) two-way communications with emergency centers and offsite agencies. See Figure F-1 for communication scheme.
- H.1.b Technical Support Center. (Figure H-1) The Technical Support Center (TSC) is utilized for evaluation of plant status by knowledgeable plant, vendor, NRC and other support groups during an emergency. This center will also be utilized to direct the onsite and initial offsite aspects of an emergency. Anticipated occupants are defined in Station Directive 3.8.4, Onsite Emergency Organization and would consist of the Station Manager, Superintendents, Section Heads (Health Physics, Chemistry, Performance, Licensing and Projects, Operating Engineers, I&E, Mechanical Maintenance, Planning, Chief of Security, Administrative Coordinator and Training and Safety), Vendors (NSSS Supplier) and NRC representatives. Superintendents and Section Heads will provide other expertise as necessary to support the emergency condition. The TSC has the following capabilities:
1. Redundant two-way communications with the Control Room, the Crisis Management Center and the Nuclear Regulatory Commission Operations Center. See Figure F-2 for communication scheme.
 2. Monitoring for direct radiation and airborne radioactive materials with local readout of radiation level and alarms if levels are exceeded.
 3. Display, printout or trend record of comprehensive data necessary to monitor reactor system status and to evaluate plant system abnormalities, inplant and offsite radiological parameters and meteorological parameters are available. This capability is provided via the operator aid computer. Capabilities to access and display thousands of parameters, individually or in groups is provided.
 4. Ready access to as-built plant drawings such as general arrangements, flow diagrams, electrical one-lines, instrument details, etc.
 5. Habitability during postulated radiological accidents to the same degree as the Control Room.

6. Provisions for staffing by the Station Manager (Emergency Coordinator), advisors and representatives from the Station Health Physics group, Chemistry, Performance, I&E, Maintenance and others as necessary. Room is also provided for NSSS supplier and 5 NRC personnel. Space for up to 35 persons plus instrumentation displays is provided.

The TSC is located near the Control Room, on elevation 594, in the Service Building. The TSC is within two (2) minutes walking distance from the Control Room (See Figure H-1). This is a permanent facility.

- H.1.c Operations Support Center. (Figure H-2) The Operations Support Center (OSC) is that place designated for Operations and Health Physics and others as necessary, to report to in an emergency condition. This center will be used to brief and prepare station personnel for work assignments in support of the emergency condition. The OSC is located outside the Control Room near the Unit #2 side Auxiliary Building on elevation 594. The OSC has adequate capacity and supplies including provisions for respiratory protection, protective clothing, portable lighting, portable radiation monitoring equipment, a camera and communications equipment. This is a permanent facility.

H.2 Crisis Management Center (CMC).

See Crisis Management Plan Section H-2.

- H.3 Direction and Control of response functions is established in the Crisis Management Plan and provided for at the Crisis Management Center.

H.4 Activation and Staffing

Catawba emergency centers (TSC, OSC and CMC) are activated as required by the appropriate Emergency Procedure. Activation of the TSC and OSC is required for Alert and above emergency conditions. The CMC may be activated for Alert and shall be activated at Site Area Emergency/General Emergency conditions. The CMC will be staffed in accordance with the Crisis Management Plan and procedures.

H.5 Assessment Actions

Onsite monitoring systems used to initiate emergency measures are defined in Figures D-1, D-2, D-3 and D-4. Those used for conducting assessment evaluations during any emergency condition are listed below:

- H.5.a Meteorological. A description of the primary meteorological measurement facility is found in Appendix 2. These basic meteorological parameters are displayed in the Control Room.

Since Catawba currently has only a primary system in use, Duke Power Company will meet the requirements of the milestone three (3) alternative described in Annex 1 of Appendix 2 to NUREG 0654, Revision 1.

Compensating actions in place to meet the requirements of this alternative are:

1. A monthly telephone contact, initiated by plant personnel, with the National Weather Service (NWS) office at the Douglas Municipal Airport will be established to insure that this basic meteorological information can be accessed. This call will be made by plant personnel responsible for making offsite dose projections. See HP/O/B/1000/06.
2. Onsite meteorological instruments will be calibrated at a frequency no less than quarterly while this alternative is employed. During calibration periods, basic meteorological data, characteristic of site conditions, will be accessible from the NWS at Douglas Municipal Airport. These instruments will be calibrated in accordance with approved procedures.
3. During periods of primary system unavailability, an alternate source of meteorological data is established as the NWS office at Douglas Municipal Airport. Access to this facility's data will be provided through the means described above. Wind direction and speed are from standard NWS instrumentation at conventional heights.

Wind direction at the Douglas Municipal Airport can replace the tower (40 m) wind direction. Wind speed at the Douglas Municipal Airport can replace the lower tower (10 m) wind speed for dose calculational purposes and for use in the 15 mph wind speed criterion discussed below; it can also replace the tower (40 m) wind speed for transport speed considerations.

4. The following field checks will be performed each week by plant personnel:

Wind Direction

- (a) Recorder Time Accuracy
- (b) Recorder Zero
- (c) Translator Zero
- (d) Translator Full Scale

Wind Speed

- (a) Recorder Time Accuracy
- (b) Recorder Zero
- (c) Translator Zero

Delta - Temperature

- (a) Recorder Time Accuracy

Instituting these compensating actions has ensured that Catawba personnel will have actual site meteorological data available.

Hydrologic

A hydrological description of the Catawba Nuclear Station site is located in the CNS FSAR, Section 2.4.

Seismic

A description of the seismic monitoring instrumentation and area seismology studies are found in Catawba FSAR, Section 3.7 and 2.5 respectively.

- H.5.b Radiological monitors including process monitors, area monitors, emergency and post-accident monitoring equipment, effluent monitors, personnel monitoring devices, portable monitors and sampling equipment are described in various Health Physics procedures, the System Health Physics Manuals, the Catawba FSAR, Emergency Plan Implementing Procedures and Safety Evaluation Report. Additional equipment to increase area and effluent monitoring ranges is being installed including additional post-accident sampling equipment and procedures to meet the requirements of NUREG-0737.
- H.5.c. Equipment and instrumentation to monitor plant parameters such as reactor coolant pressure, temperature, levels, containment pressure, temperature, humidity, sump levels, hydrogen concentrations, system flow rates, status, line-ups, are included in operating and emergency procedures. Examples of specific instruments used for accident evaluation are given in Figure D-1, D-2, D-3 and D-4.
- H.5.d Fire detection devices of the ionization-chamber and thermal type are located throughout the station.

H.6. Data, Monitoring Equipment and Analysis Facilities

Provisions have been made and exist to require data from offsite agencies or monitoring equipment and analysis facilities. The provisions are described below:

NOTE: These systems will be described in more detail later.
They will be in place prior to unit operations.

- a. Meteorological information is available from the National Weather Service as described in Section H.5.a. Monitoring of the Catawba River for hydrologic data is conducted within the Duke System of dams and hydro-electric facilities. Seismic data is available from the U.S. Geological Survey Office as provided for in the Catawba Procedure RP/O/A/5000/07, Earthquake.
- b. Environmental Radiological Monitoring equipment includes five radioiodine and particulate continuous air samplers and forty thermoluminescent dosimeters. The thermoluminescent dosimeters are posted and collected in accordance with Table 1, Branch Technical Position, Rev. 1 of November, 1979. Figure H-15 and H-16 lists locations of posted thermoluminescent dosimeters and air samplers.

H.7 Offsite Radiological Monitoring

As described in H.6.b above.

H.8 Meteorology Instrumentation and Procedures

See Section H.5.

H.9 Operations Support Center

See Section H.1.c.

H.10 Emergency Equipment/Instrumentation Inspection, Inventory, Operational Check, Calibration

Catawba Procedure HP/O/B/1000/06, Emergency Equipment Functional Check and Inventory, defines the inspection, inventory and operational checks required of emergency equipment. Various HP procedures define the criteria for calibration of all monitoring equipment located in the emergency kits. Figure H-3 defines the location of protective equipment and supplies. Figure H-4 through H-14 defines the contents of the various recovery kits, survey kits and emergency center kits. Figure H-11 serves to document emergency communications checks in accordance with Catawba Procedure PT/O/B/4600/05 Coordination of Communications.

- H.11 Emergency kits are shown in Figure H-3 and Figures H-4 through H-14. Paragraph H.10 defines the criteria for their maintenance.

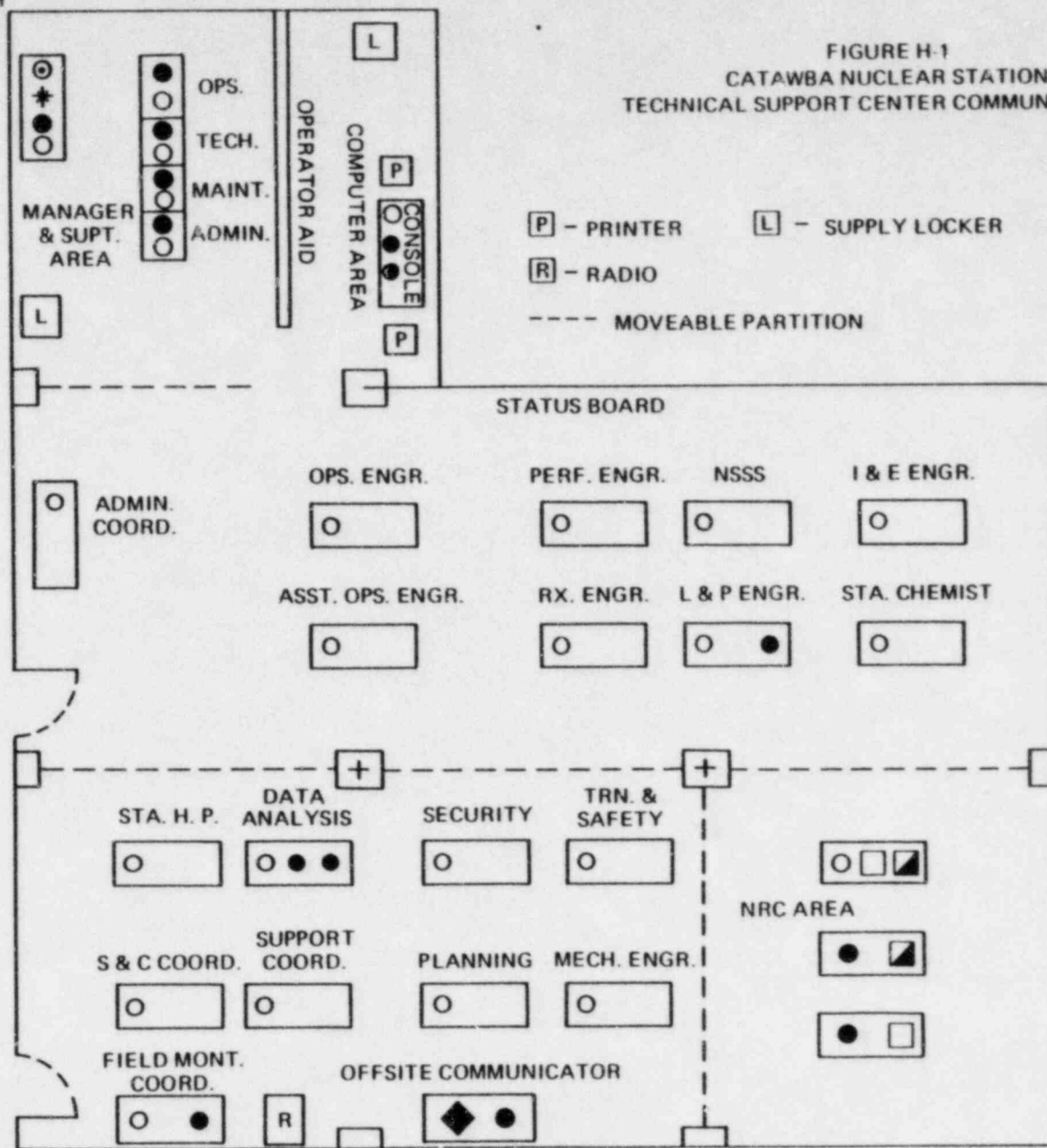
H.12 Receipt and Analysis of Field Monitoring Data

See Crisis Management Plan H.12 and C.3.

1

← TO CONTROL ROOM

FIGURE H-1
CATAWBA NUCLEAR STATION
TECHNICAL SUPPORT CENTER COMMUNICATIONS



TYPES OF COMMUNICATIONS

○ - PLANT PHONE	◆ - RINGDOWN PHONE	▣ - EMERG. NOTIFICATION SYS. TO NRC	⊙ - OPERATIONS INTERCOM
● - OUTSIDE LINE	* - LINE TO RECOVERY MGR.	□ - HEALTH PHYSICS NETWORK	

FIGURE H-2
CATAWBA NUCLEAR STATION
OPERATIONS SUPPORT CENTER

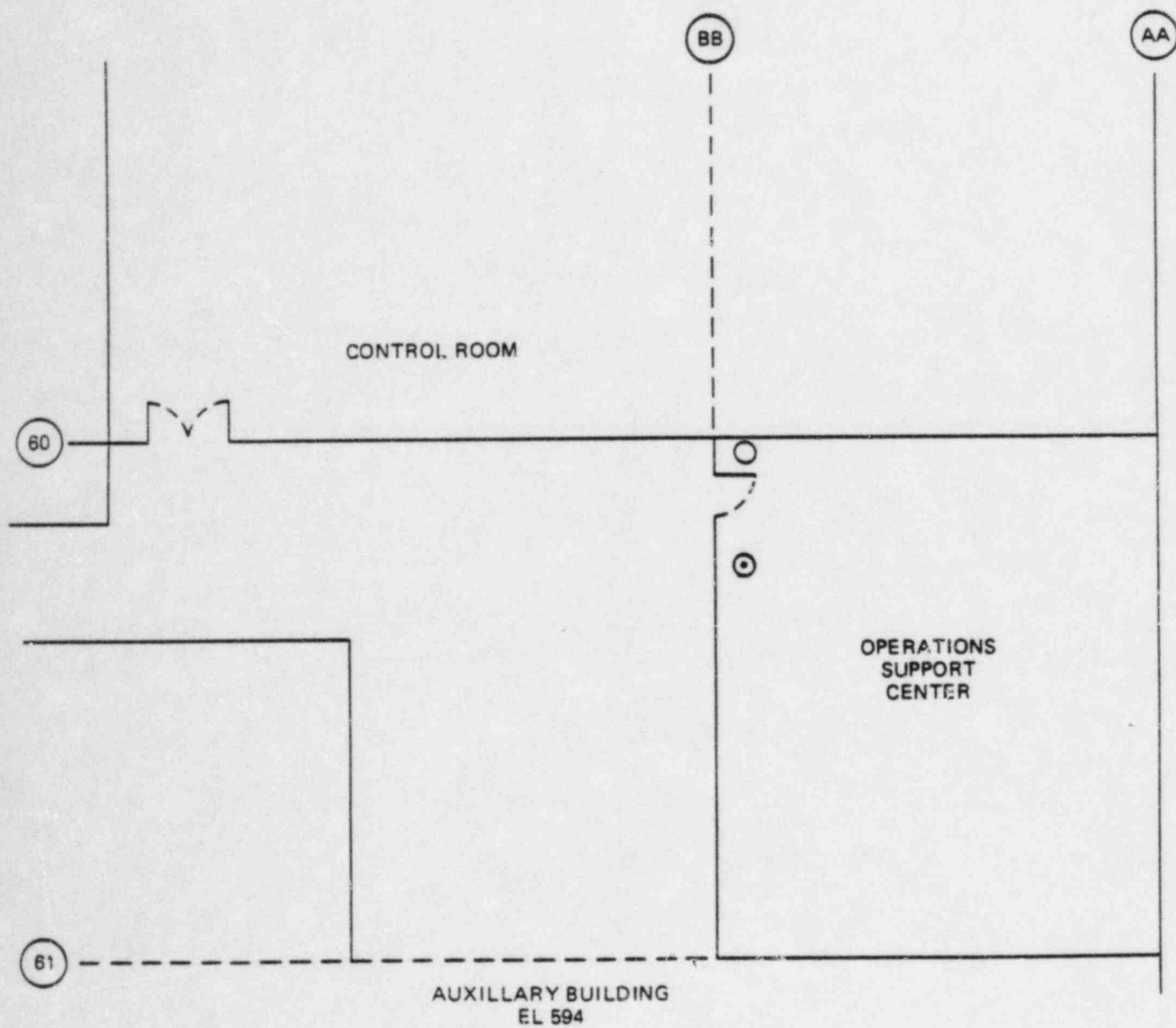


FIGURE H-3
PROTECTIVE EQUIPMENT AND SUPPLIES

<u>KITS</u>	<u>LOCATION</u>	
Recovery Kits (4)	Temporary Admin. Building Station Manager's Office	
Environmental Survey Kits (4)	Aux. Room 517-B	
Personnel Survey Kits (4)		
Construction Post #1	Construction Post #1	
Crisis News Center	Construction Meeting Room	
PAP Area	Security - PAP Area	
Evacuation Facility	Transmission Line Maintenance Warehouse	
Medical Decontamination Kit	Auxiliary Building First Aid Room	
Operations Support Center Kit	Operations Support Center	
Technical Support Center Kit	Technical Support Center	
Fuel Transfer Kit	Administration Building	
Environmental Survey Kit (Helicopter)	Auxiliary Building Room 517-B	

FIGURE H-4
RECOVERY KITS CHECKLIST

ITEM	AMOUNT
Eberline E-520 with HP-270 Probe	1
Low/High Range Dosimeters	2 each
TLD Badges	2
Dosimeter Charger	1
Boundary Ribbon or Rope (50 yd. roll)	1
Macking Tape (roll)	1
Rain Suits (set)	2
Protective Clothing (set)	2
Poly Bag (various)	12
Caution Signs w/inserts	2
Legal Pad	1
Smear Survey Form	5
Pens	2
Grease Pencil	1
Full Face Respirator With High Efficiency Filters	2
First Aid Kit	1
Potassium Iodide Tablets	475 Bottles - Transmission Line Maintenance Warehouse
Smears (Box)	1
NuCon Smears	30
Soap (Bar)	6
Flashlight	1
Batteries	4
Pocket Knife	1
Small Sample bottles	260
HP/O/B/1003/12	1
HP/O/B/1009/16	1

FIGURE H-5

ENVIRONMENTAL SURVEY KIT CHECKLIST

ITEM	AMOUNT
Eberline E-520 with HP-270 Probe	1
Eberline E-520 w/HP 210 Probe	1
RM-14 with HP-210	1
Sam-2 w/RD-22 Probe	1
Eberline PIC 6A	1
Emergency Radio Transmitter/Receiver	1
Radeco H809V Air Sampler	1
Gasoline Generator	1
Low/High Range Pocket Dosimeter	2 Each
TLD Badge	2
Dosimeter Charger	1
Full Face Respirator with High Efficiency Filter	2
Potassium Iodide Tablets (Bottle)	1
Protective Clothing (Full Set)	3
Poly Bags (Various Sizes)	6
Masking Tape (Roll)	1
Limnological Sampler	1
Cubitainers	6
1 Liter Wide Mouth Bottles	5
Stopwatch	1
Flashlight	1
Batteries	4
Silver Zeolite (CP-100G or GY-130) Filter Cartridges and Particulate Filters	50
Labels for Filter Cartridges	50
Smears (Box)	1
NuCon Smears	30
Smear Survey Form	10
Air Survey Form	10
Map of Ten Mile Zone Sectors	1
Legal Pad	1
HP/O/B/1009/18/04/16	1 Each

FIGURE H-5

ENVIRONMENTAL SURVEY KIT CHECKLIST (Cont'd)

ITEM	AMOUNT	
Pen	2	
Grease Pencil and Refills	1	
Dime Roll	1	
Pocket Knife	1	
Hand Spade	1	
HP/O/B/1003/02/05/12/17	1 Each	

FIGURE H-6

TECHNICAL SUPPORT CENTER KIT
CHECKLIST

ITEM	AMOUNT
Protective Clothing (Set)	6
Full Face Respirators With High Efficiency Filters	6
E-520 With HP-270 Probe	1
Eberline PIC-6A	1
Radeco H809V Air Sampler	1
High Range Dosimeter	6
Silver Zeolite (CP-100G or GY-130) Filter Cartridges and Particulate Filters	25
Labels for Cartridges	25
Dosimeter Charger	1
SAM-2 w/RD-22 Probe	1
Potassium Iodide Tablets (Bottle)	25
Boundary Ribbon or Rope (50 Yard Roll)	1
Caution Signs w/inserts	3
Rad Tape	2
Smears	30
Plastic Bags	6
Masking Tape (Roll)	1
Pen	2
Legal Pad	1
Grease Pencil	1
Flashlights	2
Batteries	8
Small Sample Bottles	10
HP/O/B/1003/02/05/12/17	1 Each
HP/O/B/1009/16	1
Tape Recorder	1
Blank Tapes	6
Batteries "AA"	3 pks.
Easel (dryerase)	1
Emergency Plan #21	1

FIGURE H-6 (Continued)

TECHNICAL SUPPORT CENTER KIT
CHECKLIST

ITEM	AMOUNT
Emerg. Plan Implementing Procedures Manual #1	1
CNS Evacuation Time Estimates	3
Crisis Management Plan #88	1
CMC Implementing Procedures #later	1
S.C. Radiological Emergency Response Plan #24	1
NRC Region II Incident Response Plan	1
INPO Emergency Resources Manual	1
Duke Emergency Action Plan, Hydroelectric Plants	1
City of Charlotte, Protective Response Plan	1
Duke Power Co. G.O. Telephone Directory	10
Crisis Management Data Transmittal System	1
Charlotte, N.C. Telephone Directory	1
Rock Hill, S.C. Telephone Directory	1
York, S.C. Telephone Directory	1
Fort Mill, S.C. Telephone Directory	1
Gastonia, N.C. Telephone Directory	1
Stapler	2
Staples	2 bxs.
Pens	3 bxs.
Paper Clips, small	10 bxs.
Paper Clips, large	10 bxs.
Jumbo Gem Clips	2 bxs.
Lined Pads, 8½ x 11	24
Steno Pads	12
Magic Markers, assorted	12
Ruler, metal	2
Pencils	4 bxs.
Scotch Tape with Holders	6
Erasers	6
Erasable Markers, assorted	12
Name Tags, blank	2 bxs. (500)

FIGURE H-7

OPERATIONS SUPPORT CENTER KIT
CHECK-OFF LIST

ITEM	AMOUNT
Protective Clothing (Set)	4
Full Face Respirators With High Efficiency Filters	4
Flashlights	4
Batteries	8
PIC 6-A	2
Camera (Polaroid)	1
Polaroid Film Packs	2
Masking Tape (Roll)	2
Dosimeters (High Range)	4
Dosimeter Charger	1
Rain Suits	4
Poly Bags	12
Batteries (Camera)	1
Flashbulbs (Camera)	8
Emergency Radio Transmitter-Receiver	1
HP/O/B/1003/05	

FIGURE H-8
PERSONNEL SURVEY KIT (4)
CHECKLIST

ITEM	AMOUNT
Count Rate Meter w/HP-210 Probe	2
Emergency Radio Transmitter/Receiver	1
Low/High Range Dosimeters	2 Each
TLD Badges	2
Dosimeter Charger	1
Full Face Respirator With High Efficiency Filter	1
Potassium Iodine Tablets (Bottle)	1
Protective Clothing (Full Set)	6
Boundary Ribbon or Rope (50 yd. roll)	1
Caution Signs w/inserts	4
Masking Tape (roll)	1
Poly Bags (various)	6
Smears (Box)	1
NuCon Smears	25
Smear Survey Form	10
Pens	2
Grease Pencil and Refills	1
HP/O/B/1009/05	1
Legal Pad	1
Pocket Knife	1
Station Directive 3.3.3	1
HP/O/B/1003/11	1
HP/O/B/1004/06	1
HP/O/B/1009/16	1

FIGURE H-9

MEDICAL DECONTAMINATION KIT CHECK-OFF LIST
(STATION)

ITEM	AMOUNT
Eberline RM-14 w/HP-260 Probe	1
Decon Cleaner	3
Disposable Towels	10
Poly Bags 20" x 40"	2
Poly Bags 12' x 18"	4
Fingernail Clippers	1
Smears	25
NuCon Smears	25
Hand Brushes	3
Hand Soap	10
Protective Clothing (Full Set)	4
Disposable Rain Suits	2
Tape, Radioactive Material	1
Tape, Masking 2"	1
Tape, Duct 2"	1
Smear Survey Forms	1
HP/O/B/1009/08	1
Swipes, Atomic (Kotex)	12
Citric Acid (1 lb.)	1
Pens	2
Legal Pad	1
PhisoHex (gal.)	1
HP/O/B/1003/11	1
HP/O/B/1004/06	1

FIGURE H-10

MEDICAL DECONTAMINATION KIT CHECK-OFF LIST
(HOSPITAL)

ITEM	AMOUNT
Eberline E-520 w/HP-270 Probe	1
Decon Cleaner	3
RM-14 w/Medical Probe	1
Disposable Towels	10
Poly Bags 20" x 40"	2
Poly Bags 12" x 18"	4
Fingernail Clippers	1
Smears	25
NuCon Smears	25
Hand Brushes	3
Hand Soap	10
Protective Clothing, Provided by Hospital	4
Disposable Rain Suits	2
Tape, Radioactive Material	1
Tape, Masking 2"	6
Tape, Duct 2"	6
Smear Survey Forms	4
HP/O/B/1009/08	1
Swipes, Atomic (Kotex)	36
Citric Acid (1 lb.)	1
Hair Clippers, Electric	1
Absorbent Paper	150
Caution Signs w/Inserts	5
Rad Rope	1
Pocket Dosimeters 0-500mR	10
HP/O/B/1003/11/12	1 each
HP/O/B/1004/06	1

FIGURE H-11

VERIFICATION OF EMERGENCY COMMUNICATIONS

This document shall serve as written verification that on the date below all telephone numbers and pages enclosed in Emergency Procedure RP/O/A/5000/02 through RP/O/A/5000/05, Station Directive 3.8.4 and Station Directive (later) are correct and in working order, and that all jack-in telephones in the Technical Support Center are in wroking order. (To be done quarterly.)

Signature/Date

Discrepancies Note: _____

Corrective Actions Taken: _____

FIGURE H-12
ENVIRONMENTAL SURVEY KIT CHECKLIST
(HELICOPTER)

ITEM	AMOUNT
Eberline PIC-6A	1
Eberline E-520 w/HP-270 Probe	1
Low/High Range Pocket Dosimeter	2 Each
TLD Badge	2
Dosimeter Charger	1
Full Face Respirator with High Efficiency Filter	2
Potassium Iodide Tablets (Bottle)	1
Stopwatch	1
Flashlight	1
Batteries	4
Map of Ten Mile Zone Sectors	1
Legal Pad	1
Pen	2
Dime Roll	1
HP/O/B/1009/18	1
HP/O/B/1003/05	1
HP/O/B/1003/12	1
HP/O/B/1009/16	1
HP/O/B/1009/04	1

FIGURE H-13

FUEL TRANSFER KIT CHECKLIST

ITEM	AMOUNT
Shoe Covers: Disposable (pair)	20
Rubber (pair)	6
Gloves: Disposable (bundle)	1
Surgeons (box)	1
Rubber (pair)	6
Coveralls: Disposable	4
Cloth	6
Disposable Hoods	4
Disposable Wet Suit	2
Hard Hat	3
Air-purifying Respirator	2
High Efficiency Filter ofr Respirator	8
Portable Air Sampler	1
Eberline E-520 w/HP-210 Probe	1
Eberline PIC-6A	1
Eberline E-520 w/HP-270 Probe	1
Silver Ziolite Cartridges and Particulate Filters	10
Lables for Filters and Cartridges	10
Potassium Iodide Tables (bottle)	40
TLD Badge and Dose Record Card	5
Low/High Range Dosimeter	5 Each
Dosimeter Charger	1
Weather-Proof Cautions Signs with Inserts	4
Radioactive Waste Signs (4" x 6")	25
Caution: Radiation/Radioactive Material Tags	12
50 yd. Roll of Barricade Tape (Magenta and Yellow)	4
Step Off Pads	3
Poly Bags (20" x 40")	12
Hand Gardening Spade	1
Wide Mouth Sample Bottles	4
Plastic Sample Bottles	12
Kimwipes (box)	2
NuCon Smears	100

FUEL TRANSFER KIT CHECKLIST

ITEM	AMOUNT
Copy of NAC-1 Drawings (prints)	1
Copy of Loading and Unloading Instructions	1
Duct Tape (roll)	2
Masking Tape (1" and 2" rolls)	1
Contact Pyrometer with Probe	2
Safety Glasses	5
Binoculars	1
Tool Kit	1
Batteries (9 volt)	2
Flashlight	2
Batteries	8
Steno Pad with 2 Mechanical Lead Pencils	1
Pencil Refills	1
Grease Pencils	2
All Purpose Marker	2
Scotch Tape Roll and Dispenser	1
Roll of Dimes	1
HP/0/B/1009/16	1
HP/0/B/1003/02	1
HP/0/B/1003/05	1
HP/0/B/1003/12	1

FIGURE H-14

PERSONNEL SURVEY KIT CHECKLIST
(EVACUATION FACILITY)

ITEM	AMOUNT
Count Rate Meter w/HP-210 Probe	2
Emergency Radio Transmitter/Receiver	1
Low/High Range Dosimeters	4 Each
TLD Badges	4
Dosimeter Charger	1
Full Face Respirator With High Efficiency Filter	4
Potassium Iodine Tablets (Bottle)	2
Small Sample bottles	3
Protective Clothing (Full Set)	6
Boundary Ribbon or Rope (50 yd. roll)	1
Caution Signs w/inserts	4
Masking Tape (roll)	1
Poly Bags (various)	6
Smears (Box)	1
NuCon Smears	25
Smear Survey Form	10
Pens	2
Grease Pencil and Refills	1
Legal Pad	1
Pocket Knife	1
Hand Soap	10
Hand Brushes	2
Atomic Swipes	12
Citric Acid (1 lb.)	1
Disposable Towels	1 Pk.
Fingernail Clippers	1
Disposable Coveralls	40
PhisoHex (qt.)	1
Station Directive 3.8.3	1
HP/O/B/1003/11	1
HP/O/B/1004/06	1
HP/O/B/1009/05	1
HP/O/B/1009/16	1

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE H-15

TLD LOCATIONS

This is a list of both existing and proposed TLD locations for Catawba Nuclear Station divided into three sections.

Existing TLD's are indicated by an asterisk (*).

Changes to the originally proposed TLD locations are underlined.

I. Site Boundary TLD's

<u>TLD No.</u>	<u>Sector</u>	<u>Degrees</u>	<u>Distance (mi.)</u>
222	N	358	.7
*200	NNE	14	.6
*201	NE	47	.5
*202	ENE	70	.6
223	E	90	.5
224	ESE	114	.7
*203	SE	128	.5
225	SSE	156	.5
226	S	180	.5
*204	SSW	202	.5
*205	SW	224	.3
227	WSW	250	.5
228	W	268	.6
*206	WNW	293	.7
229	NW	316	.9
*207	NNW	334	.8

II. 3-5 Mile Range TLD's

230	N	3	4.4
231	NNE	14	4.2
232	NE	46	4.1
233	ENE	71	4.0
234	E	81	4.5
235	ESE	129	4.0
236	SE	128	4.2
237	SSE	160	4.8
238	S	182	4.2
239	SSW	202	4.6
240	SW	226	4.1
241	WSW	250	4.7
242	W	270	4.6
243	WNW	299	4.6
244	NW	307	4.1
245	NNW	343	4.2

III. Special Interest Area TLD's

<u>TLD No.</u>	<u>Sector</u>	<u>Degrees</u>	<u>Distance (mi.)</u>
246	ENE	65	8.1 Carowinds Amusement Park
*212	ESE	103	2.7 Tega Cay, S.C.
247	ESE	111	7.5 Fort Mill, S.C.
248	SSE	164	8.2 York General Hospital
			Rock Hill, S.C.
*217	SSE	168	10.0 Rock Hill, S.C.
249	S	180	8.1 Northwestern High School
			Rock Hill, SC
250	WSW	244	10.3 York, S.C.
251	WNW	292	9.8 Clover, S.C.

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE H-16

AIR SAMPLE LOCATIONS (need key CPD-2)

<u>No.</u>	<u>&</u>	<u>Sector</u>	<u>Radius (Mi)</u>	<u>Description</u>
200		NNE	.7	Hwy 274-N, right Liberty Hill Rd. to end.
201		NE	.5	Left at Steam Production entrance, first paved left, next right, next left to end.
212		ESE	2.7	Hwy 49-N, right Hwy 160, right at Tega Cay sign (98) right before Tega Cay entrance into Duke Power Company substation.
217		SSE	10	Hwy 21-S out of Rock Hill, right on Hwy 72 - 121 Bypass, left on dirt road across from Wayne's Auto Service, go to Duke Power Company substation.
205		SW	.3	Behind Catawba Nuclear Station Overlook.

I. ACCIDENT ASSESSMENT

To assure the adequacy of methods, systems and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition.

I.1 Emergency Action Level Procedures

Emergency Action Level procedures have been established in accordance with NUREG 0654, Appendix 1. Figure D-1 through D-4 list the emergency action levels, initiating conditions, together with station parameters, FSAR accident conditions and established operating emergency procedures. The Emergency Plan Implementation Manual will be written to assist the station and the Technical Support Center in establishing control of emergency measures.

Emergency Response Procedure, RP/O/A/5000/01, Classification of Emergency, will identify the system parameter and effluent parameter values which can be used to determine the emergency condition.

I.2 Onsite Capability and Resources to Provide Initial Values and Continuing Assessment

I.2.a. Post Accident Sampling

Post accident sampling (liquid and gas), panels are being installed (will be operational before Unit 1 start-up) to provide the capability to promptly obtain and perform radio-isotopic and chemical analysis of reactor coolant and containment atmosphere samples under degraded-core conditions without excessive exposure. Duke Power Company Nuclear Station Post-Accident Containment Air Sampling System and Post Accident Liquid Sampling System Manuals provide a description of the Post Accident Sampling Systems. Catawba Procedures CP/O/A/8700/11, Chemistry Procedure for the Operation of the Post-Accident Liquid Sample System, and HP/O/B/1009/17, Nuclear Post-Accident Containment Air Sampling System Operating Procedure provide specific guidance for operation of sample equipment.

I.2.b. Radiation and Effluent Monitors

Radiological monitoring capabilities include process and effluent monitoring systems (FSAR 11.5); area monitoring system (FSAR 12.3.4); plus station portable monitoring instruments, laboratory counters and analyzers (FSAR 12.3.2), including emergency high-range instruments and air samplers.

In addition, Catawba has two (2) high range containment monitors and one (1) high range unit vent monitor.

I.2.c In-plant Iodine Instrumentation

Silver Zeolite radioiodine sampling cartridges are used at Catawba for sampling air when the presence of noble gases is suspected. Catawba Health Physics personnel are knowledgeable in the appropriate station procedures required and are trained in the equipment required to determine airborne iodine concentrations in the plant under all conditions. Procedures to determine airborne iodine concentrations will cover analyses to be done if counting room capabilities are not available.

I.3.a/I.3.b Method For Determining Release Source Term

Catawba Nuclear Station procedures HP/O/B/1009/04/06/07/12/13/14/15 are used in the TSC and/or CMC for the calculation of potential offsite doses based on a Design Basis Accident, release of primary coolant, or release of GAP activity situation scaled to actual containment monitor readings. Provisions for use of actual source terms exist in the procedures.

The magnitude of the release is based on actual effluent monitoring readings, plant system parameters (containment pressure), area meteorology and the duration of the release.

I.4 Effluent Monitor Readings Vs Onsite/Offsite Exposure

The procedures referenced in I.3.a/I.3.b establish the relationship between effluent monitor readings and onsite/offsite exposures and contamination for various meteorological conditions.

I.5 Meteorological Information Availability

Meteorological information will be available to the nearsite Crisis Management Center, the Technical Support Center, the Control Room through use of the Station Operator Aid Computer (OAC) and the VAX Computer System and by direct telephone communication. Meteorological information will be available to the NRC through the automated ringdown phone and by direct telephone communications with the individual responsible for making offsite dose assessments either at the Technical Support Center or the Crisis Management Center. See Figure I-1 for Catawba Plant Data and Status Information.

Meteorological information will also be given to both the county Emergency Operations Centers, the State of South Carolina and the State of North Carolina during initial and followup messages (where appropriate).

I.6 Release Rates/Projected Dose For Offscale Instrumentation

If instrumentation used for dose assessment are offscale or inoperable, Catawba will determine dose rates within the Reactor Building by procedure HP/O/B/1009/06 Alternative Method for Determining Dose Rate Within the Reactor Building.

I.7-I.8 Field Monitoring Within E.P.Z.

Field monitoring within the Catawba Emergency Planning Zone will be performed in accordance with HP/O/B/1009/04 Environmental Surveillance Following a Large Unplanned Release of Gaseous Radioactivity.

Five offsite field monitoring teams are comprised from station personnel and are under the direction of the Field Monitoring

Coordinator. Procedure HP/O/B/1009/04 describes the emergency kits, vehicles to be used, routes to be used, sampling and monitoring equipment to be used, locations of TLD's, directions for taking KI tablets and personnel that makeup the field monitoring teams.

An emergency radio system is available for the field monitoring teams to use to relay information to the TSC. The states and counties will be able to monitor the results of the field monitoring teams.

I.9 Detect and Measure Radioiodine Concentration in the EPZ

The Catawba Nuclear Station will use portable monitoring instrumentation with a range up to 1000 R/hr to determine dose rates. Air sampling results will be given in concentration of I-131 with a scaler and Sodium Iodide Detector being the instrument to determine the results of the air sample taken with the Portable Air Sampler equipped with a Silver Zeolite Cartridge and particulate filter.

Interference from the presence of noble gas and background radiation shall not decrease the minimum detectable activity of E-08 $\mu\text{Ci/cc}$ (microcuries per cubic centimeter) under field conditions.

These samples taken by the offsite monitoring teams will be evaluated further by one of the available laboratory facilities described in Section C.3 of the Crisis Management Plan. A multi-channel analyzer will be used to perform this evaluation.

I.10 Relationship Between Contamination Levels and Integrated Dose/Dose Rates

Procedure HP/O/B/1009/20, Estimate of Food Chain Dose Under Post Accident Conditions, provides a means for relating various measured parameters (e.g. contamination level, air and water activity) for key isotopes to dose rates.

I.11 Plume Tracking

The states of North Carolina and South Carolina have arrangements to locate and track an airborne plume of radioactive materials. Duke Power Company will have monitoring teams in the field, fixed TLD sites and the capability for airborne monitoring (Civil Air Patrol or private helicopter service) to assist in plume tracking.

UNIT: _____
PLANT STAT: _____

CATAWBA NUCLEAR STATION
PLANT DATA AND STATUS BOARD

DATE: _____
TIME: _____

A. PRIMARY SYSTEMS:

NC LOOP A HOT LEG TEMP*	_____	DEG F
NC LOOP B HOT LEG TEMP*	_____	DEG F
NC LOOP C HOT LEG TEMP*	_____	DEG F
NC LOOP D HOT LEG TEMP*	_____	DEG F
NC LOOP A COLD LEG TEMP*	_____	DEG F
NC LOOP B COLD LEG TEMP*	_____	DEG F
NC LOOP C COLD LEG TEMP*	_____	DEG F
NC LOOP D COLD LEG TEMP*	_____	DEG F
AVE INCORE T/C (5 HIGHEST)	_____	DEG F
NC SUBCOOLING MARGIN	_____	DEG F
NC SYSTEM PRESSURE*	_____	PSIG
PRESSURIZER PRESSURE	_____	PSIG
PRESSURIZER LEVEL	_____	%
NC VESSEL LEVEL*	_____	%
NC PUMP A STATUS:	_____	
NC PUMP B STATUS:	_____	
NC PUMP C STATUS:	_____	
NC PUMP D STATUS:	_____	
BORON CONCENTRATION	_____	PPM
SOURCE RANGE LEVEL	_____	CPS
INTERMEDIATE RANGE LEVEL	_____	MA
POWER RANGE LEVEL	_____	% FP

B. SECONDARY SYSTEMS:

S/G A LEVEL*	_____	%
S/G B LEVEL*	_____	%
S/G C LEVEL*	_____	%
S/G D LEVEL*	_____	%
S/G A STEAM PRESSURE	_____	PSIG
S/G B STEAM PRESSURE	_____	PSIG
S/G C STEAM PRESSURE	_____	PSIG
S/G D STEAM PRESSURE	_____	PSIG
S/G A FEEDWATER FLOW	_____	MPPH
S/G B FEEDWATER FLOW	_____	MPPH
S/G C FEEDWATER FLOW	_____	MPPH
S/G D FEEDWATER FLOW	_____	MPPH
S/G A AUX. FEED. FLOW	_____	GPM
S/G B AUX. FEED. FLOW	_____	GPM
S/G C AUX. FEED. FLOW	_____	GPM
S/G D AUX. FEED. FLOW	_____	GPM
PREVIOUS 15 MIN. STEAM RELEASE	_____	LBH

C. AUXILIARY SYSTEMS:

KV LETDOWN FLOW	_____	GPM
FWST LEVEL	_____	%
SNSWP LEVEL	_____	%
E1A VOLTS	_____	KV
E1B VOLTS	_____	KV

D. SAFETY INJECTION SYSTEMS:

CHARGING LINE FLOW CONTROL	_____	GPM
CENT. CHARGING PUMP A STATUS:	_____	
CENT. CHARGING PUMP B STATUS:	_____	
BORON INJECTION FLOW	_____	GPM
NI PUMP A STATUS:	_____	
NI PUMP B STATUS:	_____	
ND IIX A RETURN FLOW	_____	GPM
ND IIX B RETURN FLOW	_____	GPM
ND PUMP A STATUS:	_____	
ND PUMP B STATUS:	_____	

E. CONTAINMENT SYSTEMS:

CONTAINMENT PRESSURE	_____	PSIG
UPPER CONTAINMENT TEMP	_____	DEG F
CONTAINMENT SUMP LEVEL	_____	FT
CONTAINMENT H2 CONCENTRATION	_____	%
NS PUMP A STATUS:	_____	
NS PUMP B STATUS:	_____	

F. RADIATION SYSTEMS:

EMF 48 REACTOR COOLANT MONITOR	_____	CPM
EMF 53 CONT. HIGH RANGE MONITOR*	_____	R/HR
EMF 39 CONTAINMENT GAS MONITOR*	_____	CPM
EMF 54 UNIT VENT EXTENDED RANGE MONITOR	_____	R/HR
EMF 37 UNIT VENT IODINE MONITOR	_____	CPM
EMF 36 UNIT VENT GAS MONITOR*	_____	CPM
EMF 49 WASTE LIQUID MONITOR*	_____	CPM
EMF 17 REFUELING BRIDGE/REACTOR	_____	MR/HR
EMF XXX MAIN STEAM LINE MONITOR*	_____	%/HR

G. ENVIRONMENTAL SYSTEMS:

UPPER WIND SPEED	_____	MPH
LOWER WIND SPEED	_____	MPH
UPPER WIND DIRECTION	_____	DEG
LOWER WIND DIRECTION	_____	DEG
BAROMETRIC PRESSURE	_____	IN HG
AMBIENT AIR D/T 662 TO 762	_____	DEG F
AMBIENT AIR D/T 662 TO 712	_____	DEG F
AMBIENT AIR TEMP AT 662	_____	DEG F
DEW POINT	_____	DEG F
UNIT VENT FLOW RATE	_____	CFM
RL DISCHARGE FLOW	_____	GPM

*The Clerk/Technician will indicate Wide, Low, or High range as appropriate.

DUKE POWER COMPANY
Figure I-1
PLANT DATA AND STATUS INFORMATION

J. PROTECTIVE RESPONSE

To assure that a range of protective actions is available for the plume exposure pathway for emergency workers and the public Guidelines for choice of protective actions during an emergency, consistent with Federal guidance, are developed and in use, and that protective actions for the ingestion exposure pathway appropriate to the locale have been developed.

J.1.a-d Onsite Alerting and Notification

The means and time required to warn, alert and/or notify employees not having emergency assignments (non-essential), visitors, contractor and construction personnel and other individuals who may be on or passing through the Catawba Nuclear Station owner-controlled area are described in Catawba Station Directive 3.0.7, Site Assembly/Evacuation and Emergency Response Procedure RP/O/A/5000/10, Conducting a Site Assembly/Evacuation.

J.2 Evacuation Routes and Transportation

The Shift Supervisor uses station and local area maps, information available from meteorological tower instrument readouts and current radiological data for determining the evacuation route. Provisions for evacuation of onsite individuals include evacuation by private automobile via the permanent access road. The alternate evacuation route is via the Construction access road. In either case, personnel would then drive along State Road 1132 to the West (which is not in one of the prevailing wind directions) to SC Highway 274. Personnel would then drive either South approximately 5 miles and assemble at the Duke Power Company Transmission Line Maintenance Warehouse or North approximately 10 miles to the Duke Power Company Allen Plant. The relocation site will have decontamination and contamination control capability and equipment in the event of a Site Area or General Emergency. Evacuation by automobile requires 15 to 30 minutes depending on which Relocation Site is chosen. High traffic density is not considered in estimating evacuation times due to the relatively untraveled area selected for the site (FSAR Table 2.2.2-1).

J.3 Personnel Monitoring

Health Physics emergency personnel survey teams equipped with portable monitoring instruments will monitor employees, visitors, construction workers and vehicles for contamination at the Relocation Sites. Monitoring will be performed in accordance with procedure HP/O/B/1009/05 Personnel Monitoring for Emergency Conditions.

J.4 Site Evacuation Procedures - Decontamination/Non-Essential Personnel Criteria

Non-essential personnel will be evacuated from the plant site in the event of a Site Area or General Emergency. Provisions are made for the decontamination of vehicles and personnel at an offsite location if the situation should warrant.

J.5 Site Evacuation Procedures - Personnel Accountability

Within thirty minutes of a Site Assembly, all persons at the Catawba Nuclear Station can be accounted for and any person(s) determined to be missing from their assembly station, will be identified by name. Catawba Station Directive 3.0.7 provides for the accounting of personnel (onsite) continuously thereafter.

J.6 Protective Equipment - Breathing Apparatus, Protective Clothes, KI

Protective equipment and supplies will be distributed to and used by personnel remaining onsite or arriving onsite during the emergency to minimize the effects of radiological exposures or contamination. Protective measures to be utilized are as follows:

Individual Respiratory Protection - Respiratory protective equipment will be used when airborne radioactivity levels exceed the appropriate limits specified in 10CFR20, Appendix B.

Self-contained breathing apparatus will also be used in areas that are deficient in oxygen or when fighting fires. Respiratory protective equipment will be issued by Health Physics.

Individual Thyroid Protection - All efforts should be made to utilize respiratory protective equipment which is issued by Health Physics, to minimize ingestion and/or inhalation of radionuclides and to maintain internal exposure below the limits specified in 10CFR20, Appendix B. However, if an unplanned incident involves the accidental or potential ingestion or inhalation of radioactive iodine, Potassium Iodide Tablets (KI) are available for distribution by HP/O/B/1009/16. Distribution of Potassium Iodide Tablets in the Event of a Radio Iodine Release. KI tablets are kept in station emergency kits, see Section H.

personnel in this situation in coordination with Health Physics, to limit the thyroid uptake and subsequent dose within the limits specified in 10CFR20.

Use of Protective Clothing - Protective clothing will be issued when contamination levels exceed 1000 dpm/100 cm² beta-gamma and 20 dpm/100 cm² alpha of smearable contamination. Protective clothing items are located in the Change Rooms inside the Radiation Control Area, available for emergency use. Special fire-fighting protective clothing and equipment is available in the designated station supply storage area and will be issued by the Industrial Safety Supervisor or fire brigade personnel.

J.7 Protective Actions Recommendations

The Emergency Coordinator (Shift Supervisor or Station Manager) or the Recovery Manager shall be responsible for contacting the state and/or local governments to give prompt notification for implementing protective measures within the plume exposure pathway.

Protective Action Guides are adopted from EPA 520 and are shown as Figure J-2. A flowchart to aid the Emergency Coordinator in making Protective Action Recommendations is shown in Figure J-4.

See Crisis Management Plan, Section J.7, Page J-2.

J.8 Evacuation Time Estimates

An Analysis of Evacuation Time Estimates is available at the station and a summary of the Time Estimates is included in Appendix 4. The methods and assumptions used in the Analysis of Evacuation Time Estimates are in accordance with Appendix 4 of NUREG-0654, Rev. 1.

J.9 Implementing Protective Measures

See County and State Plans.

J.10 Implementation of Protective Measures for Plume Exposure Pathway

J.10a EPZ Maps

Figures J-1 and 2 describe the EPZ's, government jurisdictions, evacuation zones, transportation facilities and special facilities for Catawba Nuclear Station. Evacuation routes are displayed in Figure J-3.

J.10b EPZ - Population Distribution Maps

Figure J-1 describes the population distribution around Catawba by Emergency Planning subzone. The Catawba Nuclear Station FSAR describes the population distribution around Catawba by sector.

J.10.c EPZ - Population Alerting and Notification

As described in Appendix 3 of this plan, a system exists for alerting and notifying the population (resident and transient) within the EPZ areas. This system is activated by the county and state organization and includes the use of large fixed-site sirens and the Emergency Broadcast System. A back-up means of alerting and notification is described in the State and County Emergency Plans.

J.10.d EPZ - Protecting Immobile Persons

The state and county organization referenced in Section A of this plan have the capability to protect those persons whose mobility may be impaired. The State and County Plans provide for transportation from the person's location to a reception center or shelter.

J.10.e Use of Radioprotective Drugs For Persons in EPZ

The state and county organizations referenced in Section A of this plan have provisions for the use of Potassium Iodide (KI) for those persons who cannot be immediately evacuated from the EPZ in the event of an emergency. See State and County plans.

J.10.f Conditions For Use of Radioprotective Drugs

See County and State Plans.

J.10.g State/County Relocation Plans

See County and State Plans.

J.10.h Relocation Center Locations

See County and State Plans.

J.10.i Evacuation Route - Traffic Capacities

See County and State Plans.

J.10.j Evacuated Area Access Control

See County and State Plans.

J.10.k Planning For Contingencies in Evacuation

See County and State Plans.

J.10.l State/County Evacuation Time Estimates

The estimates shown in Appendix 4 are references in the County and State Plans.

J.10.m Bases For Protective Action Recommendations

The following considerations are made in determining protective action recommendations:

1. Dose projections are compared to EPA Protective Action Guides
2. Core, NC System and Containment conditions in relation to General Emergency EAL's
3. Evacuation Time Estimates are compared to Plume Arrival Time
4. State/Local Support Available in the Field
5. Plant Conditions (improving or degrading)
6. Bridge and Road Conditions
7. Weather Conditions

J.11 Ingestion Pathway Planning

See State of South Carolina and North Carolina FNF Plans.

J.12 Relocation Center - Registering & Monitoring

See County and State Plans

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE J-1

1980 POPULATION DISTRIBUTION
OF THE CATAWBA EPZ AND ZONES

<u>Zone</u>	<u>Vehicle- Owning</u>	<u>Non-Vehicle- Owning</u>	<u>Total</u>	<u>Transient Population</u>	<u>Special Facility Population</u>
Central, NC Portion	321	36	357	654	0
Central, SC Portion	<u>327</u>	<u>36</u>	<u>363</u>	<u>5,552</u>	<u>0</u>
Subtotal, 0 to 2 Miles	648	72	720	6,206	0
A-1	476	53	529	10,187	0
B-1	2,368	263	2,631	2,588	24
C-1	5,545	616	6,161	16,827	1,544
D-1	1,273	141	1,414	109	0
E-1	386	43	429	0	0
F-1	<u>2,316</u>	<u>257</u>	<u>2,573</u>	<u>1,582</u>	<u>364</u>
Subtotal, 0 to 5 Miles	13,012	1,445	14,457	37,499	1,932
A-2	4,354	484	4,838	4,073	2,862
B-2	8,794	977	9,771	46,826	3,094
C-2	40,468	4,496	44,964	0	21,031
D-2	8,252	917	9,169	0	4,023
E-2	4,461	496	4,957	0	2,820
F-2	2,390	265	2,655	650	0
F-3	<u>2,405</u>	<u>267</u>	<u>2,672</u>	<u>651</u>	<u>469</u>
TOTAL EPZ	84,136	9,347	93,483	89,699	36,231

Source: 1980 Census

FIGURE J-2
CATAWBA NUCLEAR STATION
PROTECTIVE ACTION GUIDES

Projected Dose (Rem) to the Population	Recommended Actions (a)	Comments
Whole body 1	No protective action required. State may issue an advisory to seek shelter and await further instructions or to voluntarily evacuate.	Previously recommended protective actions may be reconsidered or terminated.
Thyroid 5	Monitor environmental radiation levels.	
Whole body 1 to 5	Seek shelter and await further instructions.	
Thyroid 5 to 25	Consider evacuation, particularly for children and pregnant women. Monitor environmental radiation levels. Control access.	
Whole body 5 and above	Conduct mandatory evacuation of population in the predetermined area. Monitor environmental radiation levels and adjust area for mandatory evacuation based on these levels. Control access.	Seeking shelter would be an alternative if evacuation were not immediately possible.
Thyroid 25 and above		
Projected Dose (Rem) to Emergency Team Workers		
Whole Body 5	Control exposure of emergency team members to these levels except for lifesaving missions. (Appropriate controls for emergency workers, include time limitations, respirators and stable iodine.	Although respirators and stable iodine should be used where effective to emergency team workers, thyroid dose may not be a limiting factor for lifesaving missions.
Skin of Whole Body or Thyroid 30		
Extremities 75		
-VOLUNTARY ONLY-		
Whole Body 25	Control exposure of emergency team members performing lifesaving missions to this level. (Control of time of exposure will be most effective.)	
Skin of Whole Body or Thyroid 150		
Extremities 375		

(a) These actions are recommended for planning purposes. Protective action decisions at the time of the incident must take into consideration the impact of existing constraints.

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Dec. 1981

TABLE J-2 CONTINUED

PROTECTIVE AND RESTORATIVE ACTIONS FOR NUCLEAR
INCIDENTS RESULTING IN AIRBORNE RELEASES*

Nuclear Incident	Protection Phase			Restoration
	Approximate time of Initiation	0-4 hr.	4-8 hr.	> 8 hr.
(a) Puff Release -Gaseous or Gaseous and Particulate	1,2,3,4,5,	3,4,5,	3,4,5,6 7,8	9,10,11
(b) Continuous Release Gaseous or Gaseous and Particulate	1,2,3,4,5,	1,2,3,	1,2,3,4, 4,5	9,10,11

1. Evacuation (a) Puff release - less than 2 hours
2. Shelter (b) Continuous release - 2 hours or more
3. Access Control (c) Restoration phase may begin at any time as appropriate
4. Respiratory protection for emergency workers
5. Thyroid protection for emergency workers
6. Pasture control
7. Milk control
8. Food and water control
9. Lift protection controls
10. Reentry
11. Decontamination

With radioactive releases above PAG's per Table K-1

FIGURE J-2 (Continued)

Protective Action Guides for Thyroid Dose
Due to Inhalation from a Passing Plume

Population at Risk	Projected Thyroid Dose rem
General population	5 - 25 (a)
Emergency workers (lifesaving)	125
Lifesaving activities	(b)

- (a) When ranges are shown, the lowest value should be used if there are no major local constraints in providing protection at that level, especially to sensitive populations. Local constraints may make lower values impractical to use, but in no case should the higher value be exceeded in determining the need for protective action.
- (b) No specific upper limit is given for thyroid exposure since in the extreme case, complete thyroid loss might be an acceptable penalty for a life saved. However, this should not be necessary if respirators and/or thyroid protection for rescue personnel are available as the result of adequate planning.

FIGURE J-2 (Continued)

Protective Action Guides for Whole Body
Exposure to Airborne Radioactive Materials

Population at Risk	Projected Whole Body Gamma Dose (Rem)
General population	1 to 5 (a)
Emergency workers (lifesaving)	25

- (a) When ranges are shown, the lowest value should be used if there are no major local constraints in providing protection at that level, especially to sensitive populations. Local constraints may make lower values impractical to use, but in no case should the higher value be exceeded in determining the need for protective action.

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE J-3

EVACUATION ROUTES
LEADING OUT OF THE CATAWBA EPZ

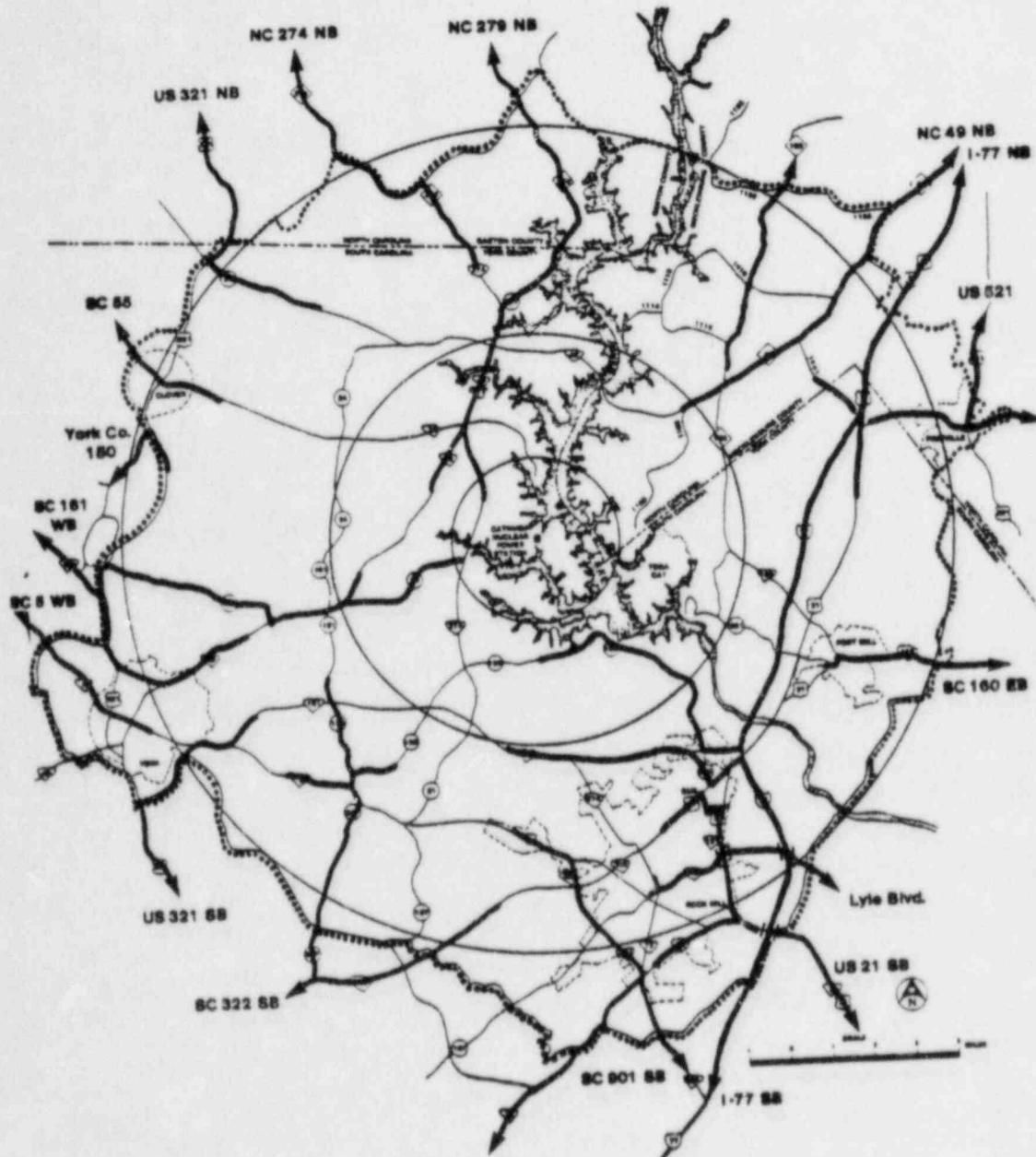
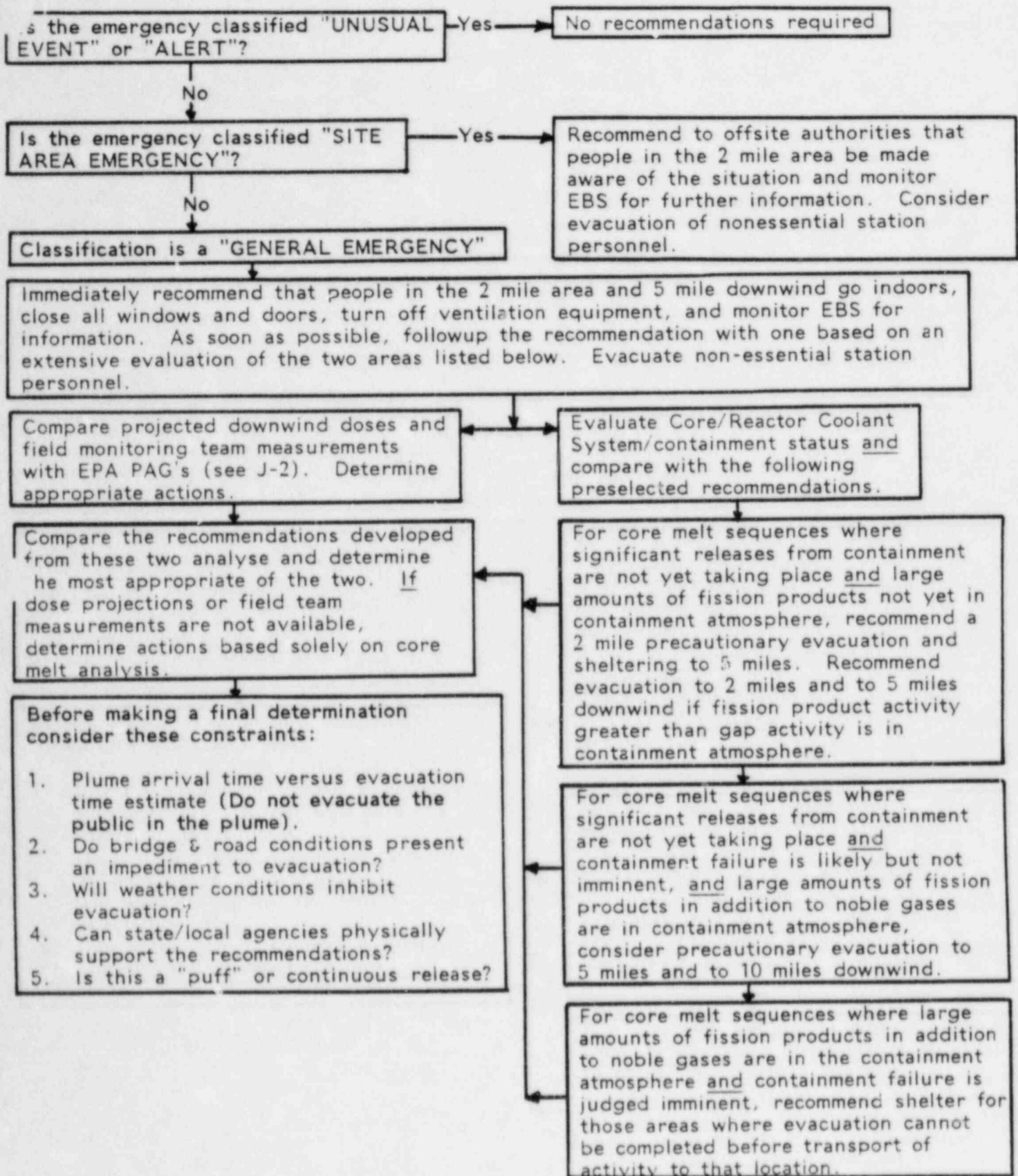


FIGURE J-4
CATAWBA NUCLEAR STATION
PROTECTIVE ACTION RECOMMENDATION FLOW CHART



K. RADIOLOGICAL EXPOSURE CONTROL

To assure that means for controlling radiological exposures in an emergency are established for emergency workers and the affected population.

K.1 Onsite Exposure Guidelines

Onsite exposure guidelines consistent with EPA Emergency Workers and Lifesaving Activity Protective Actions Guides have been established for the following categories:

- a. Removal of injured persons - Whole Body 25 Rem; Skin of Whole Body 150 Rem; or Extremities 375 Rem (Notes 1 & 3)
- b. Undertaking corrective actions - Whole Body 5 Rem; Skin of Whole Body 30 Rem; Extremities 75 Rem (Notes 2 & 3)
- c. Performing assessment actions - Whole Body 5 Rem; Skin of Whole Body 30 Rem; Extremities 75 Rem (Notes 2 & 3)
- d. Providing first aid - Whole Body 25 Rem; Skin of Whole Body 150 Rem; Extremities 375 Rem (Notes 1 & 3)
- e. Performing personnel decontamination - Whole Body 5 Rem; Skin of Whole Body 30 Rem; Extremities 75 Rem; (Notes 2 & 3)
- f. Providing ambulance service - Whole Body 5 Rem; Skin of Whole Body 30 Rem; Extremities 75 Rem (Notes 2 & 3)
- g. Providing medical treatment services - Whole Body 25 Rem; Whole Body 150 Rem; Extremities 375 Rem (Notes 1 & 3)

Note 1: If necessary to save lives or prevent loss of lives and/or extensive damage to property - VOLUNTARY BASIS ONLY.

Note 2: If necessary to remedy a situation immediately hazardous to life and property.

Note 3: Appropriate Respiratory-protective equipment must be used to prevent or minimize internal exposure in any Planned Emergency situation.

K.2 Doses in Excess of 10CFR Part 20

The Emergency Coordinator/Station Manager is responsible for authorizing emergency workers to receive doses in excess of 10CFR20 limits. An onsite radiation protection program shall be implemented during emergencies which shall be consistent with ALARA conditions. The station will be responsible for providing medical treatment and rescue efforts for life-saving missions. Station procedures are in place for expeditious decision making with reasonable consideration of the relative risks involved in a lifesaving mission involving radiation exposure.

K.3 Emergency Personnel Exposure and Records

K.3.a Distribution of Dosimetry

Provisions have been made for maintaining records of emergency personnel during a radiological emergency on a 24-hour per day basis. The Technical Support Center will provide a means for keeping track of exposure to personnel involved in a radiological accident. Distribution of dosimeters (self-reading and TLD badges) will be provided for all personnel.

Should any offsite agency respond to an emergency at the station during a nuclear emergency, dosimeters will be provided for their use to determine any exposure.

K.3.b Dose Records

The Technical Support Center through the Health Physics Support Coordinator in the Health Physics section shall have the responsibility of keeping records of the doses received by emergency personnel involved in any radiological accident. Normal operating procedures shall be followed for the use of dosimeters and the TLD badges. Distribution of the dosimeters and badges shall be through Health Physics.

K.4 See York County, Gaston County, Mecklenburg County, State of South Carolina and State of North Carolina FNF Emergency Plans.

K.5 Decontamination

K.5.a Action Levels For Determining the Need For Decontamination

Guidelines as established in the Systems Health Physics Manual will be used to determine action levels for decontamination. Pre-planning efforts have been established by the Surveillance and Control Coordinator.

K.5.b Radiological Decontamination

Catawba Station Directive 3.8.3 defines the specific action levels for determining the need for decontamination, the means for decontamination of emergency personnel, supplies, instruments and

equipment, and for waste disposal. Handling of contaminated injured personnel is described in station procedure HP O/B 1009 08 Contamination Control During Transportation of Contaminated Injured Individual.

K.6 Contamination Control Measures

- K.6.a Area Access Control - The plant site will be evacuated when station management declares a Site Evacuation and a potential threat exists for safety of non-essential personnel. Once the site has been evacuated, access to the plant will be limited by the Highway Patrol on the public highway and then Station Security will limit access to the plant except through established access capabilities.
- K.6.b Drinking Water and Food Supplies - Drinking water and food supplies can be brought in by private vendor if necessary. Arrangements will be made through the Crisis Management Center by the Administration and Logistics Manager.
- K.6.c Recovery efforts will be determined by the Crisis Management Organization.

K.7 Decontamination of Personnel at Relocation Assembly Area

Should non-essential plant personnel be evacuated from site to a relocation area, provisions for extra clothing and decontaminants suitable for any type of contamination have been made. At the relocation site, extra clothing and supplies have been placed there to take care of plant personnel.

Relocation assembly areas have been determined so that station personnel can be relocated to a safe site quickly and can be decontaminated (if necessary), monitored and released. Records will be made of the exposure of all personnel released from the relocation site. (Station procedures provide for emergency supplies to be provided at the offsite relocation assembly area.)

L. MEDICAL AND PUBLIC HEALTH SUPPORT

L.1 Hospital and Medical Support

Hospitals -

Piedmont Medical Center; Rock Hill, SC - (Agreement #1 App. 5)

Charlotte Memorial Hospital - (Agreement #2 App. 5)

Medical Support -

Local - Piedmont Emergency Medicine Associates (Agreement #9)

Backup - (Consultation - Physician on call 24 hours per day

Oak Ridge National Lab Hospital, Oak Ridge, Tennessee)

L.2 Onsite First-Aid Capability

The onsite medical facilities include two First Aid areas and a bioassay facility. One First Aid facility, located on the first floor of the Nuclear Production Office Building, is used for the treatment of persons injured in accidents or emergencies not involving radioactive contamination. This facility is equipped with a sink, a treatment chair, lavatory, a wheeled stretcher, a resuscitator, and medical/first aid supplies. The second First Aid area, located in the Auxiliary Building near the Health Physics office area, is used for treatment of persons injured in accidents or emergencies involving radiological contamination. This facility has a decontamination area with a shower, a treatment table and medical/first aid supplies.

The bioassay facility, located in the Administration Building, is used in emergencies to determine if personnel have inhaled or ingested radioactive materials, or if such materials have entered wounds or been absorbed through the skin. The bioassay facility is equipped with a shielded body-burden analyzer and a thyroid-burden analyzer; liquid scintillation counting capabilities for tritium analyses are available in the Health Physics area and laboratory in the Radiation Control Area.

L.3 Public, Private, Military Hospitals; Emergency Medical Facilities

See State of South Carolina and State of North Carolina FNF Plans.

L.4 Transport of Accident Victims

Catawba Nuclear Station has an agreement (App. 5 Agreement #1) with the Piedmont Medical Center to provide transportation for any medical emergency patient (may or may not be contaminated).

If contaminated, efforts will be made to decontaminate the victim before transportation as long as the decontamination does not obstruct the medical attention given the victim or cause an unnecessary delay in transporting. During transportation Health Physics department personnel will accompany the victim and prevent the further spread of contamination using procedure HP/O/B/1009/08 "Contamination Control During Transportation of Contaminated Injured Individual".

Any item(s) found to be contaminated after the treatment of a contaminated patient at the Piedmont Medical Center or any other medical facility will be decontaminated or replaced by Duke Power Company.

M. RECOVERY AND REENTRY PLANNING AND POSTACCIDENT OPERATIONS

M.1 Reentry/Recovery Plans and Procedures

In any plant emergency involving radioactive contamination or other emergency condition, the immediate action is directed to limiting the consequences of the incident in a manner that will afford maximum protection to the public. Once the immediate protective actions have established an effective control over the incident, the emergency actions will shift into the recovery phase. The Recovery Manager at the Crisis Management Center will inform members of the response organization that a recovery operation is to be initiated and inform them of any changes in the organization that may occur. Implementation of Recovery Operations would occur as follows:

1. Termination of General Emergency or Site Emergency
2. Deescalation to Non-Emergency Condition
3. Activation of Recovery Organization

The Emergency is not considered to be over until Duke Power, NRC and the states agree that the public is afforded comparable safety assurance to that which exists during periods of normal station operation. Specifically:

1. Radiation levels in station areas are stable or decreasing with time.
2. Releases of radioactive materials to the environment from the station are under control or have ceased.
3. Any fire, flooding or similar emergency conditions are controlled or have ceased.

Public officials are kept informed of recovery plans so that they can properly carry out their responsibilities to the public.

Periodic briefings of media representatives are held to inform the public of recovery plans and progress made.

Periodic status reports are given to company employees at other locations and to government and industry representatives.

M.1.a Outline of Station Recovery Plans

1. Review all available radiation survey data.
2. Determine station areas potentially affected by radiological hazards.

3. Review radiation exposure history of all personnel scheduled to participate in recovery operations. Determine the need for additional personnel.
4. Review the adequacy of radiation survey equipment available. Determine the need for additional equipment and a source of procurement.
5. Pre-plan team activities, including areas to be surveyed, anticipated radiation levels, survey equipment required, protective clothing requirements, access control procedures, exposure control procedures and communication capabilities.
6. Conduct comprehensive radiation survey of station facilities and define all radiological problem areas.
7. Isolate and post with appropriate warning signs all "high radiation areas" and areas of contamination.
8. Perform visual inspection of station areas and equipment.
9. All radiological conditions discovered and existing in the facility as determined by the re-entry survey will be evaluated by station management.
10. Upon evaluation of the radiological condition, station management will determine what procedures are required to restore the site to a normal status.
11. Personnel radiation exposure will be closely controlled and documented.
12. Recovery coordinators will take appropriate actions to ensure that emergency personnel and equipment leaving the Radiation Control Area are not contaminated, that radiological conditions at the scene of the emergency are properly defined, barricaded and posted with appropriate signs.

See Crisis Management Plan Section M.3

M.2 Recovery Organization

The Recovery Organization will be handled by the Recovery Manager. The Station, through the Station Manager, will act as liaison with the Recovery Organization. Group Superintendents and supervisory personnel will interface with recovery operations as necessary and as warranted.

M.3 Information to Members of Recovery Organization

See Crisis Management Plan Section M.3.

M.4 Total Population Exposure Estimates

The Offsite Radiological Coordination Group (or its successor in Recovery/ Reentry Operations) will periodically update the estimate of total population exposure. See Crisis Management Plan, Section M.4. |

N. EXERCISES AND DRILLS

N.1.a Exercises

Catawba Nuclear Station will conduct an emergency exercise once a year in accordance with the Crisis Management Plan Section N.1.a and Catawba Procedure PT/O/B/4600/06, Emergency Exercise. The exercise will either be a "full-scale" or "small-scale" as defined in 10CFR Part 50, Appendix E and will involve the Crisis Management organization, Local counties, the State (SC & NC) emergency organization and when possible, Federal agency involvement.

N.1.b Exercise Scenario/Response

See Crisis Management Plan Section N.1.a/N.1.b.

N.2. Drills

Drills shall be conducted to test, develop and maintain skills in a particular operation. Drills may be a component of an exercise. Drills will be conducted and evaluated by a designated drill conductor. Drills will be held in accordance with the following frequency:

N.2.a Communications Drills

Communication drills are conducted monthly with the states of North and South Carolina and with York, Mecklenburg and Gaston counties.

Quarterly communications drills will be held with Federal Response Organizations (NRC, DOE) and states within the injection pathway.

Communications between the station, state and local emergency operations centers, and field assessment teams shall be tested annually, during the emergency exercise.

N.2.b Fire drills shall be conducted in accordance with Station Directive 2.12.3, Fire Brigade Training.

N.2.c A medical emergency drill involving a simulated contaminated individual which contains provisions for participation by the local ambulance service shall be conducted annually. The offsite portion of the medical drill may be performed as part of the required annual exercise.

N.2.d Station environs and radiological monitoring drills (onsite and offsite) shall be conducted annually. These drills shall include collection and analysis of air samples.

- N.2.e Health Physics drills shall be conducted semi-annually which involves response to and analysis of, simulated elevated airborne and liquid samples and direct radiation measurements in the environment. Analysis of in-plant liquid samples with actual radiation levels shall be included in Health Physics drills.

NOTE: Due to ALARA considerations actual elevated samples will not be used in drills.

N.3. Exercise and Drill Execution

See Crisis Management Plan Section N.3.

N.4. Exercise Critique

See Crisis Management Plan Section N.4.

N.5. Critique Action Items

See Crisis Management Plan Section N.5.

0. RADIOLOGICAL EMERGENCY RESPONSE TRAINING

0.1 Offsite Agency Training

0.1.a Site specific emergency response training for those offsite emergency organizations who may be called upon to provide assistance in the event of an emergency will be in accordance with the program outlined in Figure 0-1.

0.1.b Offsite Support Agency - Participation in Training

Offsite Agencies that participate in the Catawba Emergency Plan receive training and annual retraining as per Figure 0-1, this training is given by station personnel and documented on Duke Power Company forms.

0.2 Onsite Organization Training

The training program for members of the onsite emergency organization is outlined in Figure 0-2. A practice drill session will be held for each group within the organization to allow the individuals to perform their assigned functions. The drill instructor will make on the spot corrections and/or demonstration of the proper performance.

0.3 First Aid Training

Red Cross Multi-Media training is given to first aid teams.

0.4 Training For Radiological Emergency Response Personnel

Training of the following groups will be necessary to insure that all organizations and responding agencies are kept current on Catawba Nuclear Station's Emergency Plan. The Emergency Preparedness Coordinator, Health Physics Section and the Training and Safety Section will provide training to the following groups:

- a. Directors and Coordinators of Response Organizations
- b. Personnel Responsible for Accident Assessment
- c. Radiological Monitoring Teams
- d. Police, Security and Fire Fighting Personnel
- e. Repair and Damage Control Teams
- f. First Aid and Rescue Personnel
- g. Local Support Services Personnel
- h. Medical Support Personnel

- i. General Office Support Personnel - Training provided by Corporate Emergency Preparedness Coordinator as per Crisis Management Plan
- j. Personnel Responsible for Transmission of Emergency Information and Instructions

0.5 Retraining of Radiological Emergency Response Personnel

Individuals initially trained in 0.1 through 0.4 above will receive annual retraining. To ensure cost efficient training at least 90% of the initial group must be retrained annually.

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE O-1

EMERGENCY RESPONSE TRAINING PROGRAM

OFFSITE SUPPORT AGENCY TRAINING

Section

- | | |
|-------|-----------------------|
| O-1.1 | Fire Support |
| O-1.2 | Medical Support |
| O-1.3 | Government Support |
| O-1.4 | Local Law Enforcement |

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE O-1.1
EMERGENCY RESPONSE TRAINING PROGRAM

Fire Support Outline

- PURPOSE: The purpose of Emergency Response Training is to provide specific guidance to members of offsite fire support agencies who could be asked to respond to an emergency situation at Catawba Nuclear Station.
- OBJECTIVES: Upon completion of this training, all participants will be able to:
1. Name the four (4) classes of emergencies used at a nuclear station and indicate their order of severity.
 2. Briefly describe the station's emergency organization using the concepts of:
 - A. The Control Room
 - B. The Technical Support Center
 - C. Fire Brigade
 - D. Station Security
 3. State how access, to the facility, is gained in an emergency.
 4. Briefly describe the means used to protect an individual from radiological hazards associated with a nuclear station, using the concepts of:
 - A. Personal dosimetry
 - B. Protective clothing and respirators
 - C. Body burden analysis
 - D. Health Physics monitoring
 5. Name the exposure limits used by the federal government to protect individuals from overexposure to radiation.
 6. Locate and demonstrate how to operate fire protection system hydrants at the nuclear station.
 7. Briefly describe several fire protection systems used at the nuclear station to extinguish fires, specifically:
 - A. Main Fire Protection System
 - B. Sprinkler System
 - C. Halon Gas System
 - D. Carbon Dioxide

8. State briefly what he/she feels will be required of the offsite fire agency in the event of a fire at the nuclear station.

PARTICIPATION: Members of the volunteer fire department specified by agreement letters contained in the Catawba Nuclear Station Emergency Plan.

FREQUENCY: Annual

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE O-1.2
EMERGENCY RESPONSE TRAINING PROGRAM

Medical Support Outline

- PURPOSE: The purpose of Emergency Response Training is to provide specific guidance to individuals who provide offsite medical support services in the event of an emergency situation at Catawba Nuclear Station.
- OBJECTIVES: Upon completion of this training, all participants will be able to:
1. Name the four (4) classes of emergencies used at a nuclear station and indicate their order of severity.
 2. Briefly describe the station's emergency organization using the concepts of:
 - A. The Control Room
 - B. The Technical Support Center
 - C. Station Safety and Medical
 - D. Health Physics
 - E. Station Security
 3. State how access, to the facility, is gained in an emergency and locate where the expected pick up points will be for ambulance drivers and attendants who respond to the station only.
 4. Describe the means used to protect an individual from radiological hazards associated with treating a contaminated and injured individual, using the concepts of:
 - A. Personal dosimetry
 - B. Protective clothing
 - C. Body burden analysis
 - D. Health Physics monitoring
 5. Describe methods used to prevent the spread of contamination and the means available to decontaminate both the victim and the medical responder.
 6. Name the exposure limits used by the federal government to protect individuals from overexposure to radiation.
 7. Briefly describe the contents of the emergency medical kit used to treat the victim and prevent spread of contamination.

8. Explain the plan used at the offsite medical facility for controlling the spread of contamination while providing medical treatment to the injured, specifically:
 - A. How the nuclear station's procedures interact with those of the medical facility.
 - B. Who will be in charge at the medical facility.
 - C. What areas of the medical facility will be used.
 - D. How will the medical facility be returned to a normal status when treatment is over.
9. State briefly what he/she feels will be required of the offsite medical support personnel in the event of a contaminated injured individual being transported to the offsite medical facility.

PARTICIPATION: Employees of the offsite medical facilities who are specified by agreement letter in the Catawba Nuclear Station Emergency Plan.

FREQUENCY: Annual

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE O-1.3
EMERGENCY RESPONSE TRAINING PROGRAM

Government Support Outline

PURPOSE: The purpose of Emergency Response Training is to provide specific guidance to members of the county Emergency Operations Center who could be asked to respond to an emergency situation at Catawba Nuclear Station.

OBJECTIVES: Upon completion of this training, all participants will be able to:

1. Identify the following terms associated with a nuclear power plant:
 - A. Fission
 - B. Containment
 - C. Primary Coolant System Components:
 - 1) Reactor Core
 - 2) Reactor Coolant Pump
 - 3) Steam Generator
 - 4) Pressurizer Components
 - 5) ECCS
 - D. Secondary System Components:
 - 1) Turbine
 - 2) Generator
 - 3) Condenser
 - 4) Cooling Tower
 - 5) Switchyard
2. Name the four (4) emergency classes used at nuclear stations and state how the emergency class is determined.
3. Briefly describe the station's emergency organization using the concepts of:
 - A. The Control Room
 - B. The Technical Support Center
 - C. The Emergency Coordinator
 - D. The Offsite Communicator
 - E. The Crisis Management Organization
 - F. The Recovery Manager
 - G. The Special Assistance Coordinator
4. Explain the use of the standardized message form, stating how the message is authenticated and how often they are to receive updates from the station or CMC.

5. Identify the following terms associated with radiation protection:

A. Radiation

- 1) RAD
- 2) REM
- 3) Dose
- 4) Dose Rate

B. Radioactivity

- 1) Curie
- 2) Micro Curie

C. Radioactive Release

- 1) Type
- 2) Source

D. Meteorological Data

- 1) Wind speed
- 2) Wind direction
- 3) Stability class

E. Dose Conversion Factor

6. Name the individual who is authorized to make recommendations based on EPA's Protective Action Guide and briefly detail how these recommendations are determined.

7. Name the sources of communication available to the station or CMC.

PARTICIPATION: Members of the County EOC staff specified by agreement letter in the Catawba Nuclear Station Emergency Plan.

FREQUENCY: Annual

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE O-1.4
EMERGENCY RESPONSE TRAINING PROGRAM

Local Law Enforcement Agency

PURPOSE: The purpose of Emergency Response Training is to provide specific guidance to members of local law enforcement agencies who could be asked to respond to an emergency situation at Catawba Nuclear Station.

OBJECTIVES: Upon completion of this training, all participants will be able to:

1. Name the four classes of emergencies used at a nuclear station and indicate their order of severity.
2. Briefly describe the station's emergency organization using the concept of:
 - A. The Control Room
 - B. The Technical Support Center
 - C. The Emergency Coordinator
 - D. Station Security
3. State how access, to the facility, is controlled during an emergency.
4. Describe the property owned by Duke Power Company known as Catawba Nuclear Station, using the terms:
 - A. Owner Controlled Area
 - B. Protected Area
 - C. Vital Area
5. Identify the following terms associated with security at a nuclear power plant:
 - A. PAP
 - B. SAS/CAS
 - C. Intrusion Detection System (Microwave)
 - D. CAD
 - E. VAP
6. Explain the use of the standardized message form, stating how the message is authenticated and how often they are to receive updates from the station.
7. Describe the Alerting and Notification System used to warn the residents living/working in the 10-mile EPZ around the station, supplying the following information:
 - A. Purpose of siren system
 - B. How the sirens are activated

- C. How EBS is activated
- D. When would the system be used

PARTICIPATION: Law enforcement officers who are involved in the receipt of information or control of traffic in the counties surrounding Catawba Nuclear Station.

FREQUENCY: Annual

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE O-2

EMERGENCY RESPONSE TRAINING PROGRAM
PHASE III
ONSITE EMERGENCY ORGANIZATION TRAINING

Section

O-2.1	Overview
O-2.2	Emergency Coordinator - Protective Action Recommendations
O-2.3	Health Physics Monitoring Teams
O-2.4	Information Transmission to Offsite Agencies
O-2.5	Dose Calculation and Projections - Dose Assessment
O-2.6	Plant Data Transmission/Retrieval

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE O-2.1
EMERGENCY RESPONSE TRAINING PROGRAM

Overview Outline

PURPOSE: The purpose of Emergency Response Training is to provide specific guidance to members of the Catawba Nuclear Station Emergency Organization on the overall Crisis Management Philosophy of Duke Power Company and their roles in an emergency situation.

OBJECTIVES: Upon completion of the training, the trainees will be able to:

1. Name and briefly describe the four emergency classes and state how initiating conditions and emergency action levels are used to determine the Emergency Class.
2. Describe the nuclear station emergency organization and how it is activated.
3. Describe the TSC and OSC concerning communication capabilities, data display/transfer means and protective features.
4. Describe the Crisis Management organization and state how it is activated and how it relates to the station's emergency organization.
5. Name the offsite agencies that may be called upon to respond in an emergency.
6. Describe the public alerting/notification and shelter system.
7. Describe the 10 mile EPZ around Catawba Nuclear Station and the 50 mile IPZ.
8. State the means of access to the facility during an emergency.

PARTICIPATION: Technical Support Center and other Emergency personnel as identified in Station Directive 2.5.2.

FREQUENCY: Initial training to be given to all participants sufficient to establish thorough knowledge of emergency actions to ensure safety of the public. Annual retraining will be required for participation.

ONSITE EMERGENCY RESPONSE PERSONNEL
OVERVIEW OUTLINE

- I. Introduction
 - A. Purpose of Training
 - B. Frequency of Training
- II. Emergency Classification
 - A. Four Emergency Classes
 - B. Initiating Conditions
 - C. Emergency Action Levels (EAL's)
 - D. Notification/Activation
- III. Nuclear Station Emergency Organization/Facilities
 - A. Station Organization
 - B. Emergency Coordinator
 - C. Emergency Facilities
- IV. Crisis Management Organization
 - A. CMO Structure
 - B. CMC Facilities
 - C. Interfaces
- V. Offsite Agencies
 - A. North Carolina and South Carolina
 - B. Counties
 - C. Federal
 - D. Other
- VI. Public Alert/Notification
 - A. Regulatory Requirements
 - B. Alerting Methods
 - C. Notification Methods
 - D. Sheltering
- VII. Emergency Planning Zones/Ingestion Pathway Zone
 - A. Brochure Review
 - B. Special Area
- VIII. Access During Emergencies
 - A. State Access Control
 - B. Company Access Control

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE O-2.2
EMERGENCY RESPONSE TRAINING PROGRAM

Emergency Coordinator Outline

- PURPOSE: The purpose of Emergency Response Training is to provide specific guidance to members of the Catawba Nuclear Station Emergency Organization assigned as Emergency Coordinators, in making Protective Action Recommendations.
- OBJECTIVES: Upon completion of the training, the trainer will be able to:
1. Describe the FPA Protective Action Guides for the protection of the general public and for emergency workers.
 2. State the means used to protect the public in an emergency.
 3. Name the agencies of state and local governments who have the authority to implement offsite protective actions.
 4. State how recommendations for protective actions are derived and what considerations are applied before the recommendation is made from the station.
 5. Describe the CNS Evacuation Time Estimates and state how they affect recommendations to offsite agencies.
 6. Name the sites for relocation of evacuated station personnel and describe the procedure for directing a Site Evacuation.
 7. State how Potassium Iodide tablets would be used to protect plant personnel and how they would be administered.
- PARTICIPANTS: Station Manager, Group Superintendents, Operating Engineers, Assistant Operating Engineers, Shift Supervisors and Assistant Shift Supervisors as identified in Station Directive 2.5.2.
- FREQUENCY: Annual

EMERGENCY COORDINATOR - PROTECTIVE ACTION GUIDE OUTLINE

- I. Introduction
 - A. EPA-520
 - B. Authority for Protective Action Recommendations
- II. Protective Measures for Public
 - A. Sheltering
 - B. Evacuation
 - C. Special Cases
 - D. Alerting and Notification
 - 1. Sirens
 - 2. Emergency Broadcast System
 - 3. Tone Alert Radios
 - E. Agencies with Authority for Implementation
- III. Procedure for Making Protective Recommendations
 - A. Dose Assessment/Projections
 - B. Containment Conditions
 - C. Factoring In Conditions
 - 1. Time Estimates
 - 2. Weather
 - 3. Puff vs. Continuous Release
 - D. Warning Message
 - 1. Format
 - 2. Authentication
- IV. Protective Measures for Plant Personnel
 - A. Site Assembly/Accountability
 - B. Site Evacuation
 - 1. Relocation Sites
 - 2. Evacuation Coordinator
 - C. Respirators
 - D. Potassium Iodide (KI)

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE O-2.3

Emergency Response Training Program
Health Physics Monitoring Teams (Offsite)
Outline

- PURPOSE: The purpose of this speciality program is to ensure that Health Physics or other personnel assigned to offsite monitoring teams are familiar with equipment and special monitoring/sampling technique during an emergency.
- OBJECTIVES: Upon completion of this training, the trainee will:
1. Understand their position and role in the Crisis Management Plan.
 2. Understand the notification procedure and subsequence actions before starting field monitoring operations.
 3. Have conducted an in-depth review of Field Monitoring Team (FMT) procedures for environmental monitoring.
 4. Have conducted a review of Field Monitoring Emergency Kits and equipment and their application in the field under various conditions.
 5. Have conducted "hands-on" operation of power operated equipment and discussed possible problems that may occur with the equipment.
 6. Have conducted review of radio procedure and practice communicating with portable radios.
 7. Have conducted practice exercises actually doing field monitoring and communication results back to a mock TSC.
- PARTICIPANTS: Station personnel assigned Field Monitoring responsibilities.
- FREQUENCY: This training will be provided on an annual basis.

EMERGENCY RESPONSE TRAINING

Health Physics Monitoring Teams (Offsite) Presentation

General Outline

I. Introduction

A. Purpose of the Training

1. Maintain Emergency Preparedness
2. Regulatory Requirement

General Outline (Continued)

II. Review Crisis Management Organization

- A. Review Offsite Radiological Coordinator Group
- B. Review Field Monitoring Organization and Emergency Role

III. Preparing for Field Monitoring

- A. Review of Notification Procedure
- B. Review of actions before starting field monitoring

IV. Review Field Monitoring Team Procedures

- A. Review HP/O/B/1009/04 Environmental Surveillance Following a Large Uncontrolled Release of Radioactivity
- B. Review and understanding of 10 mile radius map.

V. Review of Field Monitoring Kit Contents

- A. Item by item explanation of kit contents
- B. Use of equipment in times of adverse weather or high radiological conditions.

VI. "Hands-on" Equipment

- A. Operation of Equipment
 - 1. Electric Generator
 - 2. Portable MCA or SAM-2
 - 3. Portable Instruments
 - 4. Air Sampler
 - 5. FM Radio

VII. Radio Procedure

- A. Review of radio procedure specific to Catawba Nuclear Station
- B. Practical exercise in communicating with FM radio.

VIII. Practical Exercise in Field Monitoring

- A. Dispatch FMT's to various locations and practice field monitoring and communicating.

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE O-2.4
EMERGENCY RESPONSE TRAINING PROGRAM

Information Transmission to Offsite Agencies Outline

- PURPOSE: The purpose of Emergency Response Training is to provide specific guidance to members of the Catawba Nuclear Station Emergency Response personnel assigned to relay information to offsite agencies during an emergency.
- OBJECTIVES: Upon completion of the training, the trainee will be able to:
1. Demonstrate his/her familiarity with the forms used in transmitting information offsite by explaining what type of information they contain, where it is derived and why it is being transmitted.
 2. Describe the organizations or agencies that he/she may be transmitting the information to during an emergency.
 3. State how messages are authenticated.
 4. Describe the various methods available to communicate the information offsite.
 5. Explain the message release procedure and how to control the message forms once they have been used.
 6. Demonstrate the use of good communications practices in relaying accurate information.
- PARTICIPANTS: Station Operations personnel and the Offsite Communicators identified in Station Directive 2.5.2.
- FREQUENCY: Annual

Onsite Emergency Response Personnel
Information Transmission to Offsite Agencies Outline

I. Introduction

- A. Purpose of Training
- B. Frequency of Training

II. Use of Initial Message Format

- A. Format Layout
- B. Real Emergency/Exercise Message
- C. Initial Message
- D. Authentication Information
- E. Emergency Class
- F. Initiating Event
- G. Emergency Condition Involvement
- H. Protection Action Recommendation

III. Use of Follow-up Message Format

- A. Form Layout
- B. Review Information to be Provided
- C. Frequency
- D. Deleted Information

IV. Offsite Organization and Agencies

- A. Duke Power Company
 - 1. Station personnel
 - 2. Nuclear Production Duty Engineer
 - 3. Crisis Management Center
- B. South Carolina
 - 1. Department of Health and Environmental Control (DHEC)
 - 2. Emergency Preparedness Division of Adjutant General's Office
- C. North Carolina
 - 1. Highway Patrol Headquarters
 - 2. Department of Crime Control and Public Safety
- D. York County
 - 1. Sheriff's Department
 - 2. County EOC
- E. Gaston County
 - 1. County Police Department
 - 2. County EOC
- F. Mecklenburg County
 - 1. County Police Department
 - 2. County EOC
- G. Nuclear Regulatory Commission

V. Communication Systems

- A. Ring-down Phone System
- B. Bell-Telephone Back-up
- C. Radio System

VI. Message Release Authroization

- A. Emergency Coordinator Approval

VII. Documentation

- A. Retain all messages
- B. Document Receiver/Transmitter

VIII. Proper Communications Practices

- A. Correct Terms
- B. Pace
- C. Control

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE O-2.5
EMERGENCY RESPONSE TRAINING PROGRAM
DOSE CALCULATIONS AND PROJECTIONS
DOSE ASSESSMENT OUTLINE

PURPOSE: The purpose of this speciality program is to ensure that Catawba Nuclear Station Technical Support Center Data Evaluation personnel are trained on the most recent dose assessment methodology and have an understanding of their role in an emergency.

OBJECTIVES: Upon completion of the program, the trainees will:

1. Have conducted an in-depth review of dose assessment procedures.
2. Have conducted calculations using simulated input data for the dose assessment procedures.
3. Have conducted "hands-on" operation of any computerized methodology.
4. Have an understanding of who is to review periodic assessments.

PARTICIPANTS: TSC Data Evaluation personnel (Primary and Alternates)

FREQUENCY: This training will be conducted annually at the station approximately one month before the annual exercise.

PROGRAM OUTLINE:

- I. Introduction
 - A. Purpose of the training
 1. Emergency Preparedness
 2. Regulatory Requirements
- II. Review of Dose Assessment Procedures
 - A. Procedure Review
 - B. Calculations Using Simulated Data
- III. Review of Computerized Methodology
 - A. How to log on
 - B. How to call up the program

- C. Input
- D. Output
- IV. Who is to receive these assessments?
 - A. Station Health Physicist (or his designee) Review
 - B. Dispergement:
 - 1. Station Health Physicist
 - 2. Emergency Coordinator
 - 3. Technical Services Superintendent
 - C. How often?
- V. Protective Action Guides Recommendations
 - A. Dose Projection Exceeds PAG?
 - 1. Immediate notification to Station Health Physicist (or his designee)
 - 2. Other notifications
 - B. Updating the State/County Agencies

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE O-2.6
EMERGENCY RESPONSE TRAINING PROGRAM

Plant Data Transmission/Retrieval Outline

- PURPOSE: The purpose of Emergency Response Training is to provide specific guidance to Catawba Nuclear Station Emergency Organization Data Transmission personnel in how to provide plant data to authorized offsite agencies/organizations in an emergency.
- OBJECTIVES: Upon completion of this training, the trainee will be able to:
1. Demonstrate or explain how to transfer plant data from the Operator Aid Computer to the VAX Computer System in an emergency.
 2. Describe their counterpart organization in the Crisis Management Center.
 3. State how to provide plant data via telecopier if the primary Data Transmission System is unavailable.
 4. Explain the procedure to verify plant data prior to release.
 5. Describe how changes to preset data are made and what supplemental data is available and how this information can be provided.
- PARTICIPATION: Station Performance personnel assigned an emergency response function as identified in Station Directive 2.5.2.
- FREQUENCY: Annual

Plant Data Transmission/Retrieval Outline

- I. Introduction
 - A. Purpose of Training
- II. Use of the OAC/VAX System for Plant Data Transmission In an Emergency
 - A. System Layout
 - B. Operation of the System
 - 1. TSC
 - 2. CMC
 - 3. Other groups (NRC, Vendors)
 - C. Your Counterparts in the CMC
 - D. Frequency of Data Update (15 to 30 min.)
 - E. How to verify and release plant data
 - F. Supplemental and Preset Output
 - 1. Preset Forms and how to change
 - 2. Supplemental Data Available
 - 3. Means for inputting Supplemental Data
- III. Backup Method - Telecopier
 - A. How to Operator Telecopier
 - B. CMC Telecopier Phone Numbers

- P. RESPONSIBILITY FOR THE PLANNING EFFORT: Development, Periodic
Review and Distribution
of Emergency Plans

To assure that responsibilities for plan development, review and distribution of emergency plans are established and that planners are properly trained:

P.1 Emergency Planner Training

The Station Emergency Preparedness Coordinator will attend training/workshops, as available to maintain current knowledge of the overall planning effort. This training will be documented in station training files.

P.2 Corporate Emergency Response Planning

See Crisis Management Plan, Section P.2.

P.3 Station Emergency Preparedness Coordinator

The Emergency Preparedness Coordinator at the Catawba Nuclear Station shall have the responsibility for the development and updating of the Station Emergency Plan and coordination of this plan with other response organizations. This person is employed in the Licensing and Projects Section of the Technical Services Group.

P.4 Review of Emergency Plan

Review and updating of the Emergency Plan shall be certified to be current on an annual basis. Any changes identified by drills and exercises shall be incorporated into the Emergency Plan.

P.5 Distribution of Revised Plans

The Emergency Plan and approved changes shall be forwarded to individuals and organizations listed in App. 6. Revised pages shall be dated and marked to show where changes have been made.

P.6 Supporting Plans

Figure P-1 gives a detailed listing of supporting plans to the Catawba Nuclear Station Emergency Plan.

P.7 Implementing Procedures

Catawba Emergency Implementing Procedures are listed in Figure P-2 with a reference to the section of Emergency Plan implemented by each procedure. Figure P-3 contains the distribution list for CNS Emergency Implementing Procedure.

P.8 Table of Contents

The Catawba Nuclear Station Emergency Plan contains a specific table of contents. The Catawba Nuclear Station Emergency Plan has been written cross referenced to the applicable sections of NUREG-0654 Rev. 1.

P.9 Audit of Emergency Plan

See Crisis Management Plan Section P.9.

P.10 Telephone Number Updates

Telephone numbers listed in the Catawba Nuclear Station Emergency Plan Implementing Procedures will be updated quarterly in accordance with PT/O/B/4600/05, Coordination of Communications. All department heads will provide the Emergency Preparedness Coordinator a list of changes to phone numbers within his/her organization each quarter.

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE P-1

SUPPORTING PLANS

1. South Carolina Operational Radiological Emergency Response Plan in support of Fixed Nuclear Facilities (Catawba Nuclear Station)
2. North Carolina Emergency Response Plan in support of Catawba Nuclear Station
3. York County, S.C., Radiological Emergency Response Plan
4. Mecklenburg County, N.C., Radiological Emergency Response Plan in Support of the Catawba Nuclear Station
5. Gaston County, N.C., Radiological Emergency Response Plan in Support of the Catawba Nuclear Station
6. Emergency Response Plan, Water Reactors Division, Westinghouse Electric Corporation
7. N.R.C. Region II Incident Response Plan
8. Interagency Radiological Assistance Plan - Region 3 - U.S. Department of Energy
9. INPO Emergency Response Plan

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE P-2
EMERGENCY PLAN IMPLEMENTING PROCEDURES

<u>Procedure #</u>	<u>Title</u>	<u>Emerg. Plan Section Implemented</u>
RP/O/A/5000/01	Classification of Emergency	Section D, E, I.1, J.7
RP/O/A/5000/02	Notification of Unusual Event	Section D, E, I.1, J.7
RP/O/A/5000/03	Alert	Section D, E, I.1, J.7
RP/O/A/5000/04	Site Area Emergency	Section D, E, I.1, J.7
RP/O/A/5000/05	General Emergency	Section D, E, I.1, J.7
RP/O/A/5000/06	Natural Disaster	Section D
RP/O/A/5000/07	Earthquake	Section D, H.6.a
RP/O/A/5000/08	Release of Toxic or Flammable Gas	Section D
RP/O/A/5000/09	Collision/Explosion	Section D
RP/O/A/5000/10	Conducting A Site Assembly/Evacuation	Section J.1
RP/O/A/5000/11	Offsite Dose Projections without OAC	Section D
HP/O/B/1009/01	Health Physics Recovery Plan	Section M
HP/O/B/1009/03	Environmental Surveillance Following a Primary to Secondary Leak	Section D, I
HP/O/B/1009/04	Environmental Surveillance Following a Large Unplanned Release of Gaseous Radioactivity	Section D, I
HP/O/B/1009/05	Personnel Monitoring for Emergency Conditions	Section D, I
HP/O/B/1009/06	Alternative Method for Determining Dose Rate Within the Reactor Building	Section D, I
HP/O/B/1009/07	Implant Particulate and Iodine Monitoring Under Accident Conditions	Section D, I
HP/O/B/1009/08	Contamination Control During Transportation of Contaminated Injured Individual	Section D, I
HP/O/B/1009/09	Guidelines for Accident & Emergency Response	Section D, I
HP/O/B/1009/12	Quantifying Gaseous Releases through Steam Relief Valves under Post- Accident Conditions	Section D, I
HP/O/B/1009/13	Offsite Dose Calculation-Uncontrolled Release of Gaseous Radioactive Material Through the Unit Vent	Section D, I
HP/O/B/1009/14	Offsite Dose Projection-Uncontrolled Release of Liquid Radioactive Material	Section D, I
HP/O/B/1009/15	Offsite Dose Projection-Uncontrolled Release of Gaseous Radioactive Material Other Than Through the Unit Vent	Section D, I
HP/O/B/1009/16	Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release	Section J.6
HP/O/B/1009/17	Nuclear Post Accident Containment Air Sampling System Operation	Section I, 2
HP/O/B/1009/18	Environmental Monitoring for Emergency Conditions within the Ten Mile Radius of Catawba Nuclear Station	Section I.7, I.8

<u>Procedure #</u>	<u>Title</u>	<u>Emerg. Plan Section Implemented</u>
HP/O/B/1009/19	Emergency Radio System Operations, Maintenance and Communications	Section F.1.d
HP/O/B/1009/20	Estimate of Food Chain Dose Under Post Accident Conditions	Section I.10
CP/O/A/8700/11	Sampling at the Post Accident Liquid Sample Panel	Section I.2
CNS Directive 3.7.5	Response to Bomb Threat Emergencies	Section D
CNS Directive 3.8.4	Onsite Emergency Organization	Section A.1.b, A.1.d, B, E
CNS Directive 2.0.1	News Release	Section E.5
CNS Directive 3.0.7	Site Assembly/Evacuation	Section J.5
HP/O/B/1000/06	Emergency Equipment Functional Check and Inventory	Section H.10
PT/O/B/4600/06	Emergency Exercise	Section N

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE P-3
IMPLEMENTING PROCEDURES DISTRIBUTION LIST

- | | |
|---|---|
| 1. J. W. Hampton | 26. J.L. Carroll - York County |
| 2. G. E. Vaughn | 27. Westinghouse Site Rep |
| 3. R. M. Glover | 28. INPO |
| 4. R. C. Futrell | 29. W. Barron - Operator Training |
| 5. J. A. Effinger - QA | 30. Technical Training Center Library |
| 6. L. Lewis | 31. H. B. Tucker - VP Nuclear
Production |
| 7. A. R. Franklin | 32. Extra Manual Not Issued |
| 8. C. W. Graves | 33. Extra Manual Not Issued |
| 9. G. T. Smith | 34. Extra Manual Not Issued |
| 10. W. P. Deal | 35. Extra Manual Not Issued |
| 11. M. S. Tuckman | |
| 12. M. E. Bolch | |
| 13. R. D. Kinard | |
| 14. J. H. Knuti | |
| 15. P. H. Skinner - NRC Site Rep | |
| 16. NRC, Washington - Forwarded by R. O. Sharpe | |
| 17. NRC, Washington - Forwarded by R. O. Sharpe | |
| 18. NRC, Washington - Forwarded by R. O. Sharpe | |
| 19. TSC - M. E. Bolch | |
| 20. Control Room | |
| 21. Master File | |
| 22. J. T. Pugh, III - North Carolina | |
| 23. J. Moore - South Carolina | |
| 24. K. E. Williams - Mecklenburg County | |
| 25. Bob Phillips - Gaston County | |

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION

APPENDIX INDEX

Appendix 1	Definitions
Appendix 2	Meteorological System Description
Appendix 3	Alert and Notification System Description
Appendix 4	Summary of Evacuation Time Estimates
Appendix 5	Agreement Letters
Appendix 6	Distribution List for Catawba Emergency Plan

APPENDIX 1
CATAWBA NUCLEAR STATION

DEFINITIONS

1.0 DEFINITIONS

- 1.1 Affected Persons - persons who have received radiation exposure or have been physically injured as a result of an accident to a degree requiring special attention as individuals, e.g., decontamination, first aid or medical services.
- 1.2 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.
- 1.3 Corrective Actions - emergency measures taken to ameliorate or terminate an emergency situation at or near the source of the problem to prevent an uncontrolled release of radioactive material or to reduce the magnitude of the release, e.g., shutting down equipment, fire-fighting, repair and damage control.
- 1.4 Crisis Management Center - the Crisis Management Center is the facility utilized for direction and control of all emergency and recovery activities with emphasis on the coordination of off-site activities such as dispatching mobile emergency monitoring teams, communications with local, state and federal agencies, and coordination of corporate and other outside support. The Crisis Management Center is referred to in the regulatory guides as the Emergency Operations Facility.
- 1.5 Crisis Management Plan - a Duke Power Company corporate plan developed and implemented to provide assistance to the company's nuclear stations in assuring, maintaining or recovering acceptable levels of safety to the general public and Duke Power employees.
- 1.6 Emergency Action Levels - radiological dose rates; specific contamination levels of airborne, waterborne, or surface-deposited concentrations of radioactive materials; or specific instrument indications (including their rate of change) may be used as thresholds for initiating such specific emergency measures as designating a particular class of emergency; initiating a notification procedure, or initiating a particular protective action.
- 1.7 Emergency Planning Zone (EPZ) - the area for which planning is needed to assure that prompt and effective actions can be taken to protect the public in the event of an accident. The plume exposure EPZ is about 10 miles in radius and the ingestion exposure EPZ is about 50 miles in radius.
- 1.8 Exclusion Area - the nuclear station property, including the site, out to a radius of 2500 feet, that meets the 10CFR100 definition.
- 1.9 Ingestion Exposure Pathway - the principle exposure from this pathway would be from ingestion of contaminated water or foods such as milk or fresh vegetables. The time of potential exposure could range in length from hours to months.

- 1.10 Operational Support Center - in the event of an emergency, shift support personnel (e.g., auxiliary operators and technicians) other than those required and allowed in the control room shall report to this center for further orders and assignment.
- 1.11 Plume Exposure Pathway - the principle exposure sources from this pathway are (a) whole body external exposure to gamma radiation from the plume and from deposited material and (b) inhalation exposure from the passing radioactive plume. The time of potential exposure could range from hours to days.
- 1.12 Population-At-Risk - those persons for whom protective actions are being or would be taken.
- 1.13 Protective Actions - those emergency measures taken after an uncontrolled release of radioactive materials has occurred, for the purpose of preventing or minimizing radiological exposures to persons that would be likely to occur if the actions were not taken.
- 1.14 Protective Action Guides (PAG) - projected radiological dose or dose-commitment values to individuals in the general population that warrant protective action following a release of radioactive material. Protective actions would be warranted provided the reduction in individual dose expected to be achieved by carrying out the preventive action is not offset by excessive risks to individual safety in taking the protective action. The PAG does not include the dose that has unavoidably occurred prior to the assessment.
- 1.15 Recovery Actions - those actions taken after the emergency to restore affected property as nearly as practicable to its pre-emergency condition.
- 1.16 Site - that part of the nuclear station property consisting of the Reactor, Auxiliary, Turbine, Service Buildings and grounds, contained within the outer security area fence.
- 1.17 Technical Support Center - this on-site center is for use by plant management, technical and engineering support personnel. In an emergency, this center shall be used for assessment of plant status and potential off-site impact in support of the control room command and control function.

APPENDIX 2
CATAWBA NUCLEAR STATION
METEOROLOGICAL PROGRAM

INTRODUCTION

In response to guidance provided by NUREG-0654, Revision 1 and supporting documents, Regulatory Guide 1.23, Proposed Revision 1, Regulatory Guide 1.111, Revision 1, and Regulatory Guide 1.109, Duke has reviewed the existing meteorological system at Catawba Nuclear Station and, based on that review, has developed a plan for upgrading the meteorology system. This functional upgraded meteorological system is intended to be in place prior to fuel load.

The present meteorological measurement program at Catawba Nuclear Station was originally designed to best describe the meteorological conditions on-site by taking into account source characteristics, terrain features and modeling needs. Due to revisions to guidelines, Duke has developed changes to upgrade assessment capabilities and reliability of the meteorological programs at Catawba Nuclear Station.

Basically, these changes will:

- 1) Establish a capability to assess near real time 15 minutes averaged/validated data with a 12-hour recall and associated dose estimates within 15 minutes of request that account for variability in travel path of effluent material.
- 2) Improve reliability and accuracies through upgraded instrumentation and upgrading of meteorological data, other dose related measurements, and dose estimates as needed.

EFFLUENT DISPERSION MODEL

The Class A Model which will be used in the transport and diffusion of released effluents is a puff-advection model which incorporates a horizontal wind field that can vary in time and space. It is assumed in the puff-type model that the spread within a puff along the direction of flow is equal to the spread in the lateral direction (i.e., horizontal Gaussian Symmetry). In the model, concentration averages are provided by total integrated concentrations which are calculated by summing concentrations of individual elements for the grid points over which the puffs pass. Features to be incorporated into the model include the use of predicted and edited primary or backup data, where appropriate, terrain effects, building wake effects, ground or elevated release mode, and special features used to describe site-specific meteorology. Appropriate persistence and worst case meteorology will be used for initial releases until a meteorologist is notified to provide predictive data.

INSTRUMENTATION

Table 1 shows the type and number of parameters to be measured at Catawba Nuclear Station after upgrading of the system. The meteorological conditions present at Catawba Nuclear Station warrant the use of the basic described meteorological variables. These include wind speed and wind direction measured at high and low levels, delta temperature for stability classification, ambient air and dew point temperature, and precipitation.

DATA HANDLING

The dose calculation system consists of a primary digital recording/storage system and a secondary analog chart recording system. The meteorological variables will be sampled at 60 second intervals for the digital system except for variables used to calculate sigma theta, these will be sampled every 5 seconds.

Prior to meteorological data use or storage, the data will go through a series of edit checks which include range comparisons and data inter-comparisons to determine validity of data and whether backup data should be used.

Upon validation, the data will be placed on 12-hour recall for emergency effluent dispersion modeling and dose calculation. Validated data will also be stored on a magnetic medium as 1-hour average for future use and to meet the 90% joint annual data recovery requirements.

DOSE ASSESSMENT METHODOLOGY

The dose assessment methodology for Catawba consists of two separate calculations. The first calculation is based on the amount of radioactivity that has been or is actually being released through the unit vent; the second calculation is based on a potential release using actual source term and design basis assumptions for containment leakage.

To determine the dose from an actual release through the unit vent, both the concentration of isotopes in the unit vent and the unit vent flow rate must be known. Unit vent grab sample analyses are used to determine the isotopic concentrations of the release. When this information is not available, unit vent radiation monitors and their energy dependent sensitivities are used. The flow rate is obtained from the unit vent flow rate monitor. The combination of flow rate and isotopic concentrations is used to determine the actual release rate through the unit vent.

If substantial radioactivity is present in the containment, another calculation is performed. The calculation provides the dose potential for a release based on the radioactivity present in the containment. A containment atmosphere sample is used to determine the isotopic concentrations. If this information is unavailable, the containment building area radiation monitor is used to determine the severity of the accident by comparison with design basis source terms.

The containment design leak rate is used unless factors, such as containment pressure, indicate that another value is more realistic. The isotopic concentrations combined with a containment leak rate provide a potential release rate of activity.

The dose model calculates both cumulative and projected doses. Downwind concentrations are determined by applying the relative atmospheric dispersion factor calculated by the meteorological model. Projected concentrations are determined in one-hour increments up to a period of four hours. A forty-year thyroid dose commitment and a whole body dose from exposure to a semi-infinite cloud are determined. The dose conversion factors are derived from Regulatory Guide 1.109.

This dose assessment methodology provides the capability to calculate the dose from actual or potential releases following an accident. Near real time radiation monitor readings and meteorological data are combined automatically to provide timely, realistic dose calculations. However, the flexibility to manually input sample data is also provided. This model meets the guidance to NUREG-0654, Revision 1, Appendix 2 to provide the capability "to assess and monitor actual or potential off-site consequences of a radiological emergency condition".

UPGRADED PHYSICAL SYSTEM DESCRIPTION

The conceptual layout for the meteorological system is presented in Figure 1. The sensors for the meteorological system are mounted in existing towers. The signals will enter each Unit Operator Aid Computer (OAC) and the analog system. The meteorological data will be stored on the OAC and can be transferred routinely or during an emergency situation to the Distributed Data Processor (DDP) via a manual transfer of a diskette from an OAC disk drive to a remote disk drive. The Class A Model calculations will be made on the DDP system. Routine meteorological data will be stored through the Distributed Data Processor System. In the event of an emergency, it will have the capability to recall 12-hour meteorological data, radiation monitor data, perform Class A Model calculations, and provide the inputs and calculated outputs to all appropriate site emergency response areas.

DETAILED DESCRIPTION OF SUBSYSTEMS

Sensors to Operator Aid Computer

The parameters to be measured by the meteorological system are listed in Table 1. These meteorological sensors will meet the accuracies suggested in Regulatory Guide 1.23, Proposed Revision 1. Signals from the meteorological system to the OAC (digital system) and analog charts will be cabled to the plant. Housing for signal conditioners and related instrumentation will be housed near the high level tower. Uninterruptible power supplies will be provided to assure continuous operation of the meteorological system. Sensors, conditioning equipment and instrumentation will have lightning protection and will be heated where necessary to minimize effects of adverse environmental conditions. Signal cables will be shielded to minimize electrical interference.

Operator Aid Computer (OAC) to Distributed Data Processor (DDP)

The process computer OAC system which is utilized for data collection consists of GE/Honeywell 4000 series equipment. Inputs from the sensors (Figure 1) will be wired to the OAC and will be scanned according to guidance provided by Regulatory Guide 1.23, Proposed Revision 1. Predefined meteorological inputs will be averaged for 15 minutes and the average will be stored for later use. The OAC has bulk storage capability for 48 hours worth of 15 minute averages.

Data retrieval from the OAC will be initiated at the Performance Typewriter in the Computer Room. Each unit OAC is a backup for the other, capable of supplying the same required meteorological readings. The data will either be printed in a tabular format or stored on a floppy disk (diskette) which is designed for data exchange applications. Upon output completion, the data will be removed from the OAC and additional data can be taken.

By means of a separate floppy disk reader attached to a data communications terminal in proximity to the OAC, the data will be transmitted to an offline computer facility either on-site, or remote to the station. Each set of data readings will be stored in an on-line data base for recall on demand. The data will be subjected to validation procedures through both software and manual methods. Immediately upon completion of the validation procedures, the data will be available to designated agencies through dial-in terminal facilities. The data will further be available for both periodic archiving and for immediate processing by the puff-advection model. Output from this model may also be made available to designated agencies in a read only mode.

The primary off-line data processing facility will be the station distributed data processor (DDP). First line backup to the station facility (See Figure 2) will be a similar DDP facility in the General Office in Charlotte, North Carolina. Additional backup facilities are available at each of the other nuclear stations. The capability will also be provided to process this data in the Charlotte Corporate Computer Center.

QUALITY ASSURANCE

In response to point 7, Quality Assurance of Regulatory Guide 1.23, Proposed Revision 1, new equipment will be purchased from suppliers who have provided high quality, reliable equipment in the past. Documentation concerning fabrication and assembly of the components will be considered on a case-by-case basis as is normal for non-10CFR50 Appendix B items.

Tower modifications, cabling and computer hardware will be designed, procured and installed as a non-safety related system. Surveillance during construction will be provided the same as for any other non-safety system.

Maintenance, calibration and repair procedures, and logs will be available at the site for inspection. The procedures and logs will be designated as site controlled documents. Inventories of meteorological system spare parts, sensors and components will be incorporated into existing company procedures.

FIGURE 2-1

Catawba Nuclear Station
Meteorological Parameters of the Upgraded System

Primary
System

Existing high level and
10 meter towers

High level wind speed and direction
Low level wind speed and direction
Delta temperature (stability)
Dry bulb temperature
Precipitation
Dew Point

APPENDIX 3
CATAWBA NUCLEAR STATION
ALERT AND NOTIFICATION SYSTEM

(Available prior to Unit #1 Startup)

APPENDIX 4

Summary of:

CATAWBA NUCLEAR STATION
EVACUATION ANALYSIS

EVACUATION TIME ESTIMATES

Prepared for:

DUKE POWER COMPANY

by

PRC VOORHEES
1500 Planning Research Drive
McLean, Virginia 22102

April 1983

Q-4.1

Rev. 3
June 1983

TABLE 18. SUMMARY OF EVACUATION TIMES

Permanent Population	Permanent Population Vehicles	Transient Population	Transient Population Vehicles	Evacuation Capacity per Hour (Major Routes)	Notification Time	Preparation Time	Permanent Population Response Normal Conditions	Permanent Population Response Adverse Conditions	Transient Population Response Normal Conditions	Transient Population Response Adverse Conditions	General Population Evacuation Time - Normal Conditions	General Population Evacuation Time - Adverse Conditions	Confirmation Time	Special Population Evacuation Time - Normal Conditions	Special Population Evacuation Time - Adverse Conditions
----------------------	-------------------------------	----------------------	-------------------------------	---	-------------------	------------------	---	--	---	--	--	---	-------------------	--	---

Zones		Within Two Miles													
North Carolina	357	154	654	233	1,200	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	(5)
South Carolina	363	156	5,552	1,982	2,400	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	(5)
All Zones	720	310	6,206	2,215		(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	(5)

Zones		Within Five Miles													
A-1	529	227	10,187	3,637	1,200	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	(5)
B-1	2,631	1,131	2,588	924	1,200	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	2:30
C-1	6,161	2,649	16,827	6,007	1,200	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	2:30
D-1	1,414	608	109	39	2,400	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	(5)
E-1	429	184	0	0	3,600	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	(5)
F-1	2,573	1,106	1,582	565	3,600	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	2:30
All Zones	13,737	5,905	31,293	11,172		(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	2:30

Zones		Within Ten Miles													
A-2	4,838	2,080	4,073	1,454	4,800	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	4:15
B-2	9,771	4,201	46,826	16,717	4,200	(1)	(2)	(3)	(3)	(4)	(4)	3:25	4:00	1:40	4:15
C-2	44,964	19,335	0	0	11,400	(1)	(2)	(3)	(3)	(4)	(4)	4:00	6:15	1:40	4:15
D-2	9,169	3,943	0	0	4,800	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	4:15
E-2	4,957	2,132	0	0	4,800	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	4:15
F-2	2,635	1,142	650	232	6,000	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	(5)
F-3	2,672	1,149	631	232	2,400	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	2:30
All Zones	79,026	33,982	52,220	18,635		(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	4:15

1. See distribution in Table 7.
2. See distributions in Tables 8 and 9.
3. See distributions in Tables 10 and 11.
4. See distribution in Table 13.
5. No special facilities in these zones.

Q-4.3

Rev. 3
June 1983

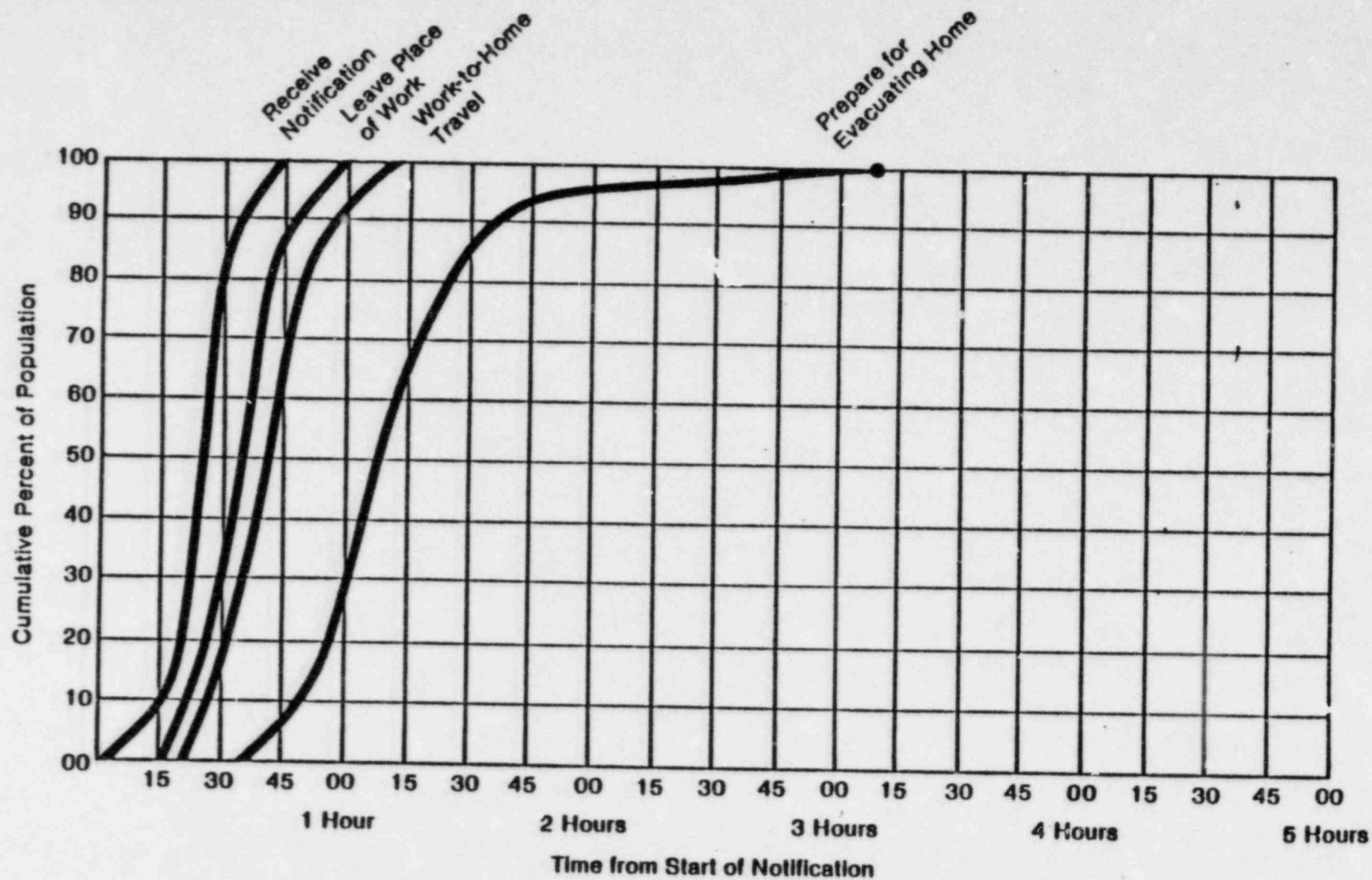


Figure 12. Evacuation Time for the Permanent Resident Population (Auto-Ownng)

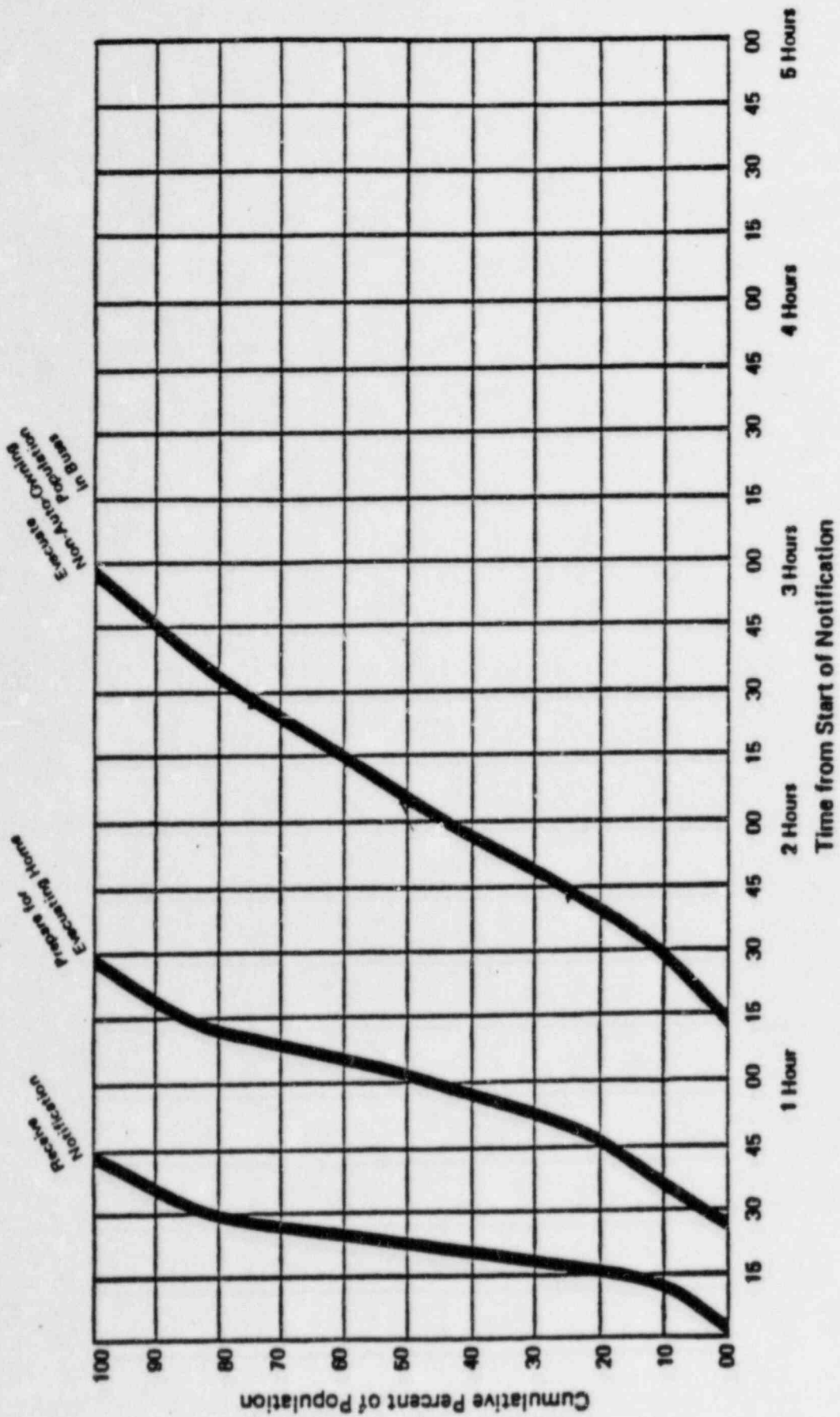
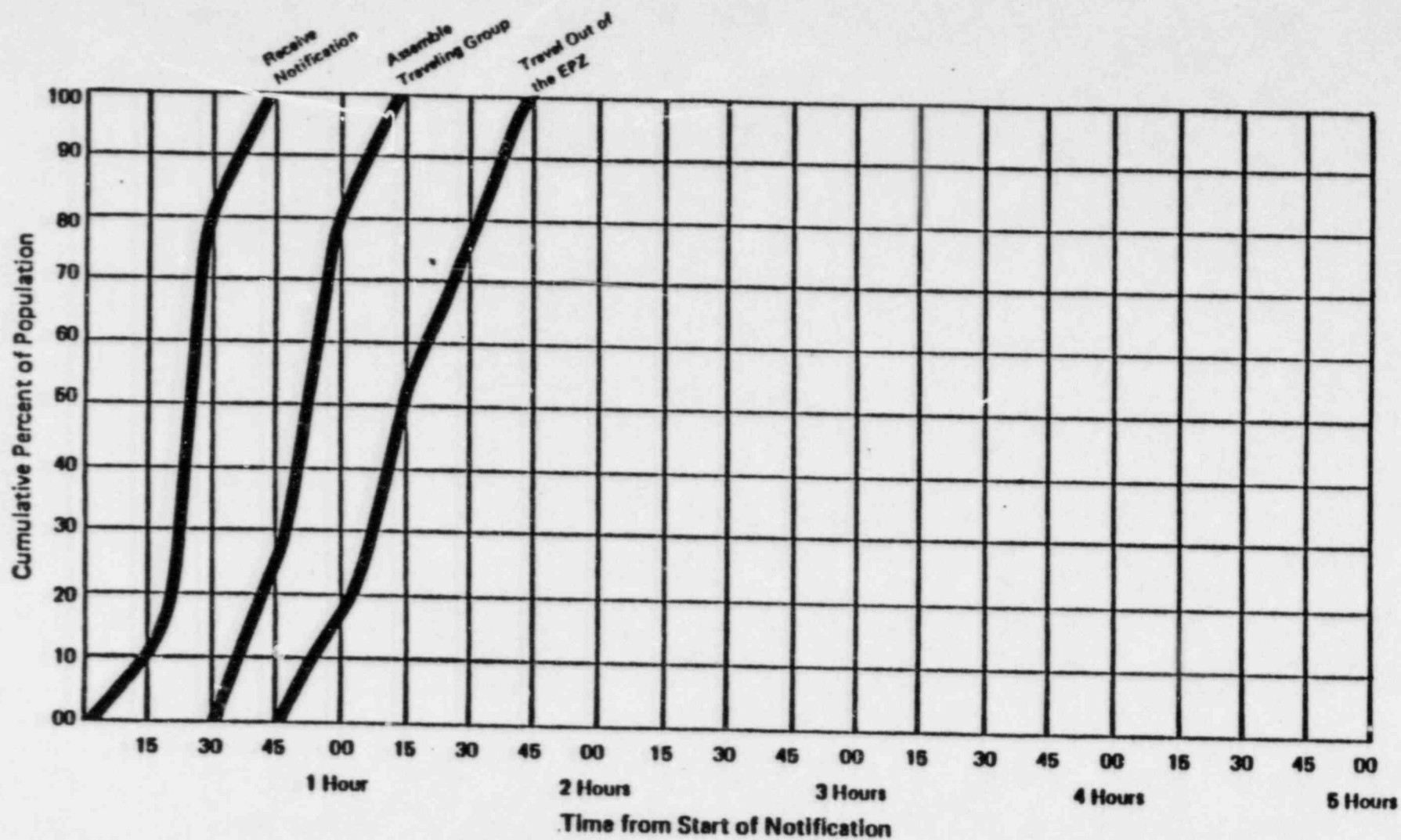


Figure 15. Evacuation Times for the Permanent Resident Population (Non-Auto-Ownng)

Rev. 3
June 1983

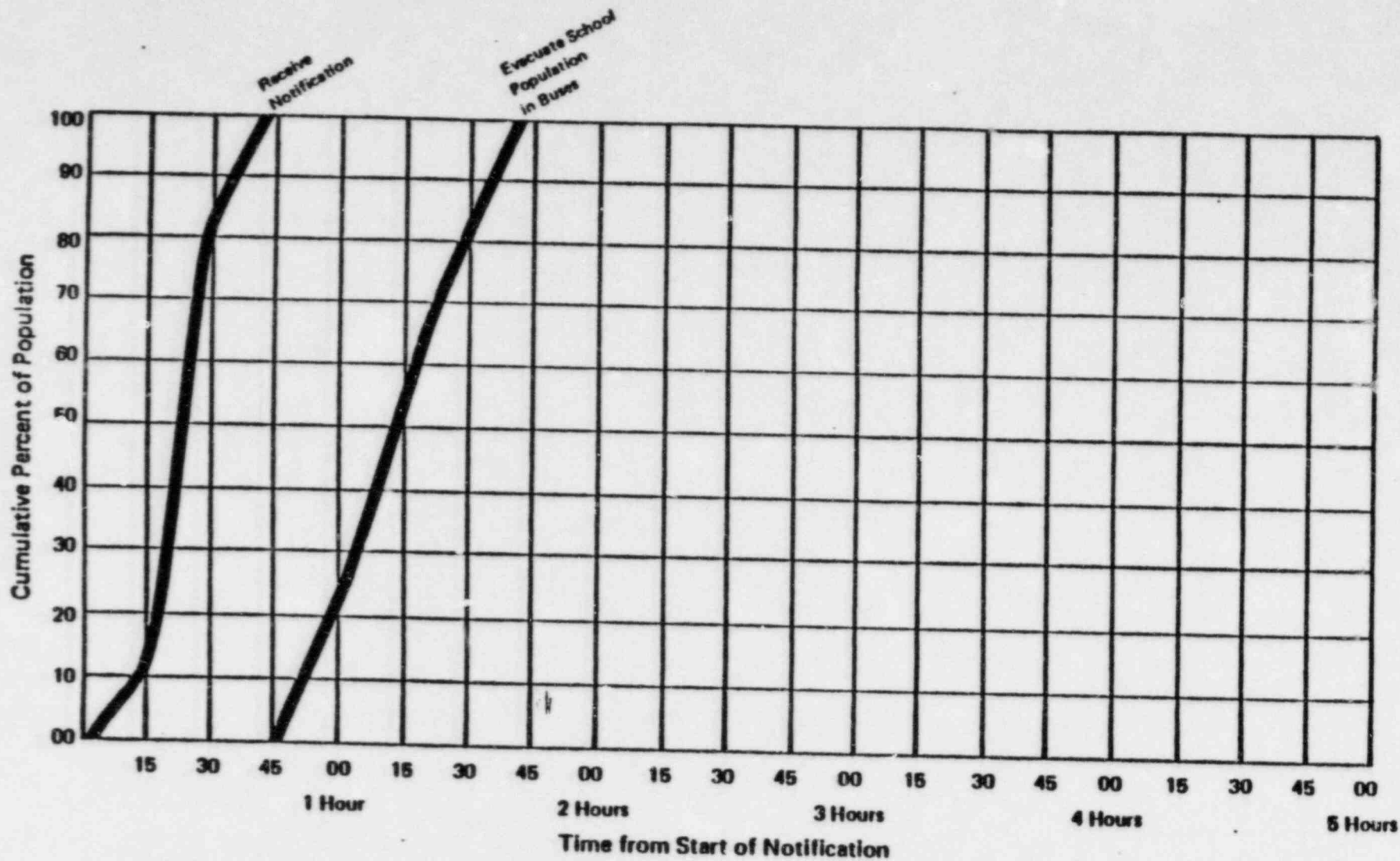


Figure 17. Evacuation Times for the Special Facilities Population (Schools)

Q-4.7

Rev. 3
June 1983

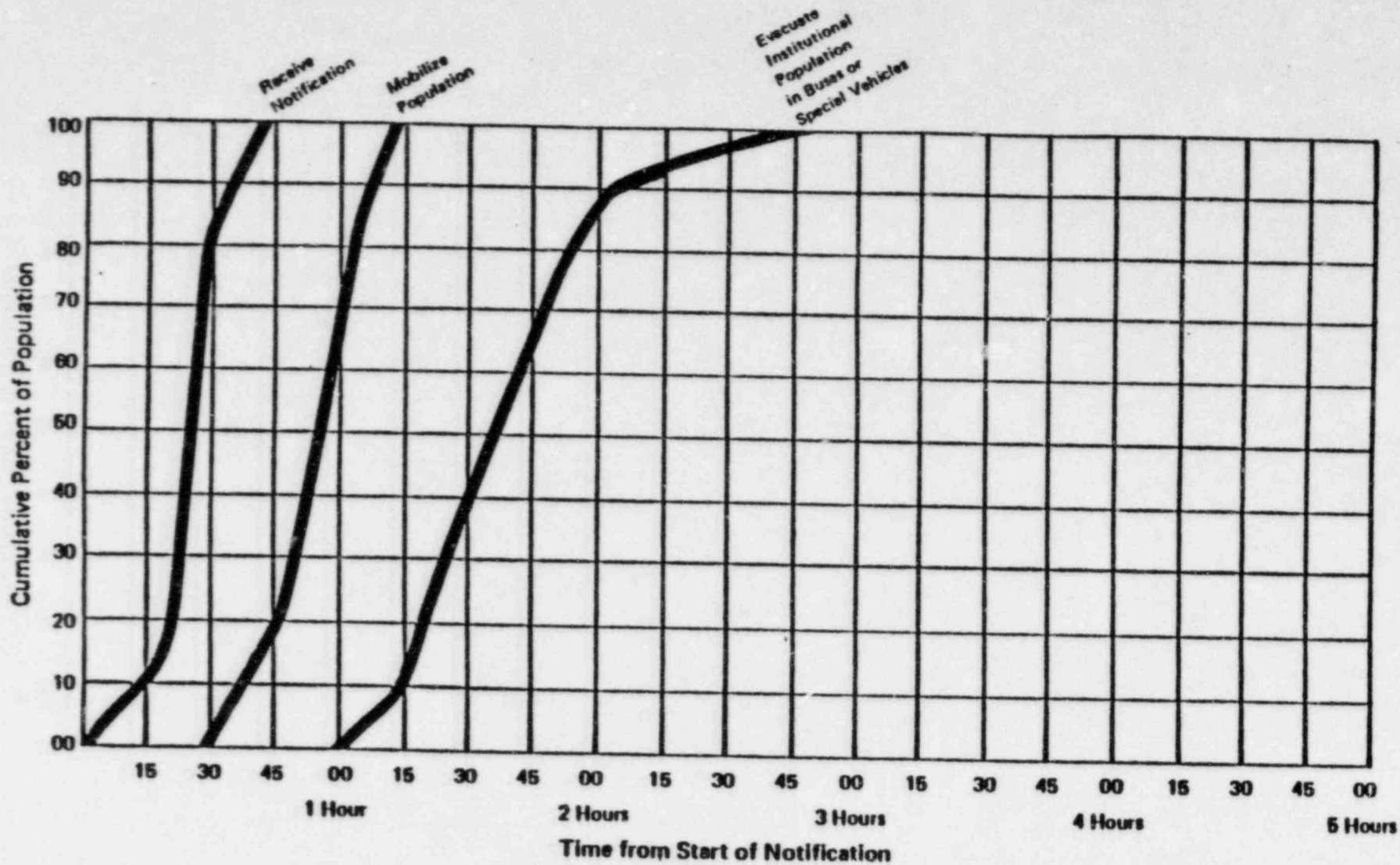
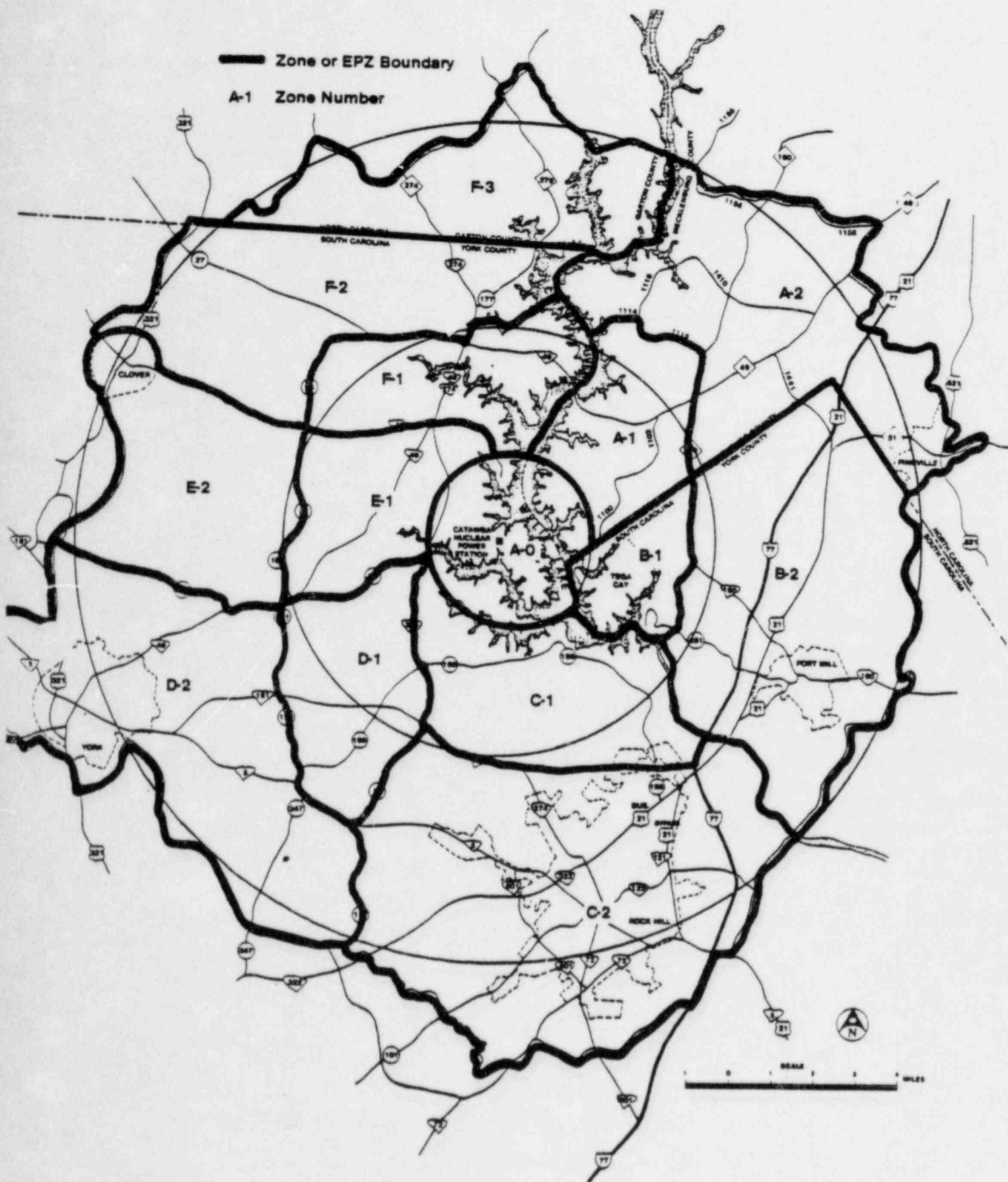


Figure 18. Evacuation Times for the Special Facility Population (Institutions)

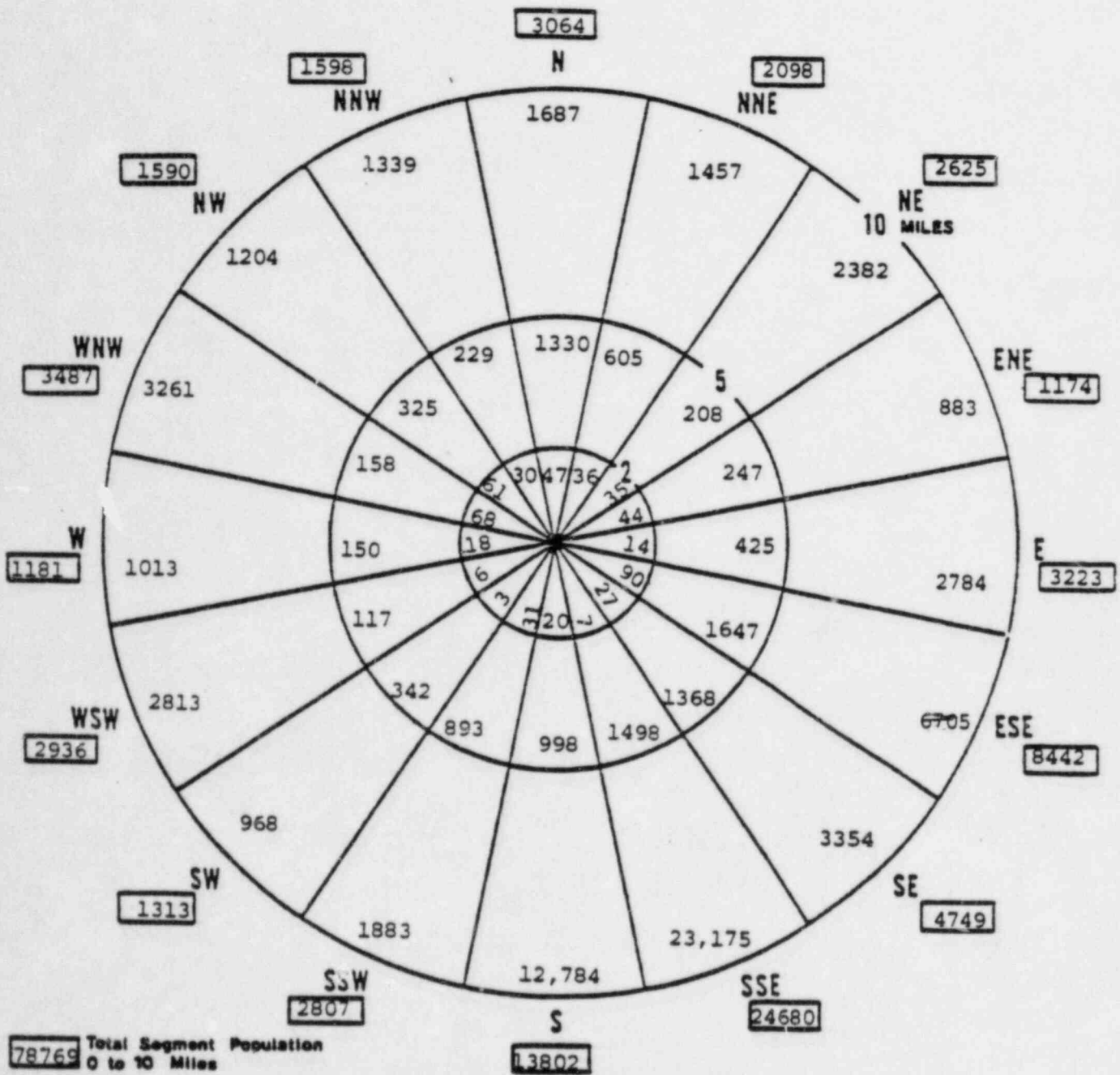


**Figure 7. Selective Evacuation Zones
for the Catawba EPZ**

TABLE 2. POPULATION OF THE CATAWBA EPZ AND ZONES

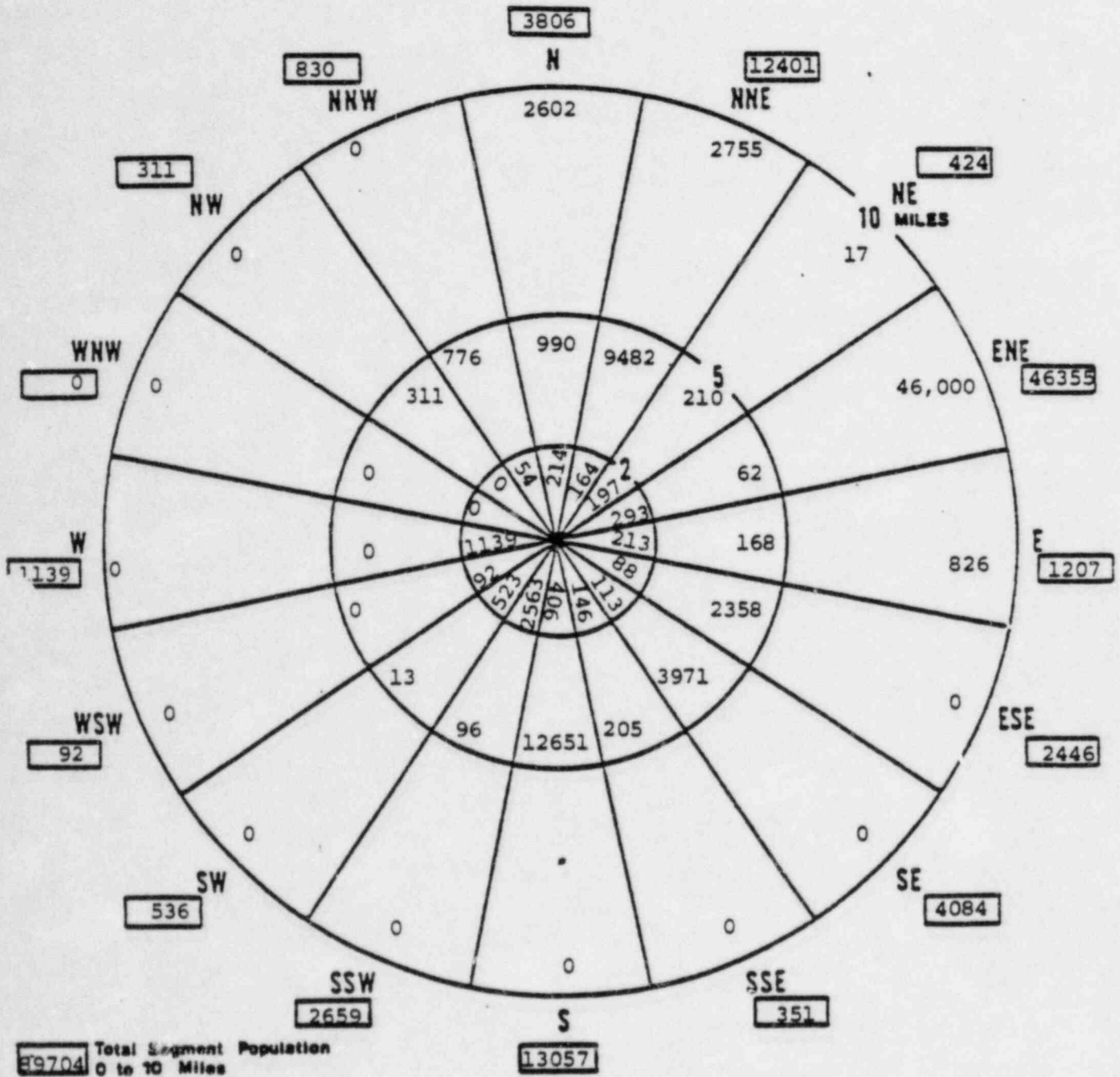
Zone	Permanent Resident Population			Transient Population	Special Facility Population
	Vehicle-Owning	Non-Vehicle-Owning	Total		
Central, NC Portion	321	36	357	654	0
Central, SC Portion	327	36	363	5,552	0
Subtotal, 0 to 2 Miles	648	72	720	6,206	0
A-1	476	53	529	10,187	0
B-1	2,368	263	2,631	2,588	24
C-1	5,545	616	6,161	16,827	1,544
D-1	1,273	141	1,414	109	0
E-1	386	43	429	0	0
F-1	2,316	257	2,573	1,582	364
Subtotal, 0 to 5 Miles	13,012	1,445	14,457	37,499	1,932
A-2	4,354	484	4,838	4,073	2,862
B-2	8,794	977	9,771	46,326	3,094
C-2	40,468	4,496	44,964	0	21,031
D-2	8,252	917	9,169	0	4,023
E-2	4,461	496	4,957	0	2,820
F-2	2,390	265	2,655	650	0
F-3	2,405	267	2,672	651	469
TOTAL EPZ	84,136	9,347	93,483	89,699	36,231

Exhibit A-1. Permanent Population by Sector



POPULATION TOTALS			
RING, MILES	RING POPULATION	TOTAL MILES	CUMULATIVE POPULATION
0-2	537	0-2	537
2-5	10,540	0-5	11,077
5-10	67,692	0-10	78,769

Exhibit A-3. Estimated Maximum Transient Population



POPULATION TOTALS			
RING MILES	RING POPULATION	TOTAL MILES	CUMULATIVE POPULATION
0-2	6,206	0-2	6,206
2-5	31,298	0-5	37,504
5-10	52,200	0-10	89,704

TABLE 3. SPECIAL FACILITIES POPULATION
IN THE CATAWBA EPZ

<u>Facility</u>	<u>Population</u>	<u>Location (Zone)</u>
Gaston County Schools		
W.A. Bess	469	F-3
Mecklenburg County Schools		
Steele Creek Elementary	777	A-2
Pineville Elementary	844	A-2
Olympic High	1,176	A-2
York County Schools		
A. O. Jones School	563	B-2
Alternative School	76	C-2
Belieview Elementary	450	C-2
Bethel Elementary School	364	F-1
Career Development Center	862	C-2
Castle Heights Junior High	960	C-2
Catawba School	445	C-1
Clover High School	1,008	E-2
Clover Junior High	596	E-2
Clover Middle School	561	E-2
Ebenezer Avenue Elementary	431	C-2
Ebinport Elementary	417	C-2
Edgewood Center	116	C-2
Episcopal Church Home for Children	62	D-2
Finley Road Elementary	453	C-2
Fort Mill High School	915	B-2
Fort Mill Junior High School	250	B-2
Harold C. Johnson Middle School	1,025	D-2
Jefferson Elementary	715	D-2
Kinard Elementary School	591	E-2
McCelvery Elementary	686	C-1
Mount Gallant Elementary	790	D-2
Northside Elementary	454	C-2
Northwestern High School	1,322	C-2
Oakdale Elementary	448	C-2
Rawlinson Road Junior High	1,251	C-2
Richmond Drive Elementary	452	C-2
Riverview Primary and Elementary Complex	1,292	B-2
Rosewood Elementary	389	C-1
St. Anne's	171	C-2

Table 3, Continued

<u>Facility</u>	<u>Population</u>	<u>Location (Zone)</u>
York County Schools (continued)		
Sullivan Junior High	1,010	C-2
Sunset Park Elementary	458	C-2
Sylvia Circle Elementary	369	C-2
Trinity Christian	324	C-2
Winthrop College	4,881	C-2
York Christian School	140	D-2
York Comprehensive High and Johnson Vocational	1,070	D-2
York Road Elementary	562	C-2
York Technical College	2,850	C-2
Clinton College	275	C-2
Day Care Centers		
Adams Care Center	21	C-2
Child Development Center	62	E-2
Children's Christian	119	C-2
Children's Wonderworld	70	C-2
College Park Nursery	30	C-2
Davis Day Care Center	33	C-2
Ebenezer Day Care Center, Inc.	32	C-2
Emmitt Scott Day Care	85	C-2
Jimmy's Day Care	40	C-2
Kiddie Kollege Child Development Center	200	C-2
LaPetite Academy	75	C-2
LaPetite Academy	47	C-2
Little Fox Nursery	33	B-2
Little Peoples Day Care	60	C-2
Mt. Gallant Day Care	49	C-1
Pine Grove Day Care Center	30	D-2
R. H. Comprehensive Day Care	114	C-2
Tega Cay Day Care	24	B-1
Toddler House Nursery	40	C-2
Wards Wonderland	35	B-2
Wee Care Day Care Nursery	68	C-2
Whiteheads Kiddie Kare	43	C-2
Yours, Mine and Ours	45	D-2

Table 3, Continued

<u>Facility</u>	<u>Population</u>	<u>Location (Zone)</u>
Hospitals		
Divine Savior Hospital	51	D-2
Piedmont Medical Center	160	C-2
Nursing Homes		
Anne's Convalescence Home	62	C-2
Divine Savior Home	51	D-2
Fallow Residential Care	37	C-2
Meadow Haven Nursing Center	132	C-2
Rock Hill Convalescence Center	141	C-2
Sunshine Homes	10	D-2
Penal Institutions		
Clover Detention Center	2	E-2
Fort Mill Detention Center	6	B-2
Rock Hill Detention Center (Cherry Road)	14	C-2
Rock Hill Detention Center (City Hall)	4	C-2
York County Prison	45	D-2
York Detention Center	6	D-2

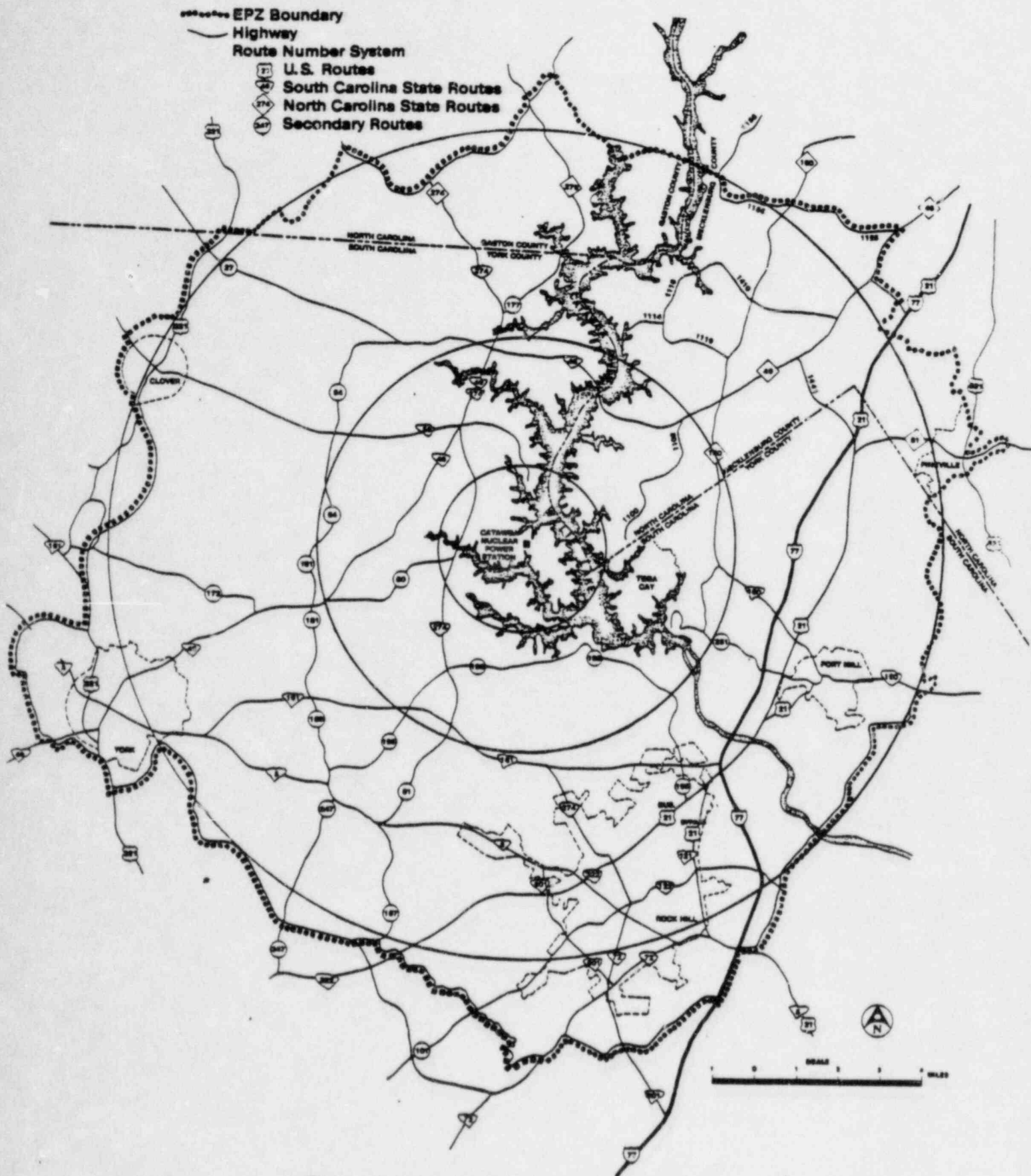


Figure 2. Highway System in the Vicinity of the Catawba Nuclear Power Station

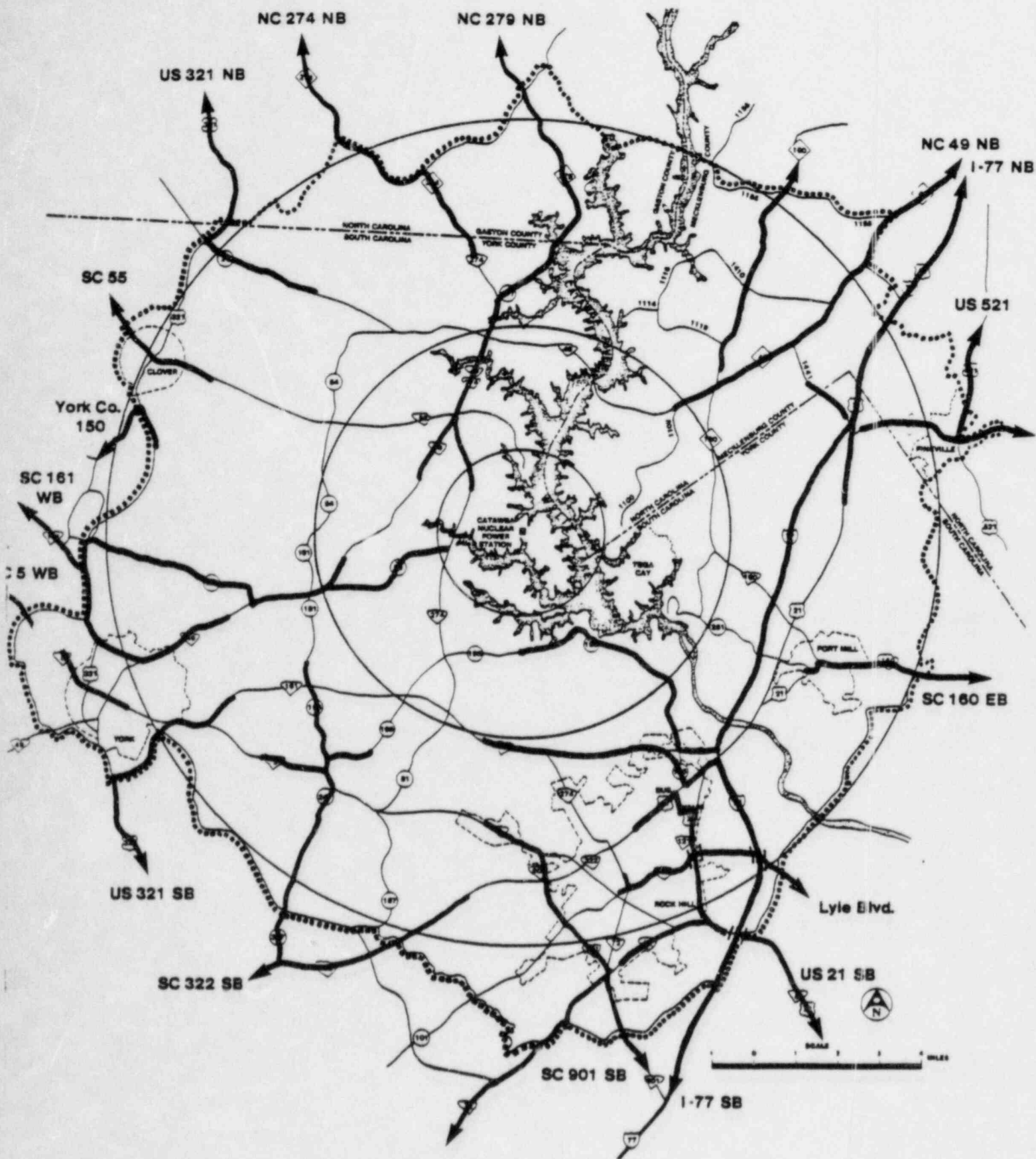


Figure 10. Major Routes Leading out of the EPZ of the Catawba Nuclear Power Station

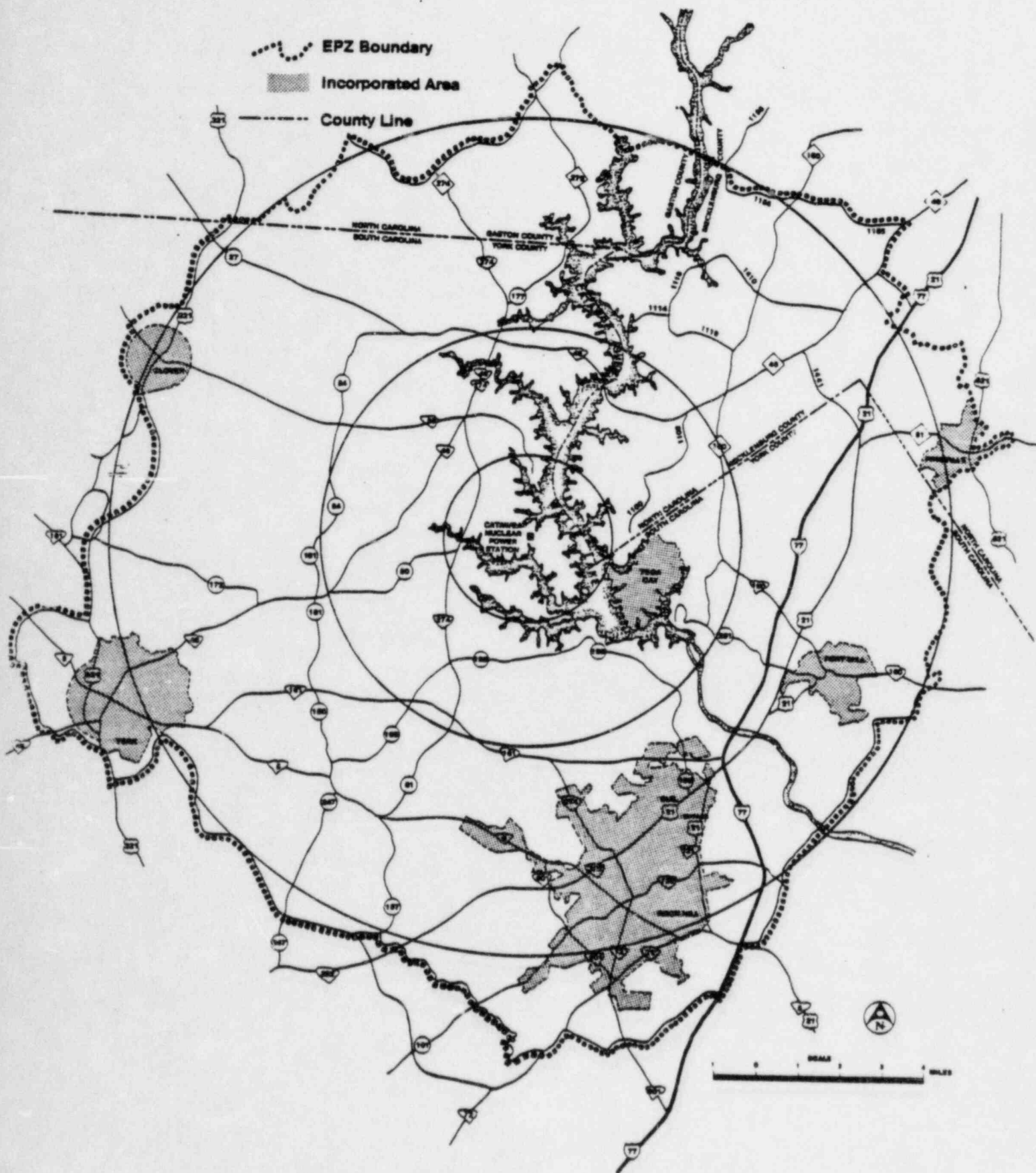
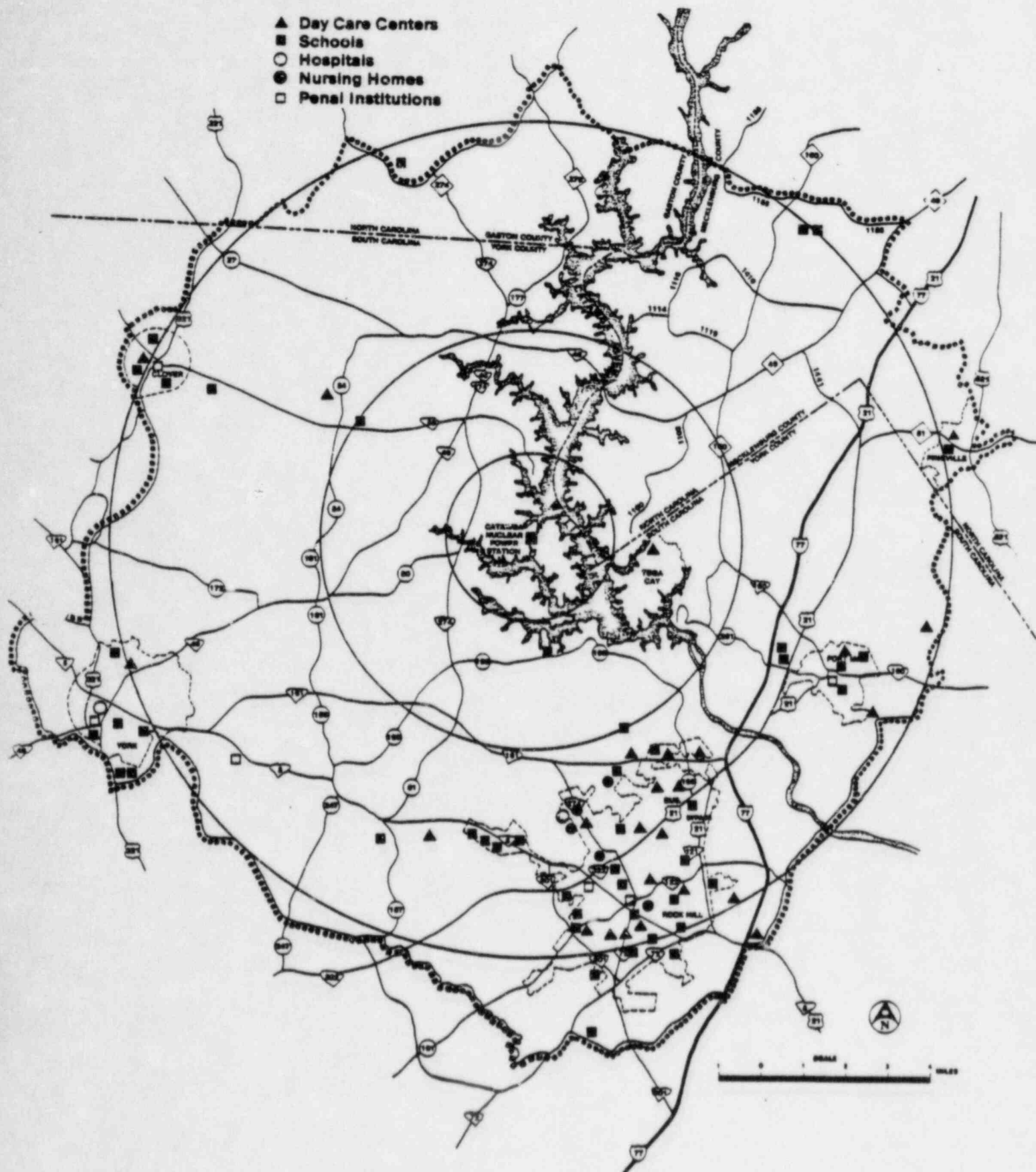


Figure 4. Local Government Jurisdictions



APPENDIX 5
AGREEMENT LETTERS

The following agreement letters support the Catawba Nuclear Station Emergency Plan and are attached:

1. Piedmont Medical Center
2. Charlotte Memorial Hospital and Medical Center
3. Bethel Volunteer Fire Department
4. Municipal - County Emergency Preparedness Agency of York County, South Carolina
5. Emergency Management Office of Mecklenburg County, North Carolina
6. Emergency Management Office of Gaston County, North Carolina
7. Memorandum of Understanding Between the North Carolina Department of Crime Control and Public Safety and Duke Power Company
8. Memorandum of Understanding Between the South Carolina Department of Health and Environmental Control and Duke Power Company
9. Piedmont Emergency Medicine Associates
10. Clover Rescue Squad

MEMORIAL

Charlotte Memorial Hospital and Medical Center
P.O. Box 32861 • Charlotte, North Carolina • 28232
Telephone (704) 373-2121

Harry A. Nurkin
Director

January 6, 1982

Mr. J. W. Hampton, Manager
Catawba Nuclear Station
Post Office Box 256
Clover, South Carolina 29710

Re: Emergency Plan Support Agreement

Dear Mr. Hampton:

At your request to provide emergency treatment and hospital care to station personnel who may be involved in a radiation accident at the Catawba Nuclear Station, I am pleased to propose on behalf of Charlotte Memorial Hospital and Medical Center the following Letter of Agreement. The terms of this agreement are identical to those contained in Memorial's agreement with the McGuire Nuclear Station, except insofar as Memorial is to be utilized as the secondary rather than the primary medical facility.

The following terms and conditions are agreed upon by and between the parties, Duke Power Company (hereinafter referred to as "Duke") and Charlotte Memorial Hospital and Medical Center (hereinafter referred to as "Hospital").

1. The Hospital shall provide emergency treatment and hospital care to persons who may be injured, overexposed, or contaminated as a result of a radiological emergency situation or accident, in those situations where this treatment and care cannot be provided by York General Hospital, the primary medical facility. These persons may or may not be Duke employees, may or may not have injuries directly related to radioactive materials, and may or may not suffer from radioactive contamination or radiation.
2. The number of such persons requiring medical attention shall be small, and the Hospital shall not be expected to treat more than five (5) such persons with radiation contamination at any one time.
3. Duke shall make every reasonable effort to decontaminate such persons at the Catawba Nuclear Station or at York General Hospital prior to transporting them to the Hospital, and Duke shall be responsible for obtaining transportation for such persons to the Hospital.

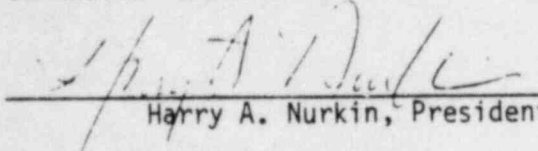
4. If an overexposed or contaminated person is transported to the Hospital, Duke Health Physics personnel, and if appropriate York General Hospital personnel, shall accompany the person to the Hospital.
5. Duke, and if appropriate York General Hospital, shall communicate relevant information to the Hospital as soon as possible, but not later than the arrival at the Hospital of such persons. This information shall include, but may not be limited to, the apparent extent of injury, the level and degree of the person's contamination and exposure, as well as guidance and assistance regarding contamination evaluation, precautions, and control.
6. Duke shall make its Health Physics personnel available to the Hospital for guidance, consultation, and assistance regarding radiation contamination, evaluation, precautions, and control regarding nuclear accidents which may occur at Duke or other locations where nuclear materials are present.
7. In the event Hospital equipment and facilities are contaminated due to the treatment of Duke employees, their agents, or others injured by the actions of Duke employees or agents, Duke shall make available its entire resources to the Hospital to control contamination and decontaminate Hospital equipment and facilities and to the extent necessary to ensure the continued accessibility of the Hospital to the general public. Should treatment of Duke employees or agents contaminate certain areas of the Hospital preventing the general public's access to these areas for more than twenty-four (24) hours, Duke shall reimburse the Hospital for lost patient revenues in these areas.
9. Duke shall, at Hospital's request, provide training in radiation protection and care of contaminated or irradiated persons to Hospital selected employees. New selected employees should receive this training within three (3) months of their initial employment and such training or refresher training should be available to all Hospital selected employees at least once annually. This training shall be conducted at a mutually agreeable location and at the convenience of the Hospital.
9. Should the Hospital or the appropriate physicians determine that a Duke employee or agent requires transfer to another health care facility, Duke shall arrange for such a transfer at Duke's expense with assistance from the Hospital.
10. Duke shall dispose of all contaminated clothing or other waste materials belonging to persons overexposed or contaminated. Duke shall also dispose of all contaminated patient valuables belonging to its employees or agents.

Mr. J. W. Hampton
Page 3
January 6, 1982

11. Duke will, at Hospital's request, review the Hospital Radioactive Contamination Emergency Plan and provide the Hospital with assistance and guidance regarding its content.
12. Duke shall be responsible for informing the Hospital in writing as to any recommendation or requirement of any federal, state, or local regulatory body that the Hospital must or should comply with in order to provide the services contemplated hereunder. Should Hospital compliance with such recommendations or requirements necessitate the expenditure of Hospital funds, Duke will be responsible where appropriate for underwriting, in part or in full, that cost.

This Letter of Agreement shall continue to remain in effect unless terminated by either party upon ninety (90) days' advance written notice.

CHARLOTTE MEMORIAL HOSPITAL AND MEDICAL CENTER



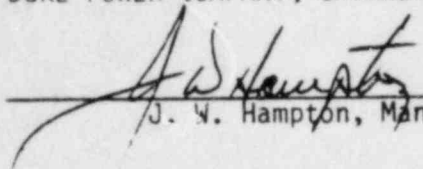
Harry A. Nurkin, President

January 6, 1982

Date

ACCEPTED BY:

DUKE POWER COMPANY, CATAWBA NUCLEAR STATION



J. W. Hampton, Manager

2-2-82

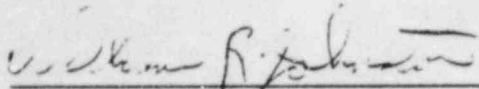
Date

Catawba Nuclear Station
P. O. Box 256
Clover, SC 29710

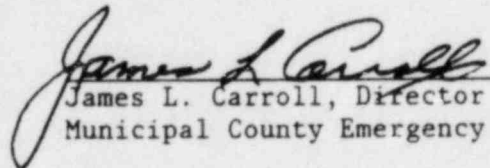
Attention: J. W. Hampton, Manager
Catawba Nuclear Station

AGREEMENT

This letter is to assure you that Bethel Volunteer Fire Department will respond to requests for aid in fire-fighting, resulting from an emergency situation at the Catawba Nuclear Station. Our department will participate in periodic drills and training as required by your Emergency Plan. In addition, the full resources of the York County Fire Association will be available as required.



William R. Johnston, Chief
Bethel Volunteer Fire Department



James L. Carroll, Director
Municipal County Emergency Preparedness

1 - 8-5 ✓

Date

cc: Mike Bolch

DUKE POWER COMPANY

CATAWBA NUCLEAR STATION

CLOVER, S.C. 29710

P.O. BOX 256

TELEPHONE

(803) 831-2282

November 20, 1981

Mr. James L. Carroll, Director
York Municipal County Emergency Preparedness Agency
155 Johnston St.
Rock Hill, South Carolina 29730

Subject: Catawba Nuclear Station
Emergency Plan Support Agreement
File No.: CN-134.10

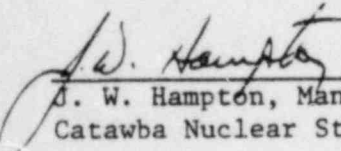
Dear Mr. Carroll:

This letter will confirm our previous agreement for your support of Catawba Nuclear Station's Emergency Plan when returned with your signature. It is our policy to confirm such agreements every two years.

The York Municipal County Emergency Preparedness Agency as established by merger of October 1980, is listed in our emergency plan separately as the City of Rock Hill, S.C. Civil Defense and as the York County Disaster Preparedness Agency. We will change our plan to reflect your new organization. As before your role would be to provide assistance with radiological monitoring and/or evacuation of affected areas as requested in the event of a radiological emergency situation at the Catawba Nuclear Station.

If you have any questions about our agreement or need any assistance please contact our station Emergency Preparedness Coordinator Mike Bolch at 324-3128 ext. 2509.

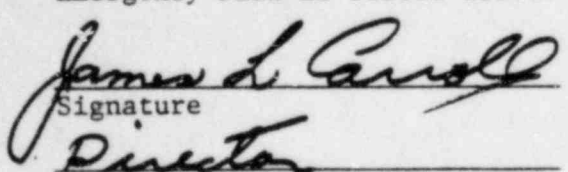
Please acknowledge this agreement by signing below and returning this letter to us at your earliest convenience. Thank you for your cooperation.


J. W. Hampton, Manager
Catawba Nuclear Station

JWH/MEB/gcd

AGREEMENT ACKNOWLEDGEMENT

I acknowledge our agreement for your support of Catawba Nuclear Station Emergency Plan as stated above.


Signature

Director
Title

11-23-81
Date

DUKE POWER COMPANY

CATAWBA NUCLEAR STATION

CLOVER, S.C. 29710

P.O. BOX 256

TELEPHONE

(803) 831-2282

November 30, 1981

Mr. Kenneth D. Williams, Director
Charlotte-Mecklenburg Office of Civil Preparedness
951 S. Independence Blvd., Room 655
Charlotte, NC 28202

SUBJECT: Catawba Nuclear Station
Emergency Plan Support Agreement
File No.: CN-134.10-2

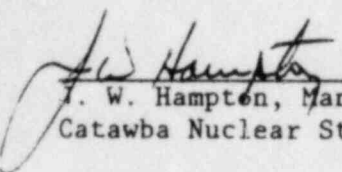
Dear Mr. Williams:

This letter will confirm our previous agreement for your support of Catawba Nuclear Station's Emergency Plan when returned with your signature. It is our policy to confirm such agreements every two years.

The Charlotte-Mecklenburg Office of Civil Preparedness is listed in the Catawba Nuclear Station's Emergency Plan for support in a radiological emergency at the station. Your role would be to provide radiological monitoring and/or evacuation of affected areas as requested in the event of a radiological emergency situation at Catawba Nuclear Station.

If you have any questions about our agreement or need any assistance, please contact our station Emergency Preparedness Coordinator, Mike Bolch, at 324-3128, extension 2509.

Please acknowledge this agreement by signing below and returning this letter to us at your earliest convenience. Thank you for your cooperation.


J. W. Hampton, Manager
Catawba Nuclear Station

MEB/stp

AGREEMENT ACKNOWLEDGEMENT

I acknowledge our agreement for your support of Catawba Nuclear Station's Emergency Plan as stated above.

Signature

Title

Date

P. O. Box 1578 - Phone 865-3303

Gastonia, North Carolina 28052

Steam Production

	Code	Initial
Station		
Manager		
Sup't.		
H. Serv.		
Sec. Serv.	<u>1</u>	
Sup't		
Jail		
Maintenance		
Sup't.		

ROUTING CODES

This letter of Agreement is to confirm that the Gaston County Department of Emergency Management will plan for and assist in the management of a radiological emergency at the Catawba Nuclear Station. This planning and assistance will be in accordance with our disaster plan and in accordance with the special aspects of our plan for the Catawba Nuclear Station.

It is understood that the Catawba Nuclear Station will provide early notification of an emergency condition to the Gaston County Warning Point as soon as the condition is discovered. In addition to early notification, it is agreed that the Catawba Nuclear Station will provide other information including protective action recommendations, plant status information, actual and projected exposure data for members of the general population, meteorological information, requests for support of off-site agencies and a prognosis for worsening or termination of any general condition.

It is also agreed that the Gaston County Department of Emergency Management will utilize existing warning and notification methodology to ensure that members of the general population in Gaston County are adequately informed of any protective actions that may be required in the event a radiological emergency may exist at Catawba Nuclear Station.

Sincerely yours,

Bob E. Phillips, Coordinator
Gaston County Department
of Emergency Management

BEP/dg

cc Mike Bolch

PIEDMONT MEDICAL CENTER LETTER of AGREEMENT

(later)

**MEMORANDUM OF UNDERSTANDING
BETWEEN THE STATE OF NORTH CAROLINA
AND DUKE POWER COMPANY**

1. Purpose

This Memorandum of Understanding establishes an agreement between the State of North Carolina and Duke Power Company relative to planning and exercising for and responding to an incident at the McGuire or Catawba Nuclear Stations that might affect the health and safety and property of the citizens of North Carolina and/or give cause for public concern.

2. Authority

- a. North Carolina General Statutes 143B-476 et seq
- b. North Carolina General Statutes 166A-1 et seq

3. Background

Duke Power Company has two nuclear power plants operating or under construction that are required by the Nuclear Regulatory Commission to have detailed off-site contingency plans for response to events or emergencies which may affect the citizens of North Carolina. In the case of an incident the successful implementation of these plans will require a coordinated effort of local and state governments, and Duke Power Company. Under North Carolina General Statutes the responsibility for this planning and the authority to direct the State response lies with the Secretary of the Department of Crime Control and Public Safety.

4. Agreement

- a. It is understood that the State of North Carolina, with the assistance of Duke Power Company, will:

- Prepare and maintain both state and county contingency plans as required by the Nuclear Regulatory Commission and the Federal Emergency Management Agency;

- Periodically exercise these plans in accordance with federal requirements;

- Maintain a 24-hour alert, notification, and response capability; and

- Respond with all available and necessary Resources in case of an actual emergency at the plants.

b. It is also understood that Duke Power Company, with the assistance of the State, agrees to:

- Promptly advise the State and local governments of any incidences that might affect or cause concern to the citizens of North Carolina;

- Cooperate with the State in the development, exercising, and implementation of emergency plans to protect the health and safety of the public in the event of a nuclear accident.

- Permit the State to periodically review environmental radioactive monitoring programs; and

- Make equipment and personnel available to assist the Radiation Protection Section of the Department of Human Resources in its radiation assessment and monitoring responsibilities.

This agreement shall commence with the signing of this Memorandum of Understanding and shall continue until expressly revoked.

5/25/83
Date

Steven D. Lurie
Secretary
Dept. of Crime Control and
Public Safety

Glenn B. Lucken
Utility Representative
Vice President, The Prod.
5/13/83

MEMORANDUM OF UNDERSTANDING

BETWEEN

THE SOUTH CAROLINA EMERGENCY PREPAREDNESS DIVISION,
THE SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL,
AND
DUKE POWER COMPANY

I. PURPOSE

This Memorandum of Understanding establishes an agreement between the South Carolina Emergency Preparedness Division, the South Carolina Department of Health and Environmental Control, and Duke Power Company pertaining to the Oconee and Catawba Nuclear Stations (ONS & CNS). It establishes the overall responsibilities relating to emergency preparedness planning, training, coordination, notification, hazard assessment and technical support in the event of a radiological incident at Oconee or Catawba Nuclear Stations that might affect the health, safety and property of the citizens of South Carolina and/or give cause for public concern.

II. AUTHORITY

- A. Act 223, 1967 - South Carolina Atomic Energy and Radiation Control Act as amended.
- B. South Carolina Act number 199, dated July 30, 1979.

III. AGREEMENT

In accordance with Act 223, 1967; Act 199, 1979; and this Memorandum, the three agencies/organizations listed above agree with the following:

- A. Emergency Preparedness Division (EPD) will:
 - 1. Prepare and maintain State Operational Radiological Emergency Response (RER) Plans.
 - 2. Coordinate with DHEC, Duke Power, and local government in the development of RER Plans.
 - 3. Prepare and maintain site specific plans for HBR.
 - 4. Assist local governments in preparing and maintaining local RER Plans.
 - 5. Establish and direct State Emergency Operations Center (SEOC) and Forward Emergency Operations Center (FEOC) when directed by the Governor.

6. Coordinate off-site support from state, federal, and other support agencies.
 7. Recommend and direct protective actions to include evacuation as well as recovery re-entry operations in coordination with DHEC.
 8. Provide for a 24-hour notification capability with DHEC, other state RER support agencies, affected counties, Duke Power, and the state of North Carolina and insure notification is made as appropriate.
 9. Participate with DHEC, Duke Power, and local government, in the development of Exercise scenarios.
 10. Conduct RER drills and exercises for Duke Power as specified in 10CFR50 Appendix E.
 11. Maintain close liaison with the nuclear industry to assure that State and Duke Power RER procedures are compatible.
 12. Coordinate public meetings for an emergency preparedness exercise when required.
 13. Coordinate and conduct off-site evaluation critiques for each ONS or CNS exercise.
 14. Prepare off-site after-action reports for each ONS or CNS exercise.
 15. Secure and maintain appropriate letters of agreement.
 16. Coordinate all information on the status of Emergency Operations and Radiological Hazards through the News Media Center, if established, or the Governor's Public Information Office, for release to the public.
 17. Coordinate with DHEC and Duke Power for the RER training of state and local government personnel.
- B. Department of Health and Environmental Control (DHEC) will:
1. Provide for 24-hour accident notification capability with Duke Power and EPD and insure notification is made.
 2. Prepare and maintain State Technical Radiological Emergency Response plan.
 3. Participate with DPD, Duke Power, and local government in the development of RER Plans.

4. Maintain a radiological hazard assessment capability and provide radiological technical support, coordination and guidance for the state and local government.
5. Conduct and/or coordinate off-site radiological surveillance and monitoring in coordination with the Duke Power off-site monitoring group.
6. Make recommendations to EPD for protective actions as well as recovery and re-entry guidelines.
7. Provide representatives at the SEOC, FEOC, and Crisis Management Center.
8. Obtain and coordinate radiological assistance resources from the federal government, other states, and the nuclear industry as required.
9. Provide RER training to state agencies and local governments.
10. Participate in training programs given by Duke Power for Radiological Monitoring Teams.
11. Participate with EPD and Duke Power in the development of exercise scenarios.
12. Participate in ONS and CNS exercises and drills.
13. Secure and maintain appropriate letters of agreement.
14. Coordinate all information on the status of emergency operations and radiological hazards through the News Media Center, if established, or the Governor's Public Information Office, for release to the public.
15. Maintain close liaison with the nuclear industry to assure that state and Duke Power RER procedures are compatible.

C. Duke Power Company will:

1. Prepare and maintain on-site Radiological Emergency Response Plans in accordance with Nuclear Regulatory Commission Rules and Regulations.
2. Maintain the ability for 24-hour communications with DHEC and with local governments in the 10-Mile EPZ during emergency
3. Notify DHEC of an accident consistent with approved emergency procedures.

4. Recommend protective actions directly to affected counties when an immediate General Emergency occurs.
5. Conduct off-site radiological assessment/monitoring capabilities in coordination with DHEC.
6. Provide Media Center facilities and communications.
7. Be prepared to assist DHEC at other fixed nuclear facility accidents upon availability.
8. Provide liaison to the FEOC.
9. Provide RER training for site personnel.
10. Assist with technical response training for off-site response personnel as necessary.
11. Secure and update letters of agreement with local government emergency services that will provide on-site assistance.
12. Provide annual training/information briefing of local news media.
13. Participate with DHEC, EPD, and local government in the development of exercise scenarios.
14. Conduct required ONS and CNS exercises and drills.
15. Prepare and update a public information brochure to be distributed throughout the 10-Mile EPZ on an annual basis.
16. Provide authentication code words to the state and to local warning points.
17. Maintain close liaison with the state and local governments to assure procedures are compatible.

IV. IMPLEMENTATION

This agreement will commence with the signing of this Memorandum of Understanding by the South Carolina Emergency Preparedness Division, the South Carolina Department of Health and Environmental Control, and Duke Power Company and supersedes all previous agreements, relating to Radiological Incident responsibilities, between the aforementioned agencies/organizations.

Copies of this agreement will be made available to the nuclear industry.

April 20, 1983
DATE

Joshua P. Wilson
Director
FOR SOUTH CAROLINA EMERGENCY PREPAREDNESS
DIVISION

April 20, 1983
DATE

Heyward H. Shively
BUREAU OF RADIOLOGICAL HEALTH
DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

May 2, 1983
DATE

Hal B. Tucker
FOR DUKE POWER COMPANY
VICE-PRESIDENT, NUCLEAR PRODUCTION DEPARTMENT

DUKE POWER COMPANY

CATAWBA NUCLEAR STATION

P.O. BOX 256

CLOVER SC 29710

TELEPHONE
(803) 831 2282

June 22, 1983

Robert D. Lesslie, M.D.
Piedmont Emergency Medicine Associates
P. O. Box 3556, CRS
Rock Hill, S. C. 29730

Dear Dr. Lesslie:

This shall serve as a letter of agreement between the Catawba Nuclear Station (CNS) and Piedmont Emergency Medicine Associates (PEMA), who will act as Physicians in support of the station's Emergency Plan.

The following terms are agreed upon by both parties, CNS and PEMA.

1. PEMA shall provide emergency medical treatment, and, if necessary, hospital care to individuals who may be injured and contaminated as a result of an accident at CNS.
2. PEMA shall participate in sufficient practice drills and an annual emergency exercise to ensure emergency preparedness and shall be available to respond to questions from the Nuclear Regulatory Commission and / or the Federal Emergency Management Agency.
3. PEMA shall have the responsibility for directing the emergency response actions of Piedmont Medical Center (PMC) Emergency Department (ED) personnel and shall coordinate the annual training of PMC ED personnel.
4. A PEMA physician shall attend, at CNS expense, training at the Radiation Emergency Assistance Center/Training Site (REAC/TS) in Oak Ridge, TN. He shall then instruct the remaining physicians of PEMA using information from the REAC/TS course.
5. PEMA physicians shall attend annual training sessions given by CNS to ensure emergency preparedness.

This letter of agreement shall remain in effect continuously and may be terminated by either party with 90 days advance written notice.

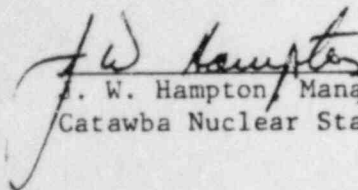
Robert D. Lesslie, M.D.
May 21, 1983
Page #2

Please sign below if these terms are acceptable.

ACCEPTED BY:

Vann A. Brewster, M.D.
Corporate Medical Director

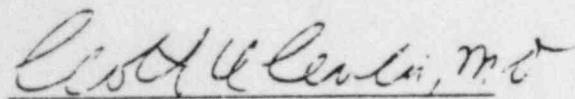
Date



J. W. Hampton, Manager
Catawba Nuclear Station

6-24-83

Date



Robert D. Lesslie, M.D.
Piedmont Emergency Medicine Assoc.

6/27/83

Date

/pmg

cc: J. W. Hampton
V. A. Brewster
R. D. Lesslie
M. Bolch
P. C. McAnulty
J. W. Cox
A. R. Franklin
M. S. Tuckman

DUKE POWER COMPANY

CATAWBA NUCLEAR STATION

CLOVER SC 29710

P.O. BOX 256

TELEPHONE
(803) 831-2282

May 12, 1983

Mr. Steve Shillinglaw, Chief
Clover Rescue Squad
124 Bethel Street
Clover, SC 29710

SUBJECT: Catawba Nuclear Station
Emergency Plan Support Agreement
File No.: CN-750.25

Dear Mr. Shillinglaw:

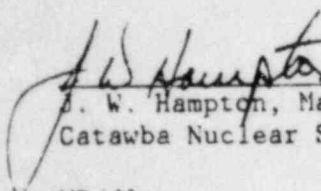
This letter shall serve as a Letter of Agreement between the Catawba Nuclear Station (CNS) and the Clover Rescue Squad (CRS), who will provide ambulance service to support the CNS Emergency Plan.

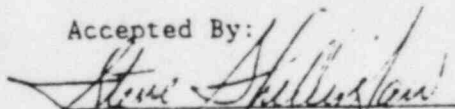
The following terms are agreed upon by both parties, CNS and CRS:

1. CRS shall provide emergency ambulance service to CNS for transportation of a contaminated injured individual to either Piedmont Medical Center (PMC), Rock Hill, SC or to Charlotte Memorial Hospital, Charlotte, NC as requested by CNS.
2. CRS shall participate in periodic drills and training as required by the CNS Emergency Plan.
3. CNS shall be responsible for decontamination or replacement of any equipment that becomes contaminated as a result of transporting a contaminated injured individual.

This letter shall remain in effect for three years and may not be terminated by either party without ninety (90) days advance written notice.

Please sign below if these terms are acceptable.


J. W. Hampton, Manager
Catawba Nuclear Station

Accepted By: 
Steve Shillinglaw, Chief
Clover Rescue Squad

MB/dlc

cc: State of South Carolina Office of Adjutant General
Division of Emergency Preparedness

York County Municipal-County
Emergency Preparedness Office

APPENDIX 6
CATAWBA NUCLEAR STATION
EMERGENCY PLAN
DISTRIBUTION LIST

- | | |
|---------------------------------------|---|
| 1. J. W. Hampton | 31. R. W. Rasmussen, Nuclear Production |
| 2. A. R. Franklin | 32. R. W. Rasmussen, Nuclear Production |
| 3. M. S. Tuckman | 33. Pat Osborne - Corp. Comm. Catawba |
| 4. G. T. Smith | 34. Lionel Lewis - Nuclear Prod. |
| 5. B. Wilson | 35. H. B. Tucker - Nuclear Prod. VP |
| 6. W. P. Deal | 36. R. M. Grover - Nuclear Prod. |
| 7. J. Lanning | 37. G. E. Vaughn - Nuclear Prod. Mgr. |
| 8. J. W. Cox | 38. K. S. Canady - Nuclear Prod. |
| 9. D. Tower | 39. R. O. Sharpe - Nuclear Prod. |
| 10. T. E. Crawford | 40. Mary Cartwright - Corp. Comm. |
| 11. J. H. Knuti | 41. J. A. Effinger - Q.A. Elec. Cen. |
| 12. C. E. Muse | 42. R. H. Charest |
| 13. C. W. Graves, Jr. | 43. W. R. McCollum |
| 14. R. L. Clemmer | 44. R. O. Sharpe |
| 15. W. W. McCollough | to |
| 16. Wofford Scruggs | 46. Forward to NRC, Wash., Atlanta |
| 17. D. M. Robinson | 58. D. R. Rogers |
| 18. R. D. Kinard | <u>South Carolina</u> |
| 19. P. C. McAnulty | 59. Paul Lunsford |
| 20. NRC Site Rep. P. H. Skinner | 60. Josh Moore |
| 21. TSC - M. E. Bolch | <u>North Carolina</u> |
| 22. D. L. Waters | 61. J. T. Pugh, III |
| 23. Shift Supervisors Office | 62. Joe Meyers |
| 24. Control Room | <u>York County</u> |
| 25. M. E. Bolch | 63. J. L. Carroll |
| 26. Technical Training Center Library | <u>Mecklenburg County</u> |
| 27. Ocone Nuclear Station | 64. K. E. Williams |
| 28. McGuire Nuclear Station | <u>Gaston County</u> |
| 29. Westinghouse Site-Construction | 65. Bob Phillips |
| 30. T. K. Anderson | 66. Document Control |