DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
INDEX
EMERGENCY PLAN IMPLEMENTING PROCEDURES

Procedure #	Title
RP/0/A/5000/01	Classification of Emergency
RP/0/A/5000/02	Notification of Unusual Event
RP/0/A/5000/03	Alert
RP/0/A/5000/04	Site Area Emergency
RP/0/A/5000/05	General Emergency
RP/0/A/5000/06	Natural Disaster
RP/0/A/5000/07	Earthquake
RP/0/A/5000/08	Release of Toxic or Flammable Gas
RP/0/A/5000/09	Collision/Explosion
RP/0/A/5000/10	Conducting A Site Assembly/Evacuation
RP/0/A/5000/11	Offsite Dose Projections without OAC
RP/0/B/5000/12	Control of Assessment and Repair Teams
HP/0/B/1009/01	Health Physics Recovery Plan
HP/0/B/1009/03	Environmental Surveillance Following a Primary to Secondary Leak
HP/0/B/1009/04	Environmental Monitoring for Emergency Conditions within the Ten Mile Radius of Catawba Nuclear Station
HP/0/B/1009/05	Personnel Monitoring for Emergency Conditions
HP/0/B/1009/06	Alternative Method for Determining Dose Rate Within the Reactor Building
HP/0/B/1009/07	Inplant Particulate and Iodine Monitoring Under Accident Conditions
HP/0/B/1009/08	Contamination Control During Transportation of Contaminated Injured Individuals
HP/0/B/1009/09	Guidelines for Accident & Emergency Response
HP/0/B/1009/12	Quantifying Gaseous Releases through Steam Relief Valves under Post-Accident Conditions
HP/0/B/1009/13	Offsite Dose Projection-Uncontrolled Release of Gaseous Radioactive Material Through the Unit Vent
HP/0/B/1009/14	Offsite Dose Projection-Uncontrolled Release of Liquid Radioactive Material
HP/0/B/1009/15	Offsite Dose Projection-Uncontrolled Release of Gaseous Radioactive Material Other Than Through the Unit Vent
HP/0/B/1009/16	Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release
HP/0/B/1009/17	Nuclear Post Accident Containment Air Sampling System Operation
HP/0/B/1009/19	Emergency Radio System Operations, Maintenance and Communications
CP/0/A/8700/11	Sampling at the Post Accident Liquid Sample Panel
CNS Directive 3.7.5	Response to Bomb Threat Emergencies
CNS Directive 3.8.4	Onsite Emergency Organization
CNS Directive 2.0.1	News Release
CNS Directive 3.0.7	Site Assembly/Evacuation
HP/0/B/1000/06	Emergency Equipment Functional Check and Inventory
PT/0/B/4600/06	Emergency Exercise

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: RP/0/A/5000/01
Change(s) 0 to
1 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: CLASSIFICATION OF EMERGENCY

(4) PREPARED BY: Mike Bolch DATE: Nov. 11, 1983

(5) REVIEWED BY: Devereux Tower DATE: Nov 11, 1983

Cross-Disciplinary Review By: R.D. Kinard N/R: ______

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ______ (SRO) Date: ______

By: ______ Date: ______

(7) APPROVED BY: [signature] Date: 11/11/83

(8) MISCELLANEOUS:

Reviewed/Approved By: ______ Date: ______

Reviewed/Approved By: ______ Date: ______

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
CLASSIFICATION OF EMERGENCY

1.0 SYMPTOMS

1.1 Notification of Unusual Event

1.1.1 Events are in process or have occurred which indicate a potential degradation of the level of safety of the plant.

1.1.2 No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety occurs.

1.2 Alert

1.2.1 Events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant.

1.2.2 Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

1.3 Site Area Emergency

1.3.1 Events are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public.

1.3.2 Any releases are not expected to exceed EPA Protective Action Guideline exposure levels except near the site boundary.

1.4 General Emergency

1.4.1 Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity.

1.4.2 Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.

2.0 IMMEDIATE ACTIONS

2.1 Compare actual plant conditions to the Emergency Action Level(s) listed in Enclosure 4.1 then declare the appropriate Emergency Class as indicated.

2.2 Initiate the Emergency Response Procedure (RP) applicable to the Emergency Class as follows:

Notification of Unusual Event	RP/0/A/5000/02
Alert	RP/0/A/5000/03
Site Area Emergency	RP/0/A/5000/04
General Emergency	RP/0/A/5000/05

3.0 SUBSEQUENT ACTIONS

3.1 To escalate, de-escalate or close out the Emergency, compare plant conditions to the Initiating Conditions of Enclosure 4.2.

4.0 ENCLOSURES

4.1 Emergency Action Level(s) for Emergency Classes

CLASSIFICATION OF EMERGENCY

Enclosure 4.1 Emergency Event List

4.1.1 Primary Coolant Leak

4.1.2 Fuel Damage

4.1.3 Steam System Failure

4.1.4 High Radiation/Radiological Effluents

4.1.5 Loss of Shutdown Function

4.1.6 Loss of Power

4.1.7 Fires and Security Actions

4.1.8 Loss of Alarms and/or Communications

4.1.9 Natural Disasters and Other Hazards

4.1.10 Spent Fuel Damage

4.1.11 Other Abnormal Plant Conditions

4.1.12 Contaminated and Injured Individual

CATAWBA NUCLEAR STATION
EMERGENCY ACTION LEVEL'S FOR

EVENT #: 4.1.1 Primary Coolant Leak

Class

Notification of Unusual Event

1. NC Leakage > Tech. Specs. LCO:

   •NC Leak > 10 gpm identified primary leakage

   •> 500 gpd from any S/G

   •> 1 gpm total P-S through all S/G

   •Any press boundary leakage

   •> 1 gpm unidentified leakage

   •> 40 gpm controlled leakage at 2235 psig

   •> 1 gpm from NC press isolation valve at 2235 psig

2. Failure of a PZR PORV or safety valve to close following a reduction of NC press:
   Valid accoustical monitor indication of valve failure.

Alert

1. NC Leak > 50 gpm

2. P-S Leak > 10 gpm

   AND

   a steam line break.

   SYMPTOMS

   Rapidly decreasing:

   •NC Tavg
   •PZR Press
   •PZR Level

   AND

   •EMF-33 & 34 in alarm.

   •Steam Line Radiation Monitor in alarm on the affected S/G.

   •Steam line low Press S/I signal with increasing Containment press (if break in Containment).

   •High steam flow and
   •Low Low Tavg

Site Area Emergency

1. NC Leak > Total ECCS capacity:

   SYMPTOMS

   •PZR Low Press Rx Trip
   •PZR Low Press S/I Signal
   •High Containment Press
   •High Containment Humidity
   •High Containment Sump Level
   •EMF-38, 39 & 40 in alarm

2. Several hundred gpm P-S leakage

   AND

   loss of offsite power:

   SYMPTOMS

   •PZR Low Press Alarm
   •PZR Low Press Rx Trip
   •PZR Low Level Alarm

   •EMF-33 & 34 in alarm

   •Steam Line Radiation Monitor in alarm on the affected S/G.

   AND

   UV alarm on 7KV buses

General Emergency

1. Small or large LOCA with failure of ECCS, leads to core melt:

   SYMPTOMS

   •S/I signal and Rx trip

   AND

   •S/I & ND pumps not running

   AND

   •S/I flow indicates "No flow"

   AND

   •High Containment Sump Level

2. Small LOCA and initially successful ECCS with failure of NS System over several hours, leads to core melt and failure of containment:

   SYMPTOMS

   •PZR low press Rx trip
   •PZR low press S/I signal
   •NS flow indicators show "No flow" after > 2 hours
   •NC temperature is rising

   AND

   •NS System fails to function.

CATAWBA NUCLEAR STATION
EMERGENCY ACTION LEVEL'S FOR

EVENT # 4.1.1: Primary Coolant Leak (Continued)

Class Notification of Unusual Event	Alert	Site Area Emergency	General Emergency
	3. Failure of one S/G tube AND loss of offsite power: SYMPTOMS •PZR low press alarm •PZR low press trip •PZR low level alarm •PZR low press S/I signal •EMF-33 & 34 in alarm •Steam Line Radiation Monitor in alarm on the affected S/G. AND UV alarm on all 7 KV buses	3. > 50 gpm P-S leakage AND a steam line break AND identification of fuel damage. SYMPTOMS Rapidly decreasing: •NC Tavg •PZR Press •PZR Level •EMF-33 & 34 in alarm •Steam Line Radiation Monitor in alarm on the affected S/G AND •Steam line low Press S/I signal with increasing containment press AND (if steam line break is in containment) EMF-53A and/or B in alarm •High steam flow and Low-Low Tavg AND EMF-48 in alarm	
	4. Failure > 10 S/G tubes: Several hundred gpm P-S leak: SYMPTOMS •PZR low press alarm •PZR low press Rx Trip •PZR low level alarm •PZR low press S/I signal AND EMF-33 & 34 in alarm •Steam Line Radiation Monitor in alarm on the affected S/G.		

CATAWBA NUCLEAR STATION
EMERGENCY ACTION LEVEL'S FOR

EVENT # 4.1.2: Fuel Damage

Class Notification of Unusual Event	Alert	Site Area Emergency	General Emergency
1. High coolant activity: a. > 1 μCi/gram Dose Equivalent I-131 or > 100 μCi/Gram $\bar{E}$ gross activity. b. > 0.1% increase in fuel failures within 30 min. OR 1% to 5% fuel failures SYMPTOMS •EMF-48 alarm AND •I-131 concentration increases by 7μCi/ml over a 30 min. period OR •I-131 concentration 70μCi/ml to 350μCi/ml Note: Determined by laboratory analysis	1. Severe loss of fuel cladding; mechanical clad failure: a. Very high coolant activity sample 350 μCi/ml to 1750 μCi/ml equivalent I-131. b. Increase > 1.0% fuel failures (> 70μCi/ml within 30 min.) OR •5% to 25% total fuel failures (>350μCi/ml I-131) Note: Determined by laboratory analysis. 2. NC pump seizure leads to fuel failure: SYMPTOMS •NC pump trip alarm AND •Rx trip on low flow AND •Increase > 1% fuel failures within 30 min. (> 70μCi/ml within 30 min.) OR •5% total fuel failures. (> 350μCi/ml I-131) Note: Determined by laboratory analysis	1. Degraded core with possible loss of coolable geometry: •Inadequate Core Cooling See EP/1/A/5000/2B •Mechanical Clad Failure by > 1750 μCi/ml I-131 •Severe Fuel Overtemperature 1% to 10% failed fuel indicated by 1300 to 13,000 μCi/ml I-131 •Fuel Melt .5% to 5% failed fuel indicated by 1,180 to 11,800μCi/ml I-131 Note: Determined by laboratory analysis.	1. Loss of 2 of 3 fission product barriers with a potential for loss of 3rd barrier: a. LOCA as identified in Event 4.1.1 Site Area Emergency, Item #1 AND Incomplete Cont. Isol b. LOCA as identified in Site Area Emergency, Item #1 AND •EMF-53A and/or B > 10^4 R/hr AND •Containment press > 14.8 psig for at least 2 minutes

CATAWBA NUCLEAR STATION
EMERGENCY ACTION LEVEL'S FOR

EVENT # 4.1.3: Steam System Failure

Class Notification of Unusual Event	Alert	Site Area Emergency	General Emergency
1. Failure of a safety or PORV on an S/G to close, following a reduction of SM pressure: 2. Rapid depressurization of secondary side: SYMPTOMS a. S/I signal b. As observed	1. P-S Leak > 10 gpm AND a steam line break SYMPTOMS Rapidly decreasing: •NC Tavg •PZR Press •PZR Level AND •EMF-33 & 34 in alarm. •Steam Line Radiation Monitor in alarm on the affected S/G. •Steam line low Press S/I signal with increasing Containment press (if break in Containment). •High steam flow and •Low-Low Tavg.	1. > 50 gpm P-S leakage AND a steam line break AND Identification of fuel damage. SYMPTOMS Rapidly decreasing: •NC Tavg •PZR Press •PZR Level •EMF-33 & 34 in alarm •Steam Line Radiation Monitor in alarm on the affected S/G. AND •Steam line Low Press S/I signal with increasing containment press AND (If steam line break is in containment) EMF-53A and/or B in alarm •High steam flow and Low-Low Tavg AND EMF-48 in alarm.	N/A

CATAWBA NUCLEAR STATION
EMERGENCY ACTION LEVEL'S FOR

EVENT # 4.1.4: High Radiation/Radiological Effluents

Class Notification of Unusual Event	Alert	Site Area Emergency	General Emergency
1. Radiological Effluent Tech Specs Exceeded: SYMPTOMS EMF-31, 35, 36, 37, 49 or 50 in alarm AND uncontrolled release continuing indicating Radiological Effluent Tech. Specs. exceeded.	1. High radiation level or high airborne contamination: Increase by a factor of 1000 in radiation monitor readings within station. 2. Airborne radiological effluents > 10X TS limits (instantaneous rate): SYMPTOMS •EMF-35 Low Range offscale High Range ≥ 1 X 10^{4} cpm •EMF-36 Low Range ≥ 2 X 10^{6} cpm High Range ≥ 5 X 10^{3} cpm	1. Radiological effluents > 50 mr/hr for 30 min. OR > 500 mr/hr Whole Body for 2 min. (or 5X these levels to thyroid) at the site boundary: SYMPTOMS •EMF-35 Low Range offscale High Range ≥ 8 X 10^{3} cpm •EMF-36 Low Range ≥ 3 X 10^{5} cpm High Range ≥ 7 X 10^{1} cpm •EMF-37 change of 143 cpm/minute for 30 minutes or a change of 1430 cpm/minute for 2 minutes as determined from recorder trace.	1. Effluent monitor detect levels corresponding to: 1 R/hr Whole Body OR 5 R/hr thyroid at the Site Boundary: SYMPTOM •EMF-37 change of 2800 cpm/minute over any time interval as determined from recorder trace.

CATAWBA NUCLEAR STATION
EMERGENCY ACTION LEVEL'S FOR

EVENT # 4.1.5: Loss of Shutdown Functions

Class Notification of Unusual Event	Alert	Site Area Emergency	General Emergency
N/A	1. Complete loss of function needed for plant cold shutdown: SYMPTOMS •ND not functional AND •Inability to maintain natural or forced cool-down.	1. Complete loss of functions needed for plant hot shutdown: SYMPTOMS •Inability to establish NV pump injection AND •Inability to establish CA flow OR •Inability to establish KC flow.	1. Transient requiring Rx trip with failure to scram. Additional failure of core cooling and ECCS would lead to core melt: SYMPTOMS •Rx remains critical after all attempts to trip the Rx are complete AND •No ND and SI flow indicated. OR •S/I initiated.
	2. Failure of the Reactor Protection System to initiate and complete a trip which brings the reactor subcritical: Reactor remains critical after all attempts to trip have been completed.	2. TRANSIENT requiring operation of shutdown system with failure to to trip: Reactor remains critical after all attempts to trip have been completed.	2. Transient initiated by loss of CF and CM Systems followed by failure of CA System for extended period. Core melting is possible in several hours with ultimate failure of containment likely: SYMPTOMS Rx trip on Lo-Lo S/G level AND wide range S/G level toward offscale low on all S/G AND No CA flow indicated OR CA pumps not running and cannot be restored within 30 minutes OR $\geq$ 3% Rx power and loss of both CF pumps.

CATAWBA NUCLEAR STATION
EMERGENCY ACTION LEVEL'S FOR

EVENT # 4.1.6: Loss of Power

Class Notification of Unusual Event	Alert	Site Area Emergency	General Emergency
1. Loss of offsite Power: SYMPTOMS •UV alarm on all 7 KV buses	1. Loss of offsite power and loss of all onsita AC power for ≤ 15 min. SYMPTOMS •UV alarm on all 7 KV buses AND •UV alarm on 4160V buses	1. Loss of offsite power and loss of all onsite AC power for ≥ 15 min. SYMPTOMS •UV alarms on all 7 KV buses AND •UV alarm on 4160V buses	1. Failure of offsite and onsite power with total loss of CA makeup for several hours, leads to core melt and failure of containment: SYMPTOMS •UV alarms on all 7 KV buses AND Blackout load sequencer actuated AND •CA pump(s) fail to start.
2. Loss of onsite power capability: SYMPTOMS •Main generator incapable of supplying in-house loads AND •Both D/G's inoperable	2. Loss of all vital DC power for ≤ 15 min. SYMPTOM UV alarm on all vital DC buses	2. Loss of all vital DC power for ≥ 15 min. SYMPTOM UV alarm on all vital DC buses	

CATAWBA NUCLEAR STATION
EMERGENCY ACTION LEVEL'S FOR

EVENT # 4.1.7: Fires and Security Actions

Class Notification of Unusual Event	Alert	Site Area Emergency	General Emergency
1. Fire (within protected area) lasting more than 10 minutes: Observation or fire detection alarm lasting > 10 minutes.	1. Fire potentially affecting safety systems: Observation of a fire that could affect safety systems.	1. Fire compromising the functions of safety systems: Observation of a major fire that defeats redundant safety system or functions.	1. Any major internal or external events (e.g., fires, earthquakes substantially beyond design levels) which could cause massive common damage to plant systems.
2. Security threat OR •Attempted entry OR •Attempted sabotage As notified by Security Force.	2. Ongoing Security compromise: As reported by Security Force	2. Imminent loss of physical control of the plant: Physical attack on the plant including imminent occupancy of Control Room and auxiliary shutdown panels.	2. Loss of physical control of the facility: Physical attack on the facility has resulted in occupation of the Control Room and auxiliary shutdown panels.

CATAWBA NUCLEAR STATION
EMERGENCY ACTION LEVEL'S FOR

EVENT # 4.1.8: Loss of Alarms and/or Communication

Class Notification of Unusual Event	Alert	Site Area Emergency	General Emergency
1. 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: SYMPTOMS •Loss of process or effluent Radiation monitoring system OR •Loss of all meteorological instrumentation onsite OR •Loss of all radio/telephone communications capability offsite.	1. Most or all alarms (annunciators) lost.	1. Most or all alarms (annunciators) lost for 15 minutes and plant is not in cold shutdown OR Plant transient initiated while all alarms lost.	N/A

CATAWBA NUCLEAR STATION
EMERGENCY ACTION LEVEL'S FOR

EVENT # 4.1.9: Spent Fuel Damage

Class Notification of Unusual Event	Alert	Site Area Emergency	General Emergency
N/A	1. Fuel damage accident with release of radioactivity to Containment or Fuel Handling Building: SYMPTOMS •EMF-15, 17, 38, 39, 40 or 42 in 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 damage spent fuel.	1. Major damage to spent fuel in containment or Fuel Handling Building; SYMPTOMS •EMF-15, 17, 38, 39, 40 or 42 in 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.	N/A

CATAWBA NUCLEAR STATION
EMERGENCY ACTION LEVEL'S FOR

EVENT # 4.1.10: Natural Disasters and Other Hazards

Class Notification of Unusual Event	Alert	Site Area Emergency	General Emergency
1.a. Earthquake < OBE felt in plant or detected: < 0.08g Horizontal OR < 0.053g Vertical	1.a. Earthquake > OBE: > 0.08g Horizontal OR > 0.053g Vertical (1AD-4)	1. When plant is not in cold shutdown, a. Earthquake > SSE: > 0.15g Horizontal OR > 0.10g Vertical	1. Any major internal or external events (e.g., fires, earthquakes substantially beyond design levels) which could cause massive common damage to plant systems.
b. Lake level: High > 580.9 ft. MSL Low < 559.9 ft. MSL	b. Lake level: High 592.4 ft. MSL Low 559.4 ft. MSL	b. Lake Level: High > 592.4 ft. MSL Low < 559.4 ft. MSL	
c. Any tornado on site	c. Any tornado striking facility		
d. Winds > 73 mph	d. Winds approaching 95 mph	c. Winds > 95 mph	
2.a. Aircraft crash onsite or unusual aircraft activity over site	2.a. Aircraft crash on facility	2. When plant is not in cold shutdown a. Aircraft crash causing damage or fire to Containment Building, Control Room, Auxiliary Building, Fuel Building or RN Intake Structure	
b. Train derailed onsite.	b. Missile impact on facility		
c. Near site or onsite explosion	c. Explosion damage to facility affecting plant operation	b. Damage from missile or explosion causes inability to establish: 1) charging pump injection 2) CA flow 3) KC or RN flow	
d. Near site or onsite toxic or flammable gas release	d. Uncontrolled Entry of toxic or flammable gas into facility affecting safe operation of plant	c. Entry of uncontrolled toxic or flammable gases into Control Room, Cable Spreading Room, Containment Building, Switchgear Room, Auxiliary Shutdown Panels or Diesel Rooms, affecting safe operation of plant.	
e. Turbine rotating component failure causes rapid plant shutdown	e. Turbine rotating component failure causing penetration of turbine casing.		

CATAWBA NUCLEAR STATION
EMERGENCY ACTION LEVEL'S FOR

EVENT # 4.1.11: Other Abnormal Plant Conditions

Class Notification of Unusual Event	Alert	Site Area Emergency	General Emergency
1. ECCS initiated: S/I signal verification by redundant indication and discharge into vessel. 2. Abnormal coolant temperature and/or pressure or abnormal Reactor fuel temperature: Figure 2.1-1 Tech Specs exceeded and Core Subcooling Monitor less than acceptable (Below Curve) 3. Loss of containment integrity requiring shutdown by Tech. Spec: •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 containment integrity is required. 4. Loss of engineered safety feature or fire protection system function requiring shutdown by Technical Specifications: •ESF actuation system found inoperable. OR •Fire Protection Water System found inoperable per Tech Spec.	1. Evacuation of Control Room anticipated or required with control of shutdown systems established from local station. 2. 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 TSC & OSC.	1. Evacuation of Control Room and control of shutdown systems not established from local stations in 15 minutes. 2. 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 TSC & CMC and monitoring teams and a precautionary public notification.	1. 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).

CATAWBA NUCLEAR STATION
EMERGENCY ACTION LEVEL'S FOR

EVENT # 4.1.11: Other Abnormal Plant Conditions (Continued)

	Class Notification of Unusual Event	Alert	Site Area Emergency	General Emergency
5.	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 Tech Spec requirements or involve other than normal controlled shutdown.			

CATAWBA NUCLEAR STATION
EMERGENCY ACTION LEVEL'S FOR

EVENT # 4.1.12: Contaminated and Injured Individual

Class Notification of Unusual Event	Alert	Site Area Emergency	General Emergency
1. Transportation of contaminated injured individual from site to offsite medical facility.	N/A	N/A	N/A

EMERGENCY CLASSIFICATION GUIDE FLOWCHART

	EVENT CATEGORY	UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1)	ABNORMAL PRIMARY LEAK RATE	EXCEEDING EITHER PRIMARY/SECONDARY LEAK RATE TECHNICAL SPECIFICATION OR PRIMARY SYSTEM LEAK RATE TECHNICAL SPECIFICATION REQUIRING SHUTDOWN BY TECH. SPEC.	PRIMARY COOLANT LEAK RATE GREATER THAN 50 GPM RAPID GROSS FAILURE OF A STEAM GENERATOR TUBE AND LOSS OF OFF-SITE POWER OR RAPID FAILURE OF STEAM GENERATOR TUBE(S)	KNOWN LOSS OF COOLANT ACCIDENT (LOCA) GREATER THAN MAKE-UP CAPACITY RAPID FAILURE OF STEAM GENERATOR TUBES WITH LOSS OF OFFSITE POWER (SEVERAL HUNDRED GPM)	SMALL OR LARGE BREAK LOCA OCCURS AND CONTAINMENT PERFORMANCE IS UNSUCCESSFUL AFFECTING LONGER TERM SUCCESS OF THE ECCS: COULD LEAD TO CORE DEGRADATION OR MELT IN SEVERAL HOURS WITHOUT CONTAINMENT BOUNDARY LOSS OF 2 OF 3 FISSION PRODUCT BARRIERS WITH POTENTIAL LOSS OF THE THIRD BARRIER SMALL OR LARGE LOCA'S WITH FAILURE OF ECCS TO PERFORM LEADING TO CORE MELT DEGRADATION OR MELT IN MINUTES TO HOURS LOSS OF CONTAINMENT INTEGRITY MAY BE IMMINENT.
2)	ABNORMAL CORE CONDITIONS AND FUEL DAMAGE	FUEL DAMAGE INDICATION ABNORMAL COOLANT TEMP. AND/OR PRESSURE OR ABNORMAL FUEL TEMPS. WHICH EXCEED TECH. SPEC. LIMITS	SEVERE LOSS OF FUEL CLADDING COOLANT PUMP SEIZURE LEADING TO FUEL FAILURE	DEGRADED CORE WITH POSSIBLE LOSS OF COOLABLE GEOMETRY	
3)	STEAM LINE BREAK OR MS RV/SV FAILURE	FAILURE OF A SAFETY OR RELIEF VALVE IN A SAFETY RELATED SYSTEM TO CLOSE FOLLOWING A REDUCTION OF APPLICABLE PRESSURE	STEAM LINE BREAK WITH SIGNIFICANT PRIMARY TO SECONDARY LEAK RATE.	STEAM LINE BREAK WITH GREATER THAN 50 GPM P/S LEAKAGE AND INDICATION OF FUEL DAMAGE.	
4)	OTHER LCO'S	LOSS OF CONTAINMENT INTEGRITY RESULTING IN IMMEDIATE SHUTDOWN BY TECH. SPEC. LOSS OF ENGINEERED SAFETY FEATURE OR FIRE PROTECTION FUNCTION REQUIRING SHUTDOWN BY TECH. SPEC. EMERGENCY CORE COOLING SYSTEM (ECCS) INITIATED AND DISCHARGED TO VESSEL			
5)	ABNORMAL RADIOLOGICAL EFFLUENT OR RADIATION LEVELS	RADIOLOGICAL EFFLUENT TECHNICAL SPECIFICATION LIMITS EXCEEDED	HIGH RADIATION LEVELS OR HIGH AIRBORNE CONTAMINATION WHICH INDICATES SEVERE DEGRADATION IN CONTROL OF RADIOACTIVE MATERIAL RADIOLOGICAL EFFLUENTS GREATER THAN 10 TIMES TECH. SPEC. INSTANTANEOUS LIMITS	EFFLUENT MONITORS DETECT LEVELS CORRESPONDING TO GREATER THAN 50 MR/HR FOR 1/2 HOUR OR GREATER THAN 500 MR/HR W.B. FOR TWO MINUTES AT THE SITE BOUNDARY FOR ADVERSE METEOROLOGY THESE DOSE RATES ARE PROJECTED BASED ON OTHER PLANT PARAMETERS OR ARE MEASURED IN THE ENVIRONS EPA PROTECTIVE ACTION GUIDELINES ARE PROJECTED TO BE EXCEEDED OUTSIDE THE SITE BOUNDARY	EFFLUENT MONITORS DETECT LEVELS CORRESPONDING TO 1 REM/HR W.B. OR 5 REM/HR THYROID AT THE SITE BOUNDARY UNDER ACTUAL METEOROLOGICAL CONDITIONS THESE DOSE RATES ARE PROJECTED BASED ON OTHER PLANT PARAMETERS OR ARE MEASURED IN THE ENVIRONS
6)	LOSS OF SHUTDOWN FUNCTIONS DECAY HEAT OR REACTIVITY		FAILURE OF REACTOR PROTECTION SYSTEM TO INITIATE AND COMPLETE A SCRAM WHICH BRINGS THE REACTOR SUBCRITICAL COMPLETE LOSS OF ANY FUNCTION NEEDED FOR PLANT COLD SHUTDOWN	TRANSIENT REQUIRING OPERATION OF SHUTDOWN SYSTEMS WITH FAILURE TO SCRAM (CONTINUED POWER GENERATION WITH NO CORE DAMAGE IMMEDIATELY EVIDENT) LOSS OF ANY FUNCTION NEEDED FOR PLANT HOT SHUTDOWN	TRANSIENT REQUIRING OPERATION OF SHUTDOWN SYSTEMS WITH FAILURE TO SCRAM. ADDITIONAL FAILURE OF CORE COOLING AND MAKEUP SYSTEM WOULD LEAD TO CORE MELT.
7)	ELECTRICAL OR POWER FAILURES	LOSS OF OFFSITE POWER OR LOSS OF ONSITE AC POWER CAPABILITY	LOSS OF OFFSITE POWER AND LOSS OF ALL ONSITE AC POWER FOR UP TO 15 MIN. LOSS OF ALL ONSITE DC POWER	LOSS OF OFFSITE POWER AND LOSS OF ALL ONSITE AC POWER FOR MORE THAN 15 MIN. LOSS OF ALL VITAL ONSITE DC POWER FOR MORE THAN 15 MIN.	TRANSIENT INITIATED BY LOSS OF PRINCIPLE HEAT REMOVAL SYSTEMS FOLLOWED BY FAILURE OF EMERGENCY FEEDWATER SYSTEM FOR EXTENDED PERIOD. CORE MELT POSSIBLE IN SEVERAL HOURS WITH ULTIMATE FAILURE OF CONTAINMENT LIKELY IF CORE MELTS.
8)	FIRE	FIRE WITHIN THE PLANT LASTING MORE THAN 10 MINUTES	FIRE POTENTIALLY AFFECTING SAFETY SYSTEMS	FIRE COMPROMISING THE FUNCTIONS OF SAFETY SYSTEMS	
9)	CONTROL ROOM EVACUATION		EVACUATION OF CONTROL ROOM ANTICIPATED OR REQUIRED WITH CONTROL OF SHUTDOWN SYSTEMS ESTABLISHED FROM LOCAL STATIONS	EVACUATION OF CONTROL ROOM AND CONTROL OF SHUTDOWN SYSTEMS NOT ESTABLISHED FROM LOCAL STATIONS IN 15 MIN.	
10)	LOSS OF MONITORS, ALARMS, ETC.	INDICATIONS OR ALARMS ON PROCESS OR EFFLUENT PARAMETERS NOT FUNCTIONING IN CONTROL ROOM TO AN EXTENT REQUIRING PLANT SHUTDOWN. OTHER SIGNIFICANT LOSS OF ASSESSMENT OR COMMUNICATION CAPABILITY	MOST OR ALL ALARMS (ANNUNCIATORS) LOST	MOST OR ALL ALARMS (ANNUNCIATORS) LOST AND PLANT TRANSIENT INITIATED OR IN PROGRESS	ANY MAJOR INTERNAL OR EXTERNAL EVENTS (E.G. FIRES, EARTHQUAKES SUBSTANTIALLY BEYOND DESIGN BASIS) WHICH COULD CAUSE MASSIVE COMMON DAMAGE TO PLANT SYSTEMS
11)	FUEL HANDLING ACCIDENT		FUEL DAMAGE ACCIDENT WITH RELEASE OF RADIOACTIVITY TO CONTAINMENT OR FUEL HANDLING BUILDING	MAJOR DAMAGE TO SPENT FUEL IN CONTAINMENT OR FUEL HANDLING BUILDING	
12)	HAZARDS TO PLANT OPERATIONS	HAZARDS BEING EXPERIENCED OR PROJECTED THAT AFFECT PLANT OPERATIONS	SEVERE HAZARDS BEING EXPERIENCED OR PROJECTED POTENTIALLY AFFECTING SAFETY SYSTEMS	OTHER SEVERE HAZARDS BEING EXPERIENCED OR PROJECTED WITH PLANT NOT IN COLD SHUTDOWN	
13)	SECURITY THREATS	SECURITY THREAT, OR ATTEMPTED ENTRY OR ATTEMPTED SABOTAGE	ONGOING SECURITY COMPROMISE	IMMINENT LOSS OF PHYSICAL CONTROL OF PLANT	LOSS OF PHYSICAL CONTROL OF THE FACILITY
14)	NATURAL EVENTS	NATURAL PHENOMENA BEING EXPERIENCED OR PROJECTED BEYOND USUAL LEVELS	SEVERE NATURAL PHENOMENA BEING EXPERIENCED OR PROJECTED	SEVERE NATURAL PHENOMENA BEING EXPERIENCED OR PROJECTED WITH PLANT NOT IN COLD SHUTDOWN	ANY MAJOR INTERNAL OR EXTERNAL EVENTS (E.G. FIRES, EARTHQUAKES SUBSTANTIALLY BEYOND DESIGN BASIS) WHICH COULD CAUSE MASSIVE COMMON DAMAGE TO PLANT SYSTEMS
15)	OTHERS	OTHER PLANT CONDITIONS EXIST THAT WARRANT INCREASED AWARENESS ON THE PART OF PLANT OPERATING STAFF OR STATE AND/OR LOCAL OFFSITE AUTHORITIES OR REQUIRE PLANT SHUTDOWN UNDER TECHNICAL SPECIFICATION REQUIREMENTS AND INVOLVE OTHER THAN NORMAL CONTROLLED SHUTDOWN TRANSPORTATION OF CONTAMINATED INJURED INDIVIDUAL FROM SITE TO OFFSITE HOSPITAL	OTHER PLANT CONDITIONS EXIST WARRANTING PRECAUTIONARY ACTIVATION OF THE TSC AND/OR THE CRISIS MANAGEMENT CENTER	OTHER PLANT CONDITIONS EXIST WARRANTING ACTIVATION OF EMERGENCY CENTERS AND MONITORING TEAMS OR ISSUANCE OF A PRECAUTIONARY NOTIFICATION TO THE PUBLIC NEAR THE SITE	OTHER PLANT CONDITIONS EXIST FROM WHATEVER SOURCE THAT MAKE RELEASE OF LARGE AMOUNTS OF RADIOACTIVITY IN A SHORT TIME PERIOD POSSIBLE, IE. ANY CORE MELT SITUATION)

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: RP/0/A/5000/02
Change(s) 1 to 2 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: NOTIFICATION OF UNUSUAL EVENT

(4) PREPARED BY: M. E. Bolch DATE: 2/2/84

(5) REVIEWED BY: [signature] DATE: 2-6-84

Cross-Disciplinary Review By: ______ N/R: [initials]

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ______ (SRO) Date: ______

By: ______ Date: ______

(7) APPROVED BY: [signature] Date: 2/1/84

(8) MISCELLANEOUS:

Reviewed/Approved By: ______ Date: ______

Reviewed/Approved By: ______ Date: ______

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
NOTIFICATION OF UNUSUAL EVENT

1.0 SYMPTOMS

1.1 This condition exists when events are in process or have occurred which indicate a potential degradation of the level of safety of the plant.

2.0 IMMEDIATE ACTIONS

2.1 Make initial notifications to individuals and organizations.

2.1.1 Complete Enclosure 4.2 and Part I of Warning Message Form. (See example Enclosure 4.3.) Record receivers name and time on Enclosure 4.2 and on Page 4 of Warning Message.

NOTE: Emergency Coordinator shall initial forms when message is approved for transmission.

NOTE: Warning Message Forms are kept in a notebook in the Control Room and TSC, ensure that all used forms are returned to the back of the notebook.

2.1.2 Transmit emergency information as indicated on Enclosure 4.1.

NOTE: **The State and County notification must be made within 15 minutes of declaration of the emergency.**

3.0 SUBSEQUENT ACTIONS

3.1 Give follow-up messages to agencies listed in 4.1.3 of Enclosure 4.1 use the following schedule:

3.1.1 If the Unusual Event Situation lasts longer than one hour, then repeat each hour until closed out.

or

If there is any significant change to the situation.

or

As agreed upon with the individual agencies.

3.1.2 Use Parts I & II of Warning Message Form as applicable. Mark all spaces "N/A" when information if "Not Applicable" and mark "Later" when information is not currently available.

3.2 Augment shift resources to assess and respond to the emergency situation as needed.

3.3 Assess the emergency condition, then remain in a Notification of Unusual Event, escalate to a more severe class or terminate the emergency.

3.4 The Licensing and Projects Engineer or delegate shall close out the emergency with verbal summary to county and state authorities, notified in 4.1.3 of Enclosure 4.1, followed by written summary within 24 hours.

4.0 ENCLOSURES

4.1 Telephone Notification List

4.2 Emergency Message Format

4.3 Example Warning Message: Nuclear Facility to State/Local Government

TELEPHONE
NOTIFICATION LIST

4.1.1 CNS Emergency Personnel — Initial

1. Operations Duty Engineer - Plant Page ________
   P & T Pager - 637 or 277
   A: See Current Operations Work List for Home Phone Number.

2. Station Manager - J. W. Hampton ________
   Office 2300
   Home 803-366-5300

   1st Aiter.iate - C. W. Graves ________
   Office 2304
   Home [redacted]

   2nd Alternate - J. W. Cox ________
   Office 2303
   Home [redacted]

   3rd Alternate - G. T. Smith ________
   Office 2302
   Home [redacted]

   4th Alternate - A. R. Franklin ________
   Office 2305
   Home [redacted]

3. License & Projects Engineer - C. L. Hartzell
   Office 2785
   Home [redacted]

   1st Alternate - M. E. Bolch ________
   Office 2782
   Home [redacted]

   2nd Alternate - F. N. Mack ________
   Office 2781
   Home [redacted]

4.1.2 Nuclear Production Duty Engineer 373-5491 ________
   P & T Page 373-5214 #625
   ** USE ENCLOSURE 4.2 **

4.1.3 State & County Emergency Centers (Within 15 minutes)

1. N.C. State Warning Point, Raleigh - 919/733-3861
*** USE ENCLOSURE 4.3 ***

2. S.C. State Warning Point, Columbia
P: 803-758-5548 7:30 a.m. - 5:00 p.m. Weekdays
A: 803-758-5531 Afterhours, Week-ends & Holidays
*** USE ENCLOSURE 4.3 ***

3. Mecklenburg County Warning Point
P: Selective Signal - 116
A: 704-374-3333
Back-up: Emergency Radio, Code: 21
*** USE ENCLOSURE 4.3 ***

4. York County Warning Point
P: Selective Signal - 513
A: 803-327-2021
Back-up: Emergency Radio, Code: 41
*** USE ENCLOSURE 4.3 ***

5. Gaston County Warning Point
P: Selective Signal - 112
A: 704-866-3300
Back-up: Emergency Radio, Code 26
*** USE ENCLOSURE 4.3 ***

4.1.4 NRC Operations Center, Bethesda Md.
P: ENS phone (red phone)
A: 202-951-0550

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION

EMERGENCY MESSAGE FORMAT

1. This is ______________________________ at Catawba Nuclear 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 #____.
(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

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: ______________________________
____
____
____

Name of Person Contacted____________________ Date__________ Time__________

EXAMPLE

WARNING MESSAGE: NUCLEAR FACILITY TO STATE/LOCAL GOVERNMENT

Instructions:

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: Catawba Nuclear Station
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: USE MESSAGE AUTHENTICATION LIST
   (Verify code word or call back to facility)
6. The class of the emergency is: ______ (a) Notification of Unusual Event

   __X__ (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

Approved for Release

____

Emerg. Coord. Time

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: ________ $R/hr/Ci/m^3$ (whole body)

________ $R/hr/Ci/m^3$ (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.

Approved for Release

____

EMerg. Coord. Time

11. Do you have any questions?

[redacted] ***END OF FOLLOW-UP MESSAGE*** [redacted]

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)

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: RP/0/A/5000/03
Change(s) 1 to
2 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: ALERT

(4) PREPARED BY: M. E. Bolch DATE: 2-2-84

(5) REVIEWED BY: [signature] DATE: 2-6-84

Cross-Disciplinary Review By: ____ N/R: [initials]

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ____ (SRO) Date: ____

By: ____ Date: ____

(7) APPROVED BY: [signature] Date: 2/6/84

(8) MISCELLANEOUS:

Reviewed/Approved By: ____ Date: ____

Reviewed/Approved By: ____ Date: ____

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
ALERT

1.0 SYMPTOMS

1.1 Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant.

2.0 IMMEDIATE ACTIONS

2.1 Make initial notifications to individuals and organizations.

2.1.1 Complete Enclosure 4.2 and Part I of Warning Message Form (see example Enclosure 4.3). Record receiver's name and time on Enclosure 4.2 and on Page 4 of Warning Message.

NOTE: Emergency Coordinator shall initial forms when message is approved for transmission.

NOTE: Warning Message forms are kept in a notebook in the Control Room and TSC, ensure that all used forms are returned to the back of the notebook.

2.1.2 Transmit emergency information as indicated on Enclosure 4.1.

2.1.3 Advise station personnel to activate TSC and OSC.

NOTE: **The State and County notification must be made within 15 minutes of declaration of the emergency.**

3.0 SUBSEQUENT ACTIONS

3.1 Accident Assessment, the Emergency Coordinator shall:

3.1.1 Dispatch on site monitoring teams with associated communications equipment per HP/0/B/1009/09.

3.2 Give Follow-up Messages to offsite agencies listed on 4.1.3 of Enclosure 4.1, use the following schedule:

3.2.1 Every half hour until the emergency is closed out.

or

If there is any significant change to the situation.

or

As agreed upon with the individual agencies.

3.2.2 Use Parts I & II of Warning Message Form as applicable. Mark all spaces "N/A" when information is "Not Applicable" and mark "Later" when information is not currently available.

3.3 Recommend Protective Action Offsite

NOTE

Protective Action Recommendations are obtained from: OAC Program "Nuclear-23" or RP/0/A/5000/11 if the OAC is not operational.

3.4 If the emergency situation is rapidly degrading then conduct a Site Assembly per RP/0/A/5000/10.

3.5 Augment shift resources to assess and respond to the emergency situation as needed.

3.6 Assess the emergency condition, then remain in an Alert, escalate to a more severe class, reduce the Emergency Class or terminate the emergency.

3.7 The Licensing and Projects Engineer or delegate shall close out the emergency with verbal summary to county and state authorities, notified in 4.1.3 of Enclosure 4.1, followed by written summary within 8 hours.

4.0 ENCLOSURES

4.1 Telephone Notification List

4.2 Emergency Message Format

4.3 Example Warning Message: Nuclear Facility to State/Local Government

TELEPHONE NOTIFICATION LIST

4.1.1 CNS Emergency Personnel — Initial

1. Operations Duty Engineer - Plant Page ________
   P & T Pager - 637 or 277
   A: See Current Operations Work List for Home Phone Number.

2. Station Manager - J. W. Hampton ________
   Office 2300
   Home [redacted]

   1st Alternate - C. W. Graves ________
   Office 2304
   Home [redacted]

   2nd Alternate - J. W. Cox ________
   Office 2303
   Home [redacted]

   3rd Alternate - G. T. Smith ________
   Office 2302
   Home [redacted]

   4th Alternate - A. R. Franklin ________
   Office 2305
   Home [redacted]

3. License & Projects Engineer - C. L. Hartzell
   Office 2785
   Home [redacted]

   1st Alternate - M. E. Bolch ________
   Office 2782
   Home [redacted]

   2nd Alternate - F. N. Mack ________
   Office 2781
   Home [redacted]

4.1.2 Nuclear Production Duty Engineer 373-5491 ________
   P & T Page 373-5214 #625
   ** USE ENCLOSURE 4.2 **

4.1.3 State & County Emergency Centers (Within 15 minutes)

1. N.C. State Warning Point, Raleigh - 919/733-3861
*** USE ENCLOSURE 4.3 *** ________

2. S.C. State Warning Point, Columbia ________
P: 803-758-5548 7:30 a.m. - 5:00 p.m. Weekdays
A: 803-758-5531 Afterhours, Week-ends & Holidays
*** USE ENCLOSURE 4.3 ***

3. Mecklenburg County Warning Point ________
P: Selective Signal - 116
A: 704-374-3333
Back-up: Emergency Radio, Code: 21
*** USE ENCLOSURE 4.3 ***

4. York County Warning Point ________
P: Selective Signal - 513
A: 803-327-2021
Back-up: Emergency Radio, Code: 41
*** USE ENCLOSURE 4.3 ***

5. Gaston County Warning Point ________
P: Selective Signal - 112
A: 704-866-3300
Back-up: Emergency Radio, Code 26
*** USE ENCLOSURE 4.3 ***

4.1.4 NRC Operations Center, Bethesda Md. ________
P: ENS phone (red phone)
A: 202-951-0550

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION

EMERGENCY MESSAGE FORMAT

1. This is ________________________________ at Catawba Nuclear 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 #___.
(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 radioactivitv: ____ is taking place
____ is not taking place

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: ______________________________
____
____
____

Name of Person Contacted____________________ Date__________ Time__________

WARNING MESSAGE: NUCLEAR FACILITY TO STATE/LOCAL GOVERNMENT

Instructions:

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: Catawba Nuclear Station

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: USE MESSAGE AUTHENTICATION LIST
   (Verify code word or call back to facility)

6. The class of the emergency is: __X__ (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

APPROVED FOR RELEASE

__________ __________

Emerg. Coord. Time

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: ________ $R/hr/Ci/m^3$ (whole body)

________ $R/hr/Ci/m^3$ (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.

APPROVED FOR RELEASE

11. Do you have any questions?

____
(Emerg. Coord. Time)

[redacted] ***END OF FOLLOW-UP MESSAGE*** [redacted]

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)

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: RP/0/A/5000/04
Change(s) 1 to 2 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: SITE AREA EMERGENCY

(4) PREPARED BY: M. E. Bolch DATE: 2-2-84

(5) REVIEWED BY: DATE: 2-6-84

Cross-Disciplinary Review By: N/R:

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: (SRO) Date:

By: Date:

(7) APPROVED BY: Date: 2/6/84

(8) MISCELLANEOUS:

Reviewed/Approved By: Date:

Reviewed/Approved By: Date:

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
SITE AREA EMERGENCY

1.0 SYMPTOMS

1.1 Events are in process or have occurred which involve an actual or likely major failures of plant functions needed for protection of the public.

2.0 IMMEDIATE ACTIONS

2.1 Make initial notifications to individuals and organizations.

2.1.1 Complete Enclosure 4.2 and Part I of Warning Message Form (see Enclosure 4.3). Record receiver's name and time on Enclosure 4.2 and on Page 4 of Warning Message.

NOTE: Emergency Coordinator shall initial forms when message is approved for transmission.

NOTE: Warning Message forms are kept in a notebook in the Control Room and TSC, ensure that all used forms are returned to the back of the notebook.

2.1.2 Notifications shall be as the order of Enclosure 4.1 indicates.

2.1.3 Advise station personnel to activate TSC and OSC.

NOTE: **The State and County notification must be made within 15 minutes of declaration of the emergency.**

2.2 Protective Action Offsite

2.2.1 Recommend to Offsite Agencies that the Alerting Sirens be sounded and that the EBS be activated to inform the public of a potential for later protective actions.

2.3 Protective Action Onsite

2.3.1 Conduct a Site Assembly per RP/0/A/5000/10.

2.3.2 Consider evacuation of non-essential personnel to the Evacuation Relocation Centers per RP/0/A/5000/10.

3.0 SUBSEQUENT ACTIONS

3.1 Accident Assessment, the Emergency Coordinator shall:

3.1.1 Dispatch field monitoring teams with associated communications equipment per HP/0/B/1009/04.

3.2 Give follow-up message to offsite agencies listed on 4.1.3 of Enclosure 4.1, use the following schedule:

3.2.1 Every <u>half</u> <u>hour</u> until the emergency is closed out.

<u>or</u>

If there is any significant change to the situation.

<u>or</u>

As agreed upon with the individual agencies.

3.2.2 Use Parts I & II of Warning Message Form as applicable. Mark all spaces "N/A" when information is "Not Applicable" and mark "Later" when information is not currently available.

3.3 Follow-up Recommend Protective Action Offsite

<u>NOTE</u>

Protective Action Recommendations are obtained from: OAC Program "Nuclear-23" or RP/0/A/5000/11, if the OAC is not available.

3.3.1 The Emergency Coordinator shall make Protective Action Recommendations to the affected county warning points and to both SC and NC state warning points (Emergency Operations Center if established) or the designated state department as per the state's Radiological Emergency Response Plan. See Enclosure 4.4 for aid in protective action decision making.

<u>NOTE</u>

This authority shall not be delegated to other elements of the emergency organization.

3.3.2 If actual release of radioactive material will result in a projected dose to the population of:

Whole Body	Thyroid	Recommendation
<1 Rem	<5 Rem	No Protective Action is Required.
1 to <5 Rem	5 to <25 Rem	Recommend seeking shelter and wait for further instruction. Consider evacuation particularly for children & pregnant women. Control access to affected areas.
> 5 Rem	> 25 Rem	Recommend mandatory evacuation of population in the affected areas. Control access to affected areas.

NOTE

Monitor environmental radiation levels to verify and adjust recommendations as necessary.

3.4 Augment shift resources to assess and respond to the emergency situation as needed.

3.5 Assess the emergency condition, then remain in a Site Area Emergency, escalate to a more severe class, reduce the emergency class, or terminate the emergency.

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

4.0 ENCLOSURES

4.1 Telephone Notification List

4.2 Emergency Message Format

4.3 Example Warning Message: Nuclear Facility to State/Local Government

4.4 Protective Action Recommendation Flow Chart

4.5 10 Mile Emergency Planning Zone (EPZ) Map

TELEPHONE NOTIFICATION LIST

4.1.1 CNS Emergency Personnel — Initial

1. Operations Duty Engineer - Plant Page ________
   P & T Pager - 637 or 277
   A: See Current Operations Work List for Home Phone Number.

2. Station Manager - J. W. Hampton ________
   Office 2300
   Home [redacted]

   1st Alternate - C. W. Graves ________
   Office 2304
   Home [redacted]

   2nd Alternate - J. W. Cox ________
   Office 2303
   Home [redacted]

   3rd Alternate - G. T. Smith ________
   Office 2302
   Home [redacted]

   4th Alternate - A. R. Franklin ________
   Office 2305
   Home [redacted]

3. License & Projects Engineer - C. L. Hartzell
   Office 2785
   Home [redacted]

   1st Alternate - M. E. Bolch ________
   Office 2782
   Home [redacted]

   2nd Alternate - F. N. Mack ________
   Office 2781
   Home [redacted]

4.1.2 Nuclear Production Duty Engineer 373-5491 ________
P & T Page 373-5214 #625
** USE ENCLOSURE 4.2 **

4.1.3 State & County Emergency Centers (Within 15 minutes)

1. N.C. State Warning Point, Raleigh - 919/733-3861 ________
*** USE ENCLOSURE 4.3 ***

2. S.C. State Warning Point, Columbia ________
P: 803-758-5548 7:30 a.m. - 5:00 p.m. Weekdays
A: 803-758-5531 Afterhours, Week-ends & Holidays
*** USE ENCLOSURE 4.3 ***

3. Mecklenburg County Warning Point ________
P: Selective Signal - 116
A: 704-374-3333
Back-up: Emergency Radio, Code: 21
*** USE ENCLOSURE 4.3 ***

4. York County Warning Point ________
P: Selective Signal - 513
A: 803-327-2021
Back-up: Emergency Radio, Code: 41
*** USE ENCLOSURE 4.3 ***

5. Gaston County Warning Point ________
P: Selective Signal - 112
A: 704-866-3300
Back-up: Emergency Radio, Code 26
*** USE ENCLOSURE 4.3 ***

4.1.4 NRC Operations Center, Bethesda Md. ________
P: ENS phone (red phone)
A: 202-951-0550

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION

EMERGENCY MESSAGE FORMAT

1. This is ______________________________ at Catawba Nuclear 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 #___.
(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

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: ______________________________
____
____
____

Name of Person Contacted ____________________ Date __________ Time __________

EXAMPLE

WARNING MESSAGE: NUCLEAR FACILITY TO STATE/LOCAL GOVERNMENT

Instructions:

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: Catawba Nuclear Station

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: USE MESSAGE AUTHENTICATION LIST
   (Verify code word or call back to facility)

6. The class of the emergency is:
   _______ (a) Notification of Unusual Event
   _______ (b) Alert
   ___X___ (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

Approved for Release

____________ ____________
Emerg. Coord. Time

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?

Approved for Release

____
Emerg. Coord. Time

[redacted] ***END OF FOLLOW-UP MESSAGE*** [redacted]

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)

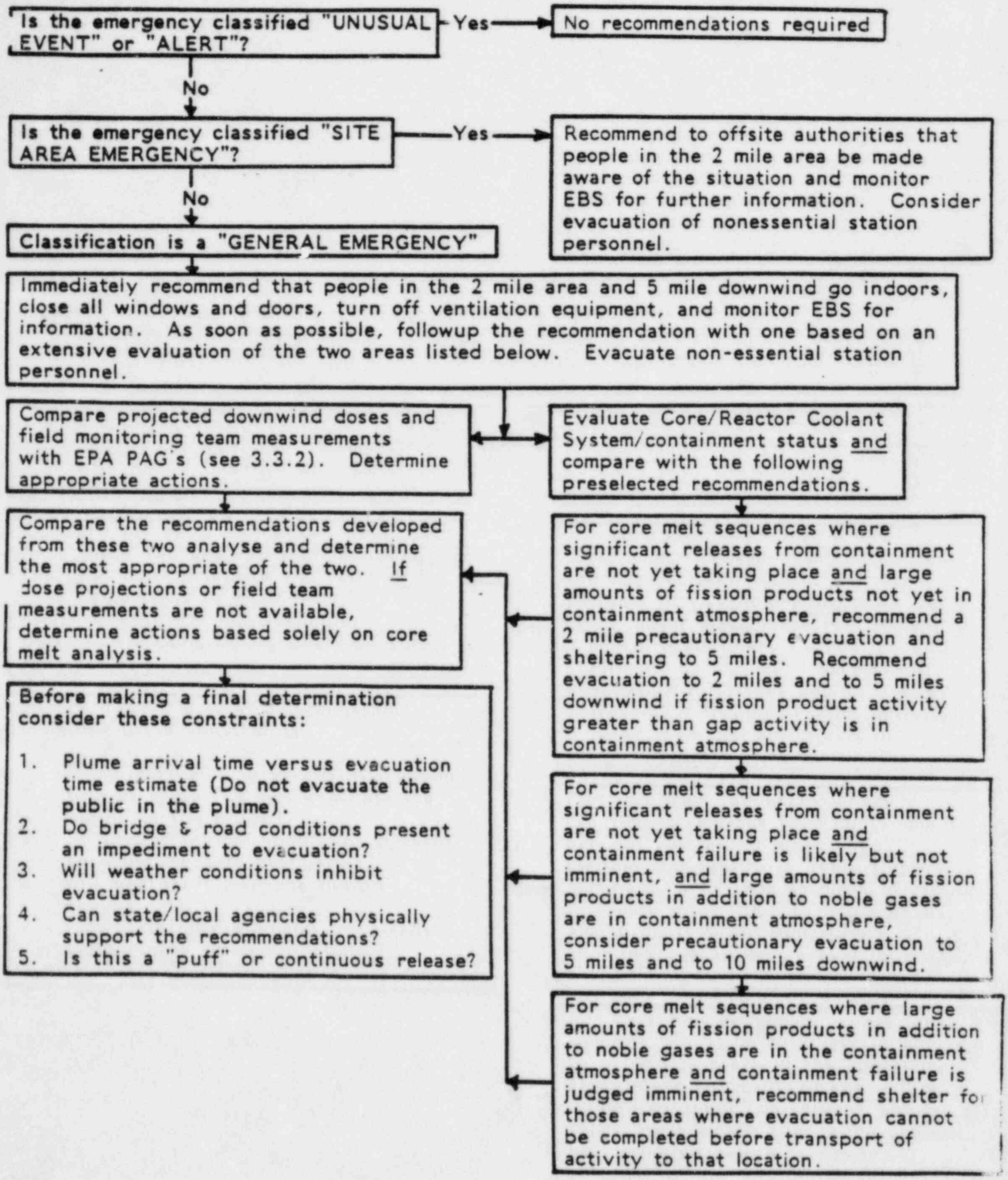
6. ____
(name) (title)

____
(date) (time) (warning point)

7. ____
(name) (title)

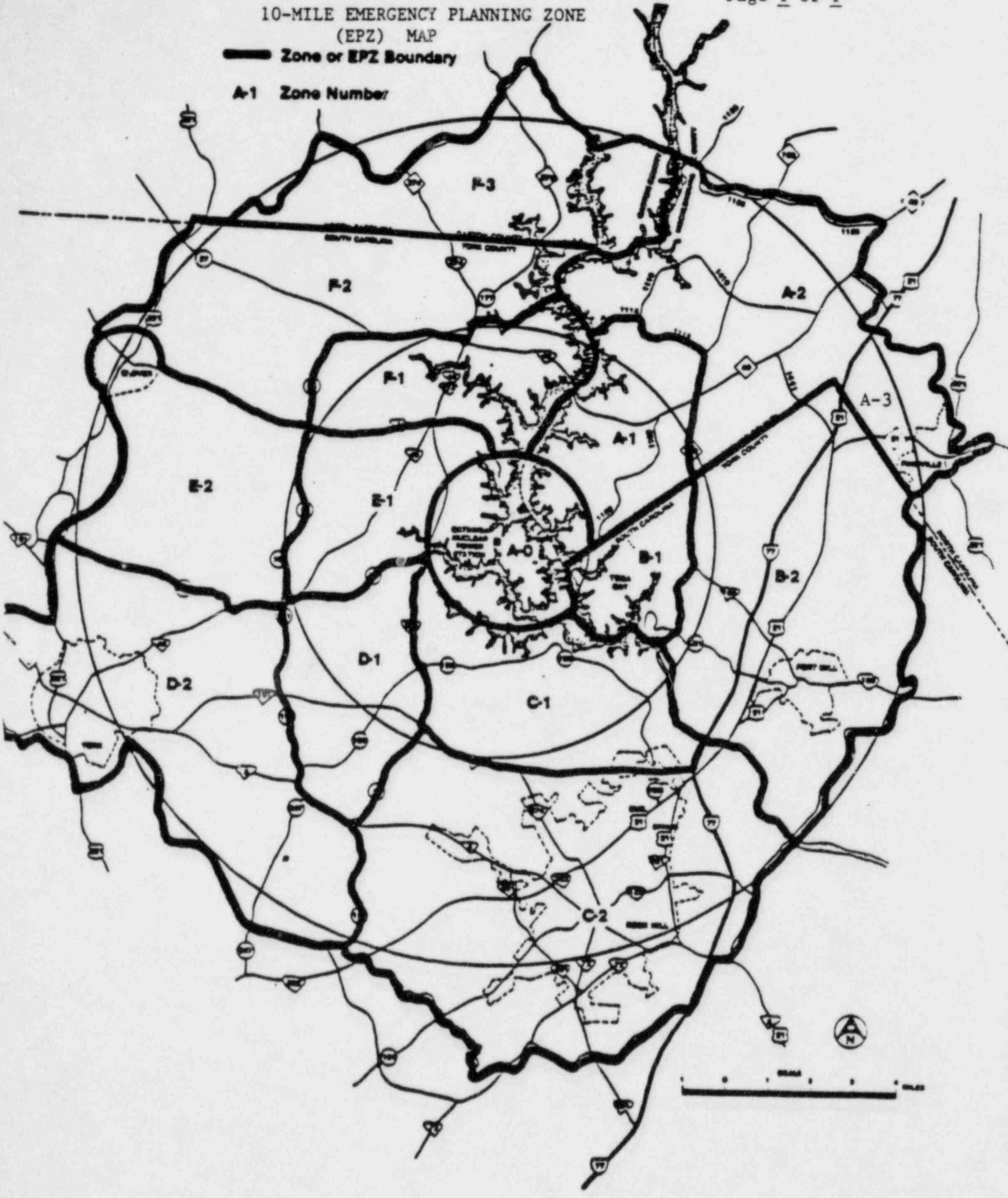
____
(date) (time) (warning point)

ENCLOSURE 4.4
PROTECTIVE ACTION RECOMMENDATION FLOW CHART



CATAWBA NUCLEAR STATION

10-MILE EMERGENCY PLANNING ZONE (EPZ) MAP



Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: RP/0/A/5000/05
Change(s) 1 to
2 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: GENERAL EMERGENCY

(4) PREPARED BY: M. E. Bolch DATE: 2-2-84

(5) REVIEWED BY: [signature] DATE: 2-6-84

Cross-Disciplinary Review By: N/R: [initials]

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: (SRO) Date:

By: Date:

(7) APPROVED BY: [signature] Date: 2/1/84

(8) MISCELLANEOUS:

Reviewed/Approved By: Date:

Reviewed/Approved By: Date:

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
GENERAL EMERGENCY

1.0 SYMPTOMS

1.1 Events are in process or have occurred which involve an actual or imminent substantial core degradation or melting with potential for loss of containment integrity.

2.0 IMMEDIATE ACTIONS

2.1 Make initial notifications to individuals and organizations.

2.1.1 Complete Enclosure 4.2 and Part I of Warning Message Form (see example Enclosure 4.3). Record receiver's name and time on Enclosure 4.2 and on Page 4 of Warning Message.

NOTE: Emergency Coordinator shall initial forms when message is approved for transmission.

NOTE: Warning Message forms are kept in a notebook in the Control Room a..d TSC, ensure that all used forms are returned to the back of the notebook.

2.1.2 Notifications shall be as the order of Enclosure 4.1 indicates.

2.1.3 Advise station personnel to activate TSC and OSC.

NOTE: **The State and County notification must be made within 15 minutes of declaration of the emergency.**

2.2 Protective Actions Offsite

2.2.1 Recommend to Offsite Agencies that all residents of the 2 mile radius zone (A-O) and any zone 5 miles downwind of the plant seek immediate shelter and await futher instructions. See Enclosure 4.5 for 10 mile-EPZ Map.

2.3 Protective Action Onsite

2.3.1 Conduct a Site Assembly per RP/0/A/5000/10.

2.3.2 Evacuate non-essential personnel to the Evacuation Relocation Centers per RP/0/A/5000/10

3.0 SUBSEQUENT ACTIONS

3.1 Accident Assessment, the Emergency Coordinator shall:

3.1.1 Dispatch field monitoring teams with associated communications equipment per HP/0/B/1009/04.

3.2 Give follow-up messages to offsite agencies listed on 4.1.3 of Enclosure 4.1, use the following schedule:

3.2.1 Every half hour until the emergency is closed out.

or

If there is any significant change to the situation.

or

As agreed upon with the individual agencies.

3.2.2 Use Parts I & II of Warning Message Form as applicable. Mark all spaces "N/A" when information is "Not Applicable" and mark "Later" when information is not currently available.

3.3 Follow-up Recommend Protective Action Offsite

NOTE

Protective Action Recommendation are obtained from: OAC Program "Nuclear-23" or RP/0/A/5000/11, if the OAC is not operational.

3.3.1 The Emergency Coordinator shall make Protective Action Recommendations to the affected county warning points and to both SC and NC state warning points (Emergency Operations Center if established) or the designated state department as per the state's Radiological Emergency Response Plan. See Enclosure 4.4 for aid in protective action decision making.

NOTE

This authority shall not be delegated to other elements of the emergency organization.

3.3.2 If actual release of radioactive material will result in a projected dose to the population of:

Whole Body	Thyroid	Recommendation
<1 Rem	<5 Rem	No Protective Action is Required.
1 to <5 Rem	5 to <25 Rem	Recommend seeking shelter and wait for further instruction. Consider evacuation particularly for children & pregnant women. Control access to affected areas.
>5 Rem	>25 Rem	Recommend mandatory evacuation of population in the affected areas. Control access to affected areas.

NOTE

Monitor environmental radiation levels to verify and adjust recommendations as necessary.

3.4 Augment on shift resources to assess and respond to the emergency situation as needed.

3.5 Assess the emergency condition, then remain in an General Emergency, reduce the emergency class or terminate the emergency.

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

4.0 ENCLOSURES

4.1 Telephone Notification List

4.2 Emergency Message Format

4.3 Example Warning Message: Nuclear Facility to State/Local Government

4.4 Protective Action Recommendation Flow Chart

4.5 10 Mile Emergency Planning Zone (EPZ) Map

TELEPHONE NOTIFICATION LIST

4.1.1 CNS Emergency Personnel — Initial

1. Operations Duty Engineer - Plant Page ______
   P & T Pager - 637 or 277
   A: See Current Operations Work List for Home Phone Number.

2. Station Manager - J. W. Hampton ______
   Office 2300
   Home [redacted]

   1st Alternate - C. W. Graves ______
   Office 2304
   Home [redacted]

   2nd Alternate - J. W. Cox ______
   Office 2303
   Home [redacted]

   3rd Alternate - G. T. Smith ______
   Office 2302
   Home [redacted]

   4th Alternate - A. R. Franklin ______
   Office 2305
   Home [redacted]

3. License & Projects Engineer - C. L. Hartzell
   Office 2785
   Home [redacted]

   1st Alternate - M. E. Bolch ______
   Office 2782
   Home [redacted]

   2nd Alternate - F. N. Mack ______
   Office 2781
   Home [redacted]

4.1.2 Nuclear Production Duty Engineer 373-5491 ______
P & T Page 373-5214 #625
** USE ENCLOSURE 4.2 **

4.1.3 State & County Emergency Centers (Within 15 minutes)

1. N.C. State Warning Point, Raleigh - 919/733-3861
*** USE ENCLOSURE 4.3 *** ________

2. S.C. State Warning Point, Columbia ________
P: 803-758-5548 7:30 a.m. - 5:00 p.m. Weekdays
A: 803-758-5531 Afterhours, Week-ends & Holidays
*** USE ENCLOSURE 4.3 ***

3. Mecklenburg County Warning Point ________
P: Selective Signal - 116
A: 704-374-3333
Back-up: Emergency Radio, Code: 21
*** USE ENCLOSURE 4.3 ***

4. York County Warning Point ________
P: Selective Signal - 513
A: 803-327-2021
Back-up: Emergency Radio, Code: 41
*** USE ENCLOSURE 4.3 ***

5. Gaston County Warning Point ________
P: Selective Signal - 112
A: 704-866-3300
Back-up: Emergency Radio, Code 26
*** USE ENCLOSURE 4.3 ***

4.1.4 NRC Operations Center, Bethesda Md. ________
P: ENS phone (red phone)
A: 202-951-0550

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION

EMERGENCY MESSAGE FORMAT

1. This is ______________________________ at Catawba Nuclear 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 #____.
(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

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: ______________________________
____
____
____

Name of Person Contacted____________________ Date__________ Time__________

EXAMPLE

WARNING MESSAGE: NUCLEAR FACILITY TO STATE/LOCAL GOVERNMENT

Instructions:

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: Catawba Nuclear Station

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: USE MESSAGE AUTHENTICATION LIST
   (Verify code word or call back to facility)

6. The class of the emergency is: _______(a) Notification of Unusual Event

   _______(b) Alert

   _______(c) Site Emergency

   ___X___(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

Approved for Release

____
Emerg. Coord. Time

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.

Approved for Release

11. Do you have any questions?

____
Emerg. Coord. Time

[redacted] ***END OF FOLLOW-UP MESSAGE*** [redacted]

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)

ENCLOSURE 4.4
PROTECTIVE ACTION RECOMMENDATION FLOW CHART

Is the emergency classified "UNUSUAL EVENT" or "ALERT"? — Yes → No recommendations required

No ↓

Is the emergency classified "SITE AREA EMERGENCY"? — Yes → Recommend to offsite authorities that people in the 2 mile area be made aware of the situation and monitor EBS for further information. Consider evacuation of nonessential station personnel.

No ↓

Classification is a "GENERAL ENERGENCY"

↓

Immediately recommend that people in the 2 mile area and 5 mile downwind go indoors, close all windows and doors, turn off ventilation equipment, and monitor EBS for information. As soon as possible, followup the recommendation with one based on an extensive evaluation of the two areas listed below. Evacuate non-essential station personnel.

Compare projected downwind doses and field monitoring team measurements with EPA PAG's (see 3.3.2). Determine appropriate actions.

Evaluate Core/Reactor Coolant System/containment status <u>and</u> compare with the following preselected recommendations.

Compare the recommendations developed from these two analyse and determine the most appropriate of the two. <u>If</u> dose projections or field team measurements are not available, determine actions based solely on core melt analysis.

For core melt sequences where significant releases from containment are not yet taking place <u>and</u> large amounts of fission products not yet in containment atmosphere, recommend a 2 mile precautionary evacuation and sheltering to 5 miles. Recommend evacuation to 2 miles and to 5 miles downwind if fission product activity greater than gap activity is in containment atmosphere.

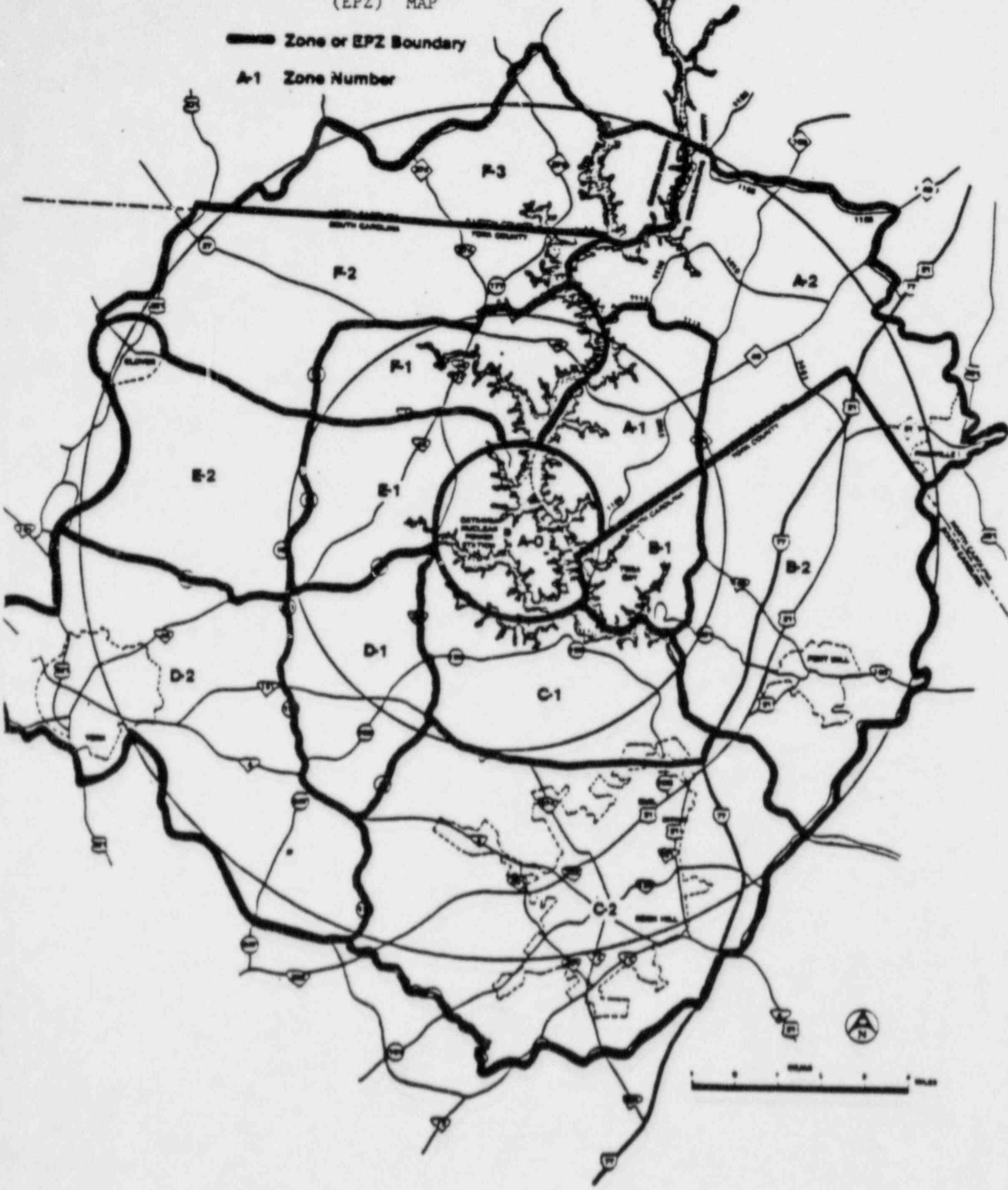
For core melt sequences where significant releases from containment are not yet taking place <u>and</u> containment failure is likely but not imminent, <u>and</u> large amounts of fission products in addition to noble gases are in containment atmosphere, consider precautionary evacuation to 5 miles and to 10 miles downwind.

For core melt sequences where large amounts of fission products in addition to noble gases are in the containment atmosphere <u>and</u> containment failure is judged imminent, recommend shelter for those areas where evacuation cannot be completed before transport of activity to that location.

Before making a final determination consider these constraints:

1. Plume arrival time versus evacuation time estimate (Do not evacuate the public in the plume).
2. Do bridge & road conditions present an impediment to evacuation?
3. Will weather conditions inhibit evacuation?
4. Can state/local agencies physically support the recommendations?
5. Is this a "puff" or continuous release?

CATAWBA NUCLEAR STATION
10-MILE EMERGENCY PLANNING ZONE
(EPZ) MAP



Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: RP/0/A/5000/06
Change(s) 0 to
0 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: NATURAL DISASTER

(4) PREPARED BY: MIKE BOLCH DATE:

(5) REVIEWED BY: J. R. Ferguson DATE: 3/15/83

Cross-Disciplinary Review By: JW. Cox 3/15/83 N/R: SRC 83/20

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: (SRO) Date:

By: Date:

(7) APPROVED BY: M.S. Tuckman/wpd Date: 3/29/83

(8) MISCELLANEOUS:

Reviewed/Approved By: Date:

Reviewed/Approved By: Date:

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
NATURAL DISASTER

1.0 SYMPTOMS

1.1 Observation of Hurricane, Tornado, Flood, Low Lake Level or Seiche (Lake Tidal Wave)

1.2 Notification by: National Weather Service (NOAA Broadcast), System Dispatcher, Local Radio Broadcast

2.0 IMMEDIATE ACTIONS

Initial/N/A

_______ 2.1 Shutdown Reactor(s)

2.1.1 Trip the reactor(s) and proceed to cold shutdown if the following conditions exist at the station:

Sustained Winds & Tornadoes	High Lake Level	Low Lake Level
> 95 mph	> 593.5 Ft MSL	< 550.4 Ft MSL

NOTE: Seiche is same as High Lake Level.

_______ 2.2 Notification

2.2.1 Classify the emergency by RP/0/A/5000/01, Classification of Emergency, and commence notification and/or other protective measures as directed by appropriate Emergency Response Procedure.

2.2.2 Announce the impending condition over the plant PA System when appropriate.

3.0 SUBSEQUENT ACTIONS

_______ 3.1 Contact the National Weather Service at 704-399-6000 to obtain the latest forecast/information.

_______ 3.2 If conditions permit, move the station vehicles inside the Turbine Building.

_______ 3.3 Close or check closed all truck and personnel access doors on the Auxiliary and Turbine Buildings and Warehouse.

I-·tials/N/A

_______ 3.4 Minimize or stop all handling of radioactive materials and releases of radioactive waste to the environment for the duration of the emergency.

_______ 3.5 Monitor Ground Water Drainage System operation closely.

_______ 3.6 Monitor sump levels periodically.

_______ 3.7 On Low Low Lake Level of 554.4 ft. MSL, refer to AP/1/A/5500/20, Loss of RN System, if RN swapover to the Standby Nuclear Service Water Pond has not occurred automatically.

_______ 3.8 When conditions permit, perform a survey of plant structures and equipment to determine the extent of damage, if any, and record in the Shift Supervisor's Log.

4.0 ENCLOSURES

None

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: RP/0/A/5000/07
Change(s) 0 to 1 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: EARTHQUAKE

(4) PREPARED BY: Mike Bolch DATE: Nov. 07, 1983

(5) REVIEWED BY: [signature] DATE: 11/7/83

Cross-Disciplinary Review By: R. [signature] N/R:

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: (SRO) Date:

By: Date:

(7) APPROVED BY: CW Graves, Jr. Date: 11/7/83

(8) MISCELLANEOUS:

Reviewed/Approved By: Date:

Reviewed/Approved By: Date:

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
EARTHQUAKE

1.0 SYMPTOMS

1.1 Seismic event alarm SMA-3 on 1MC8

1.2 OBE Exceeded alarm on AD-4 (B-8).

1.3 Light on Peak Shock Annunciator PSA-1575 on 1MC8

1.4 Effects of an earthquake are seen, felt or heard.

2.0 IMMEDIATE ACTIONS

Initial/N/A

_______ 2.1 Shutdown Reactor(s)

2.1.1 If the Operational Basis Earthquake (OBE) Exceeded Alarm is received and the effects of an earthquake are felt, then immediately take Reactor(s) to Hot Standby.

2.1.2 Notify I&E to remove the magnetic tapes from the SMA-3 recorder to evaluate and verify the magnitude of the earthquake in accordance with IP/0/B/3341/03.

2.1.3 If the earthquake intensity is >.15g horizontal and/or >.1g vertical (SSE level), then proceed to take the reactor(s) to Cold Shutdown.

_______ 2.2 Classify the emergency by RP/0/A/5000/01, Classification of Emergency and commence notification and/or other protective measures as directed by appropriate Emergency Response Procedure.

3.0 SUBSEQUENT ACTIONS

_______ 3.1 All records made by accelerographs and recorders shall be evaluated to verify the extent of the earthquake.

3.1.1 See Enclosure 4.1 for locations and procedure numbers of seismic instruments.

3.1.2 Seismic verification may be obtained by calling the National Earthquake Information Service at (303) 324-3994.

_______ 3.2 Perform a survey of the plant structures and equipment to determine the extent of damage, if any, and record in the Unit Supervisor's Log.

3.2.1 Notify personnel from I&E and Mechanical Maintenance to assist Operations in the evaluation of earthquake damage if necessary.

3.2.2 Notify Health Physics personnel to survey the Reactor, Auxiliary and Fuel Pool Buildings to ensure shielding integrity.

3.2.3 Notify Chemistry personnel to survey areas where damage may release dangerous chemicals (e.g. Sulfuric Acid Storage).

________ 3.3 Closely monitor plant parameters to ensure plant safety.

________ 3.4 Reporting Requirements

3.4.1 If the earthquake was determined to be >OBE, the L&P Engineer or delegate shall make a report to the NRC (Regional Office) within 24 hours via telephone. (TS 6.9.1.12.g)

3.4.2 If the earthquake was determined to be <OBE but recorded on station seismic instrumentation, the L&P Engineer or delegate shall make a written report to the NRC (Regional Office) within 10 days. (TS 4.3.3.4.2)

4.0 ENCLOSURES

4.1 Locations of Seismic Instruments and Procedure Numbers

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
SEISMIC MONITORING INSTRUMENTS

Type	Instrument #	Name	Location	Procedure #
P	1MIMT-5010	Peak Accelerograph	CA Pipe to S/G 1D	IP/0/B/3341/05
P	1MIMT-5020	Peak Accelerograph	NC Pipe at PZR Surge Line	IP/0/B/3341/05
P	1MIMT-5030	Peak Accelerograph	NI Pump 1A	IP/0/B/3341/05
A (1)	1MIMT-5040	Spectrum Recorder	RB Basement 0°	IP/0/B/3341/04
P	1MIMT-5050	Spectrum Recorder	PZR Lower Support	IP/0/B/3341/04
P	1MIMT-5060	Spectrum Recorder	Aux Bldg. 577 EL. (PP-56)	IP/0/B/3341/04
A (2)	1MIMT-5000	Seismic Switch	RB Basement 0°	IP/0/B/3341/01
A	1MIMT-5070	Strong Motion Accelerograph	RB Basement 0°	IP/0/B/3341/03
A	1MIMT-5080	Strong Motion Accelerograph	Annulus 619 EL 0°	IP/0/B/3341/03
	1MIMT-5090	Starter Unit for SMA-3	RB Basement 0°	IP/0/B/3341/01

P - Passive (historical record)   A - Active (remote read-out)

Note 1: Also provides input to Peak Shock Annunciator (PSA1575)
Note 2: Provides indication of OBE Exceeded on AD4 (B-8) in Control Room

Seismic Remote Readouts

SMA-3 Triaxial Time-History Accelerographs (Strong Motion Accelerograph System) - in standby until 0.1g acceleration starts magnetic tape recorder unit - back up power supply from built in battery.

SMP-1 Magnetic Tape Playback Unit - plays back one of three channels at a time onto strip chart for data evaluation.

PSA-1575 Peak Shock Annunciator - gives visual warning that >70% OBE (amber light) or >100% OBE (red light) has been exceeded at certain frequencies ($2H_Z$ to $25.4\ H_Z$)

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: RP/0/A/5000/08
Change(s) 0 to
0 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: RELEASE OF TOXIC OR FLAMMABLE GAS

(4) PREPARED BY: MIKE BOLCH DATE:

(5) REVIEWED BY: J. R. Ferguson DATE: 3-15-83

Cross-Disciplinary Review By: J.W. [illegible] 3/15/83 N/R: SRC 83/20

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: (SRO) Date:

By: Date:

(7) APPROVED BY: M. S. Tucker Date: 3/21/83

(8) MISCELLANEOUS:

Reviewed/Approved By: Date:

Reviewed/Approved By: Date:

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
RELEASE OF TOXIC OR FLAMMABLE GAS

1.0 SYMPTOMS

1.1 This condition exists when toxic or flammable gases released nearsite or onsite, (verified by analysis if deemed necessary) present a harzard to station personnel or property.

2.0 IMMEDIATE ACTIONS

Initial/N/A

_______ 2.1 Classify the emergency by RP/0/A/5000/01, Classification of Emergency and commence notification and/or other protective measures as directed by appropriate Emergency Response Procedure.

3.0 SUBSEQUENT ACTIONS

_______ 3.1 The Shift Supervisor will request the Station Safety Section to evaluate the hazardous condition.

_______ 3.2 The Shift Supervisor will take appropriate actions to ensure the safety of all persons and property in the potentially affected areas.

3.2.1 Initiate a Site Assembly and/or Evacuation if necessary.

3.2.2 Notify outside services per Enclosure 4.1 if help needed.

_______ 3.3 In the event that evacuation of the Control Room appears imminent, refer to AP/1/A/5500/17, Loss of Control Room.

4.0 ENCLOSURE

4.1 Emergency Telephone Numbers

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
EMERGENCY TELEPHONE NUMBERS

Ambulance & Medical	Piedmont Medical Center	(803) 329-9111
Rescue Squad	York County Sheriff Department . . .	(803) 327-2021
Fire Department	Bethel Volunteer Fire Department . . .	(803) 631-4112

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: RP/0/A/5000/09
Change(s) 0 to
0 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: COLLISION/EXPLOSION

(4) PREPARED BY: MIKE BOLCH DATE:

(5) REVIEWED BY: J. R. Ferguson DATE: 3-15-83

Cross-Disciplinary Review By: [illegible] 3/15/83 N/R: [illegible] 83/[illegible]

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: (SRO) Date:

By: Date:

(7) APPROVED BY: H. S. Tuckman Date: 3/26/83

(8) MISCELLANEOUS:

Reviewed/Approved By: Date:

Reviewed/Approved By: Date:

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
COLLISION/EXPLOSION

1.0 SYMPTOMS

1.1 Observance of the following incident onsite or near site:

1.1.1 Aircraft crash or threatening aircraft activity

1.1.2 Train derailment

1.1.3 Waterborne collision

1.1.4 Missile impact

1.1.5 Explosion

1.1.6 Incident jeopardizing vital structures or safe shutdown equipment

2.0 IMMEDIATE ACTIONS

itial/N/A

_______ 2.1 Classify the emergency by RP/0/A/5000/01, Classification of Emergency, and commence notification and/or other protective measures as directed by appropriate Emergency Response Procedure.

3.0 SUBSEQUENT ACTIONS *

_______ 3.1 Take appropriate actions to ensure the safety of the reactor(s).

_______ 3.2 Perform emergency first aid as necessary.

_______ 3.3 Extinguish any fire(s) if applicable.

_______ 3.4 Notify Chemistry if there are any chemical implications.

_______ 3.5 Notify Health Physics if there are any radiological implications.

_______ 3.6 Notify applicable outside agencies as necessary. (Enclosure 4.1)

4.0 ENCLOSURES

4.1 Emergency Notification List

* These actions may be performed concurrently as appropriate

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
EMERGENCY TELEPHONE NUMBERS

Ambulance & Medical	Piedmont Medical Center	(803) 329-9111
Rescue Squad	York County Sheriff Department	(803) 327-2021
Fire Department	Bethel Volunteer Fire Department . . .	(803) 631-4112
Federal Aviation Administration - 24 Hr. Number		(919) 761-3147
Duke Power Company Railroad Contact - Wayne Hallman		77-2345 Days
	Home	[redacted]

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: RP/0/A/5000/10
Change(s) 0 to
1 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: CONDUCTING A SITE ASSEMBLY OR EVACUATION

(4) PREPARED BY: Mike Bolch DATE: 2-6-84

(5) REVIEWED BY: [signature] DATE: 2-6-84

Cross-Disciplinary Review By: ______ N/R: [initials]

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ______ (SRO) Date: ______

By: ______ Date: ______

(7) APPROVED BY: [signature] Date: 2/1/84

(8) MISCELLANEOUS:

Reviewed/Approved By: ______ Date: ______

Reviewed/Approved By: ______ Date: ______

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
CONDUCTING A SITE ASSEMBLY OR EVACUATION

1.0 SYMPTOMS

1.1 A Site Assembly is an occurance that warrants the accountability of all personnel on site for reasons of personnel safety or for dissemination of information.

1.1.1 Alert, if plant conditions are rapidly degrading.

1.1.2 Site Area Emergency or General Emergency.

1.1.3 Other plant conditions that, in the opinion of the Shift Supervisor/Emergency Coordinator, warrant a precautionary assembly

1.1.4 Auxiliary Building Radiation Levels

1.1.4.1 Radiation levels in unrestricted areas of Auxiliary Building > 2 mr/hr.

1.1.4.2 Airborne Radiation Levels > 1×10^6 cpm by EMF-41.

1.2 A Site Evacuation is an occurance that necessitates the evacuation of non-essential personnel for reasons of safety.

1.2.1 Site Area Emergency, if plant conditions are rapidly degrading

1.2.2 General Emergency

1.2.3 Other plant conditions that, in the opinion of the Shift Supervisor/Emergency Coordinator, warrant a precautionary evacuation.

2.0 IMMEDIATE ACTIONS

2.1 Site Assembly

2.1.1 Contact the Security Shift Lieutenant or Clerk at extension 2393 to inform them that a Site Assembly is being initiated.

2.1.2 The Shift Supervisor or delegate shall sound a twenty second blast of the Site Assembly alarm and make the following announcement on the plant page system:

"This is the Shift Supervisor, this is a Site Assembly. This is a Site Assembly. There is/are

____
What

in/at ______________________________
Where

All personnel and visitors report to their assembly points (parking lot if a bomb threat)."

NOTE: Assembly points are listed in Station Directive 3.0.7.

2.1.3 Repeat 2.1.2 in full.

2.2 Site Evacuation (Must be preceeded by a Site Assembly)

2.2.1 Choosing an Evacuation-Relocation Site

2.2.1.1 Contact Health Physics Duty Supervisor for assistance in assessing the radiological hazard associated with the evacuation.

Plant pager no. 7673-214 or 215.

2.2.1.2 Site Alpha (Transmission Line Maintenance Warehouse, Newport, S.C.) is located 4.8 miles SW of the plant.

2.2.1.3 Site Bravo (Allen Steam Station, Belmont, N.C.) is located 10 miles NNE of the plant.

2.2.1.4 Choose the site most opposite the direction that the wind may be carrying any expected release. See Enclosure 4.1.

2.2.2 Contact the Evacuation Coordinator listed in Station Directive 3.8.4, Enclosure 6, to inform him that an Evacuation is being initiated.

2.2.3 The Shift Supervisor or delegate shall sound a twenty second blast of the Site Evacuation alarm and make the following announcement on the plant page system:

"This is the Shift Supervisor, this is a Site Evacuation. This is a Site Evacuation. All non-essential personnel proceed to ____________."
Site Alpha/Bravo

2.2.4 Repeat 2.2.3 in full.

3.0 SUBSEQUENT ACTIONS

3.1 Notification

3.1.1 Notify the York County Sheriff's Department or the S.C. Highway Patrol to assist in traffic control. (Station Security shall direct traffic until their arrival.)

A. York County Sheriff 327-2021
B. S.C. Highway Patrol 366-7668

3.1.2 Notify the chosen Evacuation-Relocation Site of the expected arrival of personnel.

A. Alpha - 373-7309 Transmission Line Maintenance Warehouse
B. Bravo - 373-4646 Allen Steam Station

3.2 Continue to repeat Step 2.1.2 or 2.2.3 at 5-minute intervals until notification that the Site Assembly/Evacuation has been completed.

3.3 Securing from a Site Assembly

3.3.1 The Shift Supervisor or delegate shall make the following announcement on the plant page system:

"This is the Shift Supervisor, secure from Site Assembly. Secure from Site Assembly.

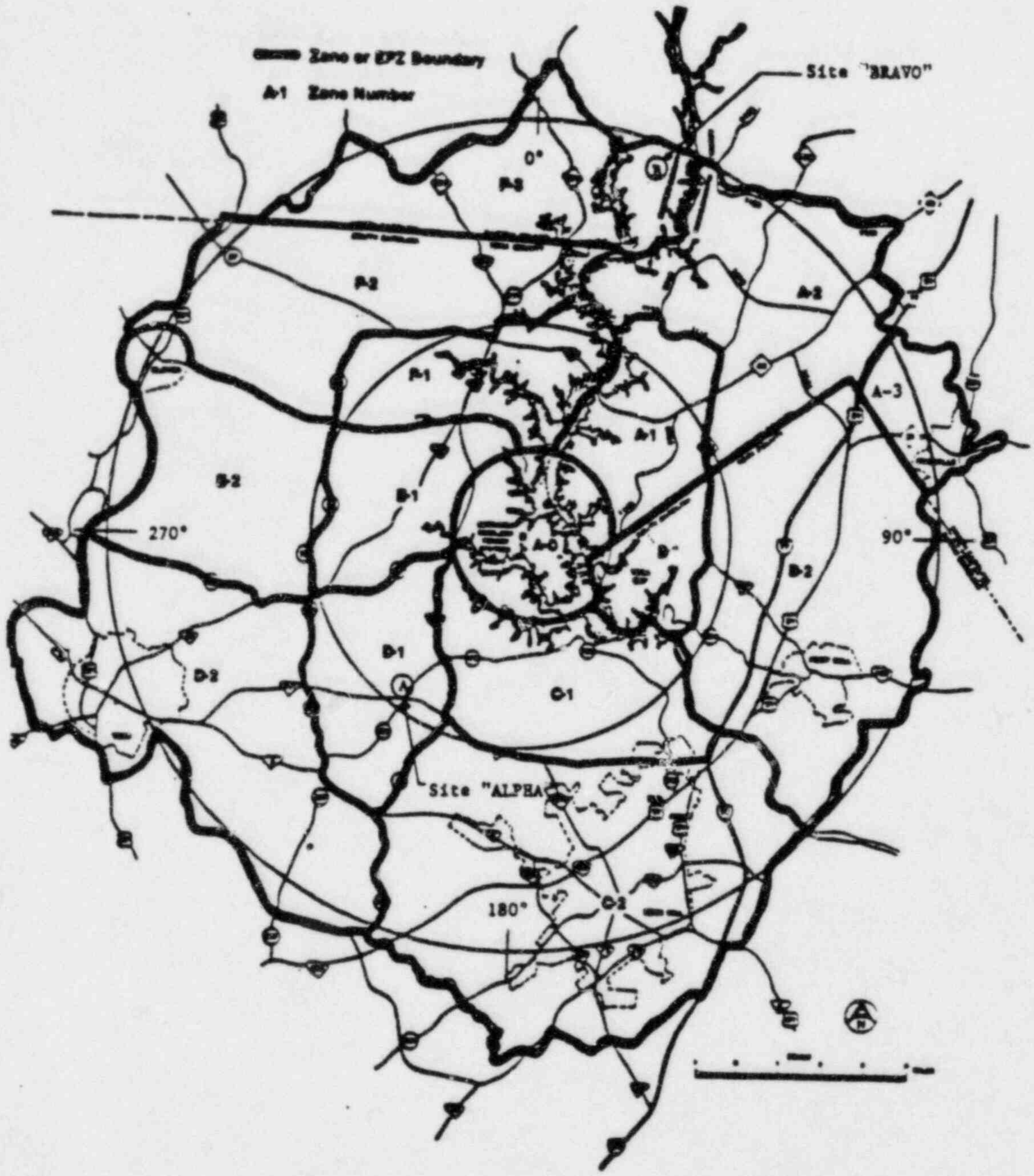
3.3.2 Repeat 3.3.1 in full.

3.4 Securing from a Site Evacuation

3.4.1 The Emergency Coordinator/Shift Supervisor or Recovery Manager at the CMC shall notify the Evacuation Coordinator at the Evacuation-Relocation Site when evacuated personnel can return to their work location.

4.0 ENCLOSURE

4.1 Wind Direction Determination



WIND DIRECTION FROM	USE THIS SITE
145° to 255°	ALPHA
350° to 360° & 0° to 100°	BRAVO

NOTE: Wind Direction is always stated in FROM X° a given direction.
Example: 180° Wind is From 180° blowing toward 0°.

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: RP/0/A/5000/11
Change(s) 0 to
0 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: PROTECTIVE ACTION RECOMMENDATIONS WITHOUT THE OAC

(4) PREPARED BY: Mike Bolch DATE: Dec. 02, 1983

(5) REVIEWED BY: W.P. Deal DATE: 1-18-84

Cross-Disciplinary Review By: Jw Cox 12/12/83 N/R: SCC 83/81

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ______________ (SRO) Date: ______________

By: ______________ Date: ______________

(7) APPROVED BY: Jw Cox Date: 2/6/84

(8) MISCELLANEOUS:

Reviewed/Approved By: ______________ Date: ______________

Reviewed/Approved By: ______________ Date: ______________

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
PROTECTIVE ACTION RECOMMENDATIONS
WITHOUT THE OAC

1.0 SYMPTOMS

1.1 LOCA with:

1.1.1 EMF-53A or 53B, Containment High Range Radiation Monitor, in alarm,

or

1.1.2 EMF-36(L), Unit Vent Gas Monitor, in alarm.

1.2 Dose Assessment Program (later) unavailable.

2.0 IMMEDIATE ACTIONS

2.1 Check Rx Building or Unit Vent Radiation Level as Symptoms Indicate

2.1.1 Check the Reactor Building radiation level by either of the following methods:

2.1.1.1 Record EMF-53A and EMF-53B readouts on Enclosure 4.2.

2.1.1.2 Obtain radiation level from Shift Health Physics using HP/0/B/1009/06 (Alternative Methods for Determining Dose Rate Within the Reactor Building). Record on Enclosure 4.2.

2.1.2 Record EMF-36(L) and EMF-36(H) readings on Enclosure 4.3.

2.2 Perform the following based on radiation levels.

2.2.1 If the Reactor Building radiation level is ≤ 35 R/hr, continue monitoring the Reactor Building radiation level.

2.2.2 If the Reactor Building radiation level is > 35 R/hr, complete Enclosures 4.1, 4.2 and 4.4.

2.2.3 If EMF-36(L) is ≤ 30,000 cpm, continue monitoring Unit Vent radiation level.

2.2.4 If EMF-36(L) is > 30,000 cpm, complete Enclosures 4.1, 4.3 and 4.4.

2.3 Recommendations

2.3.1 Determine Protective Action Recommendations from Steps 1 and 2 of Enclosure 4.4.

2.3.2 Always include Zone A-0 in Recommendations.

2.3.3 See RP/0/A/5000/05 (General Emergency) for Recommendation Format.

3.0 SUBSEQUENT ACTIONS

3.1 Determine the need for protective actions once every hour if:

3.1.1 The Reactor Building radiation level is > 35 R/hr for > 1 hour, or

3.1.2 EMF-36(L) is > 30,000 cpm for > 1 hour.

4.0 ENCLOSURES

4.1 Clock and Meteorological Data Sheet

4.2 Reactor Building Data - Calculation Sheet

4.3 Unit Vent Data - Calculation Sheet

4.4 Protective Action Recommendation Work Sheet

4.5 Limits and Precautions

CLOCK AND METEOROLOGICAL DATA SHEET

Unit ____________________

Protective Actions Determined By __________________________

1. Clock Data

Time Now ______________________ Date Now ______________________

Time of Reactor Trip ____________ Date of Reactor Trip ___________

Hours Since Reactor Trip _________

2. Meteorological Data (from station EEB system or National Weather Service [NWS] at 704-399-6000)

Wind Direction - Upper Tower __________ degrees

- Lower Tower __________ degrees

- NWS __________ degrees

Wind Speed - Lower Tower __________ mph

- Upper Tower __________ mph

- NWS __________ mph

Actual ΔT - Lower to Upper Tower __________ °C

Assumed ΔT - Time now of 1000 to 1600 -0.4°C

- Time now of 1600 to 1000
  with wind speed > 15 mph -0.1°C
  with wind speed ≤ 15 mph +1.3°C

NOTE: Assumed ΔT is for use when EEB system is inoperable. ΔT is not available from NWS.

REACTOR BUILDING DATA - CALCULATION SHEET

1. Based upon hours since reactor trip, determine the Reactor Trip time factor (RTTF) from the table below and record. ____________

Hours Since Reactor Trip	RTTF
0.0 - 1.0	12
1.1 - 2.0	17
2.1 - 5.0	27
5.1 - 10.0	42
> 10.0	N/A*

* After 10 hrs. TSC will perform dose calculations.

2. Reactor Building Dose Rate (RBDR).

   a) EMF-53A ____________ R/hr.
      EMF-53B ____________ R/hr.

      NOTE: Use the highest EMF reading in calculations.

   b) HP/0/B/1009/06 ____________ R/hr.

3. Calculate Time Determined Dose (TDT).

   TDT ____________ = RBDR ____________ x RTTF ____________

4. Calculate Wind Determined Dose (WDD) based on Wind Speed (WS).

   WDD ____________ = TDT ____________ ÷ WS ____________

   NOTE 1: Lower WS is preferred. If not available, use upper WS, then WS from National Weather Service.

   NOTE 2: If WS $\leq$ 1 mph then use the value of 1.

5. Go to Enclosure 4.4.

UNIT VENT DATA - CALCULATION SHEET

1. Unit Vent EMF Readings

   EMF-36(L) = ____________ cpm

   EMF-36(H) = ____________ cpm

   Unit Vent Flow Rate = ____________ cfm

2. Calculate Time Determined Dose (TDT). If EMF-36(H) is < 100 cpm, calculate DT with Section 2.1. If EMF-36(H) is > 100 cpm, calculate DT with Section 2.2.

   2.1 TDT ____________ = EMF-36(L) _______ cpm x _______ cfm x 6.4E-7

   2.2 TDT ____________ = EMF-36(H) _______ cpm x _______ cfm x 4.3E-3

3. Calculate Wind Determined Dose (WDD) based on Wind Speed.

   WDD __________ = TDT ____________ ÷ WS ____________

   NOTE 1: Lower WS is preferred. If not available, use upper WS, the WS from National Weather Service.

   NOTE 2: If WS ≤ 1 mph then use the value of 1.

4. Go to Enclosure 4.4.

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
RP/0/A/5000/11
ENCLOSURE 4.4

PROTECTIVE ACTION RECOMMENDATION WORK SHEET

1. Based on WDD and ΔT, determine distances and level of protective action from Tables 1.1 and 1.2 below. Circle ΔT, WDD and Protective Action Recommendation.

Table 1.1

0-5 Mile Radius Protective Action Recommendations

	WDD Values		
ΔT: ≤ -0.6	≤ 4.10E6	4.10E6 to 2.00E7	> 2.00E7
-0.6 to -0.5	≤ 1.10E5	1.10E5 to 5.50E5	> 5.50E5
-0.4 to -0.2	≤ 3.50E4	3.50E4 to 1.70E5	> 1.70E5
-0.1 to +0.4	≤ 2.00E4	2.00E4 to 1.00E5	> 1.00E5
+0.5 to +1.2	≤ 9.80E3	9.80E3 to 4.90E4	> 4.90E4
≥ +1.2	≤ 4.50E3	4.50E3 to 2.20E4	> 2.20E4
Protective Action Recommendations	NO ACTION	Consider EVACUATION PARTICU-LARLY FOR CHILDREN AND PREGNANT WOMEN	EVACUATE EVERYONE

Table 1.2

5-10 Mile Radius Protective Action Recommendations

	WDD Values		
ΔT: ≤ -0.6	≤ 2.00E7	2.00E7 to 1.00E8	> 1.00E8
-0.5 to -0.4	≤ 1.80E6	1.80E6 to 9.20E6	> 9.20E6
-0.4 to -0.2	≤ 4.10E5	4.10E5 to 2.00E6	> 2.00E6
-0.1 to +0.4	≤ 2.00E5	2.00E5 to 1.00E6	> 1.00E6
+0.5 to +1.2	≤ 7.90E4	7.90E4 to 3.90E5	> 3.90E5
≥ +1.2	≤ 2.90E4	2.90E4 to 1.40E5	> 1.40E5
Protective Action Recommendations	NO ACTION	Consider EVACUATION PARTICU-LARLY FOR CHILDREN AND PREGNANT WOMEN	EVACUATE EVERYONE

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
RP/0/A/5000/11
ENCLOSURE 4.4

PROTECTIVE ACTION RECOMMENDATION WORK SHEET

2.. Based on wind direction (WD), determine the affected zones from the tables below. Circle the wind direction and affected zones.

NOTE: Upper tower wind direction is preferred. If not available, use lower WD, then use WD from National Weather Service.

A. IF WIND SPEED IS < 5 MPH, THE AFFECTED ZONES ARE A-0, A-1, B-1, C-1, D-1, E-1 and F-1.

B. IF WIND SPEED IS > 5 MPH, SELECT THE AFFECTED ZONES FROM THE TABLES BELOW AS APPLICABLE.

Table 2.1

0-5 Mile Radius Wind Direction	Affected Zones
0.1° - 360°	A-0
PLUS	
0.1° - 22°	C-1, D-1
22° - 73°	C-1, D-1, E-1
73° - 108°	C-1, D-1, E-1, F-1
108° - 120°	D-1, E-1, F-1
120° - 159°	E-1, F-1
159° - 207°	E-1, F-1, A-1
207° - 247°	F-1, A-1, B-1
247° - 265°	A-1, B-1
265° - 298°	A-1, B-1, C-1
298° - 338°	B-1, C-1
338° - 360°	B-1, C-1, D-1

Table 2.2

5-10 Mile Radius Wind Direction	Affected Zones
0.1 - 27°	C-2, D-2
27° - 69°	C-2, D-2, E-2
69° - 95°	D-2, E-2, F-2
95° - 132°	D-2, E-2, F-2, F-3
132° - 144°	E-2, F-2, F-3
144° - 160°	E-2, F-2, F-3, A-2
160° - 201°	F-2, F-3, A-2
201° - 229°	F-2, F-3, A-2, B-2
229° - 249°	F-3, A-2, B-2
249° - 259°	A-2, A-3, B-2
259° - 290°	A-2, B-2, C-2, A-3
290° - 304°	A-3, B-2, C-2
304° - 333°	B-2, C-2
333° - 360°	B-2, C-2, D-2

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
RP/0/A/5000/11
ENCLOSURE 4.5

LIMITS AND PRECAUTIONS

1. This procedure is to be used by Control Room Operations personnel only in the event the Operator Aid Computer is not available to perform the calculation of protective action recommendation and the Technical Support Center is not activated.

   NOTE: This procedure is applicable only in the first 10 hours after the Reactor Trip.

2. This procedure is conservative in its ability to protect the public in that:

   a. A 45° wide plume is assumed with an additional 22½° on each side of the plume.

   b. Wind determined dose (WDD) has a built in margin of safety.

   c. There are three sources of meteorological data:

      1) EEB System upper and lower towers
      2) National Weather Service at Charlotte Office of National Weather Service
      3) Established data from CNS FSAR

3. All protective action recommendations relate to child thyroid dose protective action guides.

4. The ratio of I-131 eq. to Xe-133 eq. in the unit vent is assumed to be 9.74E-3.

5. The basis for the unit vent method is HP/0/B/1009/13, Offsite Dose Projection - Uncontrolled Release of Radioactive Material Through the Unit Vent.

6. 6.4E-7 and 4.3E-3 are unitless constants which relate unit vent data to the WDD value tables used to determine protective action recommendations.

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: RP/0/B/5000/12
Change(s) 0 to
0 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: CONTROL OF ASSESSMENT AND REPAIR TEAMS

(4) PREPARED BY: Mike Bolch DATE: Jan. 19, 1984

(5) REVIEWED BY: W.P. Deal DATE: 1-19-84

Cross-Disciplinary Review By: ______ N/R: JWL

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ______ (SRO) Date: ______

By: ______ Date: ______

(7) APPROVED BY: J.W. Cox Date: 1-19-84

(8) MISCELLANEOUS:

Reviewed/Approved By: ______ Date: ______

Reviewed/Approved By: ______ Date: ______

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
CONTROL OF ASSESSMENT AND REPAIR TEAMS

1.0 PURPOSE

1.1 To provide a means for dispatching teams of station personnel during an emergency, to assess damage or repair a component or area.

1.2 To provide a means for maintaining the dispatched personnel's accountability and safety, including protection from radiological hazards.

2.0 PRECAUTIONS

2.1 The following personnel shall be notified prior to dispatching a team into the Auxiliary Building or Containment:

2.1.1 Shift Supervisor

2.1.2 Operations Supervisor (OSC)

2.1.3 HP Supervisor (OSC)

2.1.4 HP S&C Coordinator (TSC)

2.2 All personnel who are assigned to perform a task under emergency conditions shall be logged in and out, on Enclosure 4.1.

3.0 PROCEDURE

3.1 The Operations Supervisor or delegate in charge of the OSC shall maintain a notebook (Enclosure 4.1) of assignments and shall contact the person in charge of the assignment at 20 minute intervals.

3.2 A briefing of all assigned personnel shall preceed the dispatching of assessment and repair teams. The location of the briefing to be determined as appropriate to the situation.

3.2.1 A summary of the assignment shall be given in the briefing, as follows:

A. Radiological hazards expected to be encountered will be discussed during the briefing by the Health Physics Supervisor.

B. Types of protective equipment and clothing will be reviewed during the briefing and documented on Enclosure 4.1.

3.3 The HP Supervisor in the OSC shall insure that records of the radiation exposure of each team member are maintained.

3.4 The HP Supervisor shall review all Enclosure 4.1's of this procedure and Enclosure 5.14 of HP/0/B/1009/09 for computer entry of exposure upon completion of the emergency condition.

3.5 Exposure from the emergency shall be entered into the computer under a RWP/SRWP that will be written after the emergency condition is over.

4.0 ENCLOSURES

4.1 Team Personnel List

ENCLOSURE 4.1

TEAM PERSONNEL LISTS

Team ______________________ Date ____________

Assignment ________________________________ Location ____________

Leader ____________________________________ Bldg./El ____________

Number of Personnel _________ Communication Mode:

Personnel Assigned: □ Telephone □ Messenger □ Radio

Group	Name	HP Badge No.	Time Out	Time In
1.				
2.				
3.				
4.				
5.				
6.				

Special Hazards to be considered:

Radiological — Other (specify) ____________________

□ Toxic Fumes or Gases ____________________

□ Fire ____________________

□ Electrical ____________________

Equipment/Clothing required:

□ Anti-C's — Other (specify) ____________________

□ Respirators ____________________

□ SCBA □ Fire Brigade Turnout Clothing ____________________

□ Camera ____________________

□ Tools □ Ventilation ____________________

□ Lights ____________________

□ Portable Shielding ____________________

□ Radiological Monitoring ____________________

OSC Operations Supervisor ________________ Team Leader ________________

OSC HP Supervisor ________________

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: RP/0/B/5000/12
Change(s) 0 to
0 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: CONTROL OF ASSESSMENT AND REPAIR TEAMS

(4) PREPARED BY: Mike Bolch DATE: Nov. 07, 1983

(5) REVIEWED BY: [signature] DATE: 11/7/83

Cross-Disciplinary Review By: [signature] N/R:

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ______________ (SRO) Date: ______________

By: ______________ Date: ______________

(7) APPROVED BY: CW Grave, L Date: 11/7/83

(8) MISCELLANEOUS:

Reviewed/Approved By: ______________ Date: ______________

Reviewed/Approved By: ______________ Date: ______________

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
CONTROL OF ASSESSMENT AND REPAIR TEAMS

1.0 PURPOSE

1.1 To provide a means for dispatching teams of station personnel during an emergency, to assess damage or repair a component or area.

1.2 To provide a means for maintaining the dispatched personnel's accountability and safety, including protection from radiological hazards.

2.0 PRECAUTIONS

2.1 This procedure shall be coordinated between the Shift Supervisor on duty, the Shift Supervisor and HP Supervisor in the OSC and the Emergency Coordinator in the TSC.

2.2 All personnel who are sent out to perform a task under emergency conditions shall be logged in and out, on the appropriate form.

3.0 PROCEDURE

3.1 The Shift Supervisor in charge of the OSC shall maintain a log of personnel assignments and shall contact the person in charge of the assignment every ____ minutes.

3.2 A briefing of all assigned personnel shall preceed the dispatching of assessment and repair teams.

3.2.1 A summary of the assignment shall be given in the briefing.

3.2.2 Personnel hazards expected to be encountered will be discussed during the briefing.

3.2.3 Types of protective equipment and clothing will be reviewed during the briefing.

3.3 A list of teams dispatched during emergencies will be maintained in both the TSC and the OSC.

3.3.1 The list shall include assignment, number of personnel, location and method of communication.

3.3.2 Communications checks will be made to each team at approximately ____ minute intervals.

3.4 The HP Supervisor in the OSC shall maintain records of the radiation exposure of each team member.

4.0 ENCLOSURES

4.1 Team Assignments

4.2 Team Personnel List

ENCLOSURE 4.1
ASSESSMENT AND REPAIR TEAM ASSIGNMENTS

Date ______________

Team ______________________________ Leader ______________________________

Assignment ____

Location __________________________ Out ____________ In ____________

Number of Personnel ______________ Communication Mode ______________

Record of Communication Checks:

Date ______________

Team ______________________________ Leader ______________________________

Assignment ____

Location __________________________ Out ____________ In ____________

Number of Personnel ______________ Communication Mode ______________

Record of Communication Checks:

Date ______________

Team ______________________________ Leader ______________________________

Assignment ____

Location __________________________ Out ____________ In ____________

Number of Personnel ______________ Communication Mode ______________

Record of Communication Checks:

TEAM PERSONNEL LISTS

Team ______________________ Date ____________

ignment ______________________________ Location ____________

Leader ______________________________ Bldg./El ____________

Number of Personnel ________ Communication Mode ______________

Personnel Assigned:

Group	Name	HP Badge NO.	Time Out	Time In
1.				
2				
3.				
4.				
5.				
6.				

Special Haz-ds to be considered:

2.

3.

Equipment/Clothing required:

1.

2.

3.

4.

5.

6.

OSC Supervisor Initial ____________ Team Leader Initial ____________

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: HP/0/B/1000/06
Change(s) 0 to
6 Incorporated

(2) STATION: Catawba Nuclear

(3) PROCEDURE TITLE: Emergency Equipment Functional Check and Inventory

(4) PREPARED BY: Robert S. Williams DATE: 2-1-84

(5) REVIEWED BY: Gerald T. Nook DATE: 2-2-84

Cross-Disciplinary Review By: ______ N/R: S. T. Nook

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ______ (SRO) Date: ______

By: ______ Date: ______

(7) APPROVED BY: J W [illegible] Date: 2/2/84

(8) MISCELLANEOUS:

Reviewed/Approved By: ______ Date: ______

Reviewed/Approved By: ______ Date: ______

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
EMERGENCY EQUIPMENT FUNCTIONAL CHECK AND INVENTORY

1.0 PURPOSE

To provide for the availability and readiness of Emergency Equipment.

2.0 REFERENCES

2.1 HP/0/B/1005/08; Respirator Quality Assurance

2.2 Catawba Nuclear Station Directive 2.11.13

2.3 Catawba Nuclear Station Directive 3.2.2

2.4 Catawba Nuclear Station Directive 3.3.3

2.5 Catawba Nuclear Station Emergency Plan

2.6 Catawba Nuclear Station Technical Specifications 6.10

2.7 10CFR50 Appendix E

2.8 NUREG 0041, Chapters 5 and 9

2.9 NUREG 0654

3.0 LIMITS AND PRECAUTIONS

3.1 Seat belts shall be utilized by each person occupying any Vehicle used in an emergency situation.

3.2 Operation of the Portable Alternator

3.2.1 Gasoline shall never be added while the engine is running hot.

3.2.2 Smoking, open flames or sparks shall not be allowed in the vicinity of fuel handling.

3.2.3 Avoid operating the unit while hands are wet or while standing in water.

3.2.4 Never run the unit in an enclosed space (hazardous fumes given off).

3.2.5 Do not operate with the air cleaner removed.

3.2.6 Do not touch the muffler, exhaust piping or engine as serious burns may result.

3.3 Silver zeolite cartridges shall be discarded if the seal has been broken.

3.4 Any radiation monitoring equipment located in an emergency kit that must be removed from service for any reason shall be replaced within four hours from the time it is removed from the kit.

3.5 Any emergency kit used during training or for drill purposes shall be reinventoried as soon as possible. The individual responsible for the training or drill shall be responsible for inventory and restocking of all onsite kits.

3.5.1 Off-site kits shall be reinventoried as above and a list of deviations shall be given to the Respiratory/Instrument Calibration (R/IC) Supervisor. R/IC shall be responsible for restocking off-site kits as soon as possible.

4.0 PROCEDURE

4.1 Monthly Emergency Equipment Check/Inventory

4.1.1 Portable Generator Check

4.1.1.1 The operability of the generators shall be checked monthly.

4.1.1.2 Operation of the Portable Generators

NOTE: If at any time during the operation of the unit problems arise, notify the Health Physics Respiratory Supervisor.

4.1.1.2.1 Check the oil prior to starting. Make sure the unit is level and remove the oil filler plug. Oil level should be to the point of overflowing. Add oil if needed. Replace plug.

4.1.1.2.2 Add a small amount of non-leaded gasoline (leaded-regular may be substituted).

4.1.1.2.3 Push choke lever all the way to the right.

NOTE: Never start the unit with equipment plugged in.

4.1.1.2.4 Hold generator carrying handle grip with one hand. Grasp rope start handle with other hand and pull out sharply. Do not let starter rope snap back.

4.1.1.2.5 When engine starts return choke lever to the far left position and ensure the engine is running smoothly.

4.1.1.2.6 Plug a portable air sampler into one of the generator outlets and turn on the sampler. Allow the generator to stabilize. Unplug the sampler and plug into the other outlet and again allow the generator to stablize.

4.1.1.2.7 Unplug the air sampler and shut off the engine by holding the spark plug shorting lever fi mly against the spark plug rubber boot until the engine comes to a complete stop.

4.1.1.2.8 Remove any remaining gasoline from the gas tank.

4.1.1.2.9 Start engine as per 4.1.1.2.4 and run until engine stops.

4.1.1.2.10 Document the operability check (i.e., malfunctions, no problems...) on the Emergency Equipment Check Log Sheet (Enclosure 5.1).

4.1.2 Monthly Communications Check

4.1.2.1 Two-Way Low-Band FM Radios

4.1.2.1.1 Radios shall be checked monthly.

4.1.2.1.2 Call the Technical Support Center (TSC) and notify Health Physics personnel that you plan to contact them using the Two-Way Low-Band FM Radios. Record the name of the person notified on the Emergency Equipment Check Log Sheet (Sample Enclosure 5.1).

4.1.2.1.3 Drive to the intersection of highways 55 and 321 (located in Clover) and call the (TSC) using the radio. Operate the radio according to the Duke Power Company Radio Operator's Manual.

Radio call sign- KB-36274 (Alpha, Bravo, Charlie, Delta, Echo, Foxtrot)

Control Room (Base) call sign- KNHB 778

4.1.2.1.4 If contact is not made with the (TSC) using the radio, initiate corrective action (move to different location, insure TSC has radio on...).

4.1.2.1.5 Document the radio check on the Emergency Equipment Check Log Sheet (Enclosure 5.1).

4.1.2.1.6 Inoperable radios shall be removed from service. Contact Toddville Communications Shop Planner for instructions on disposition for repair.

4.1.2.1.7 Notify the Health Physics Respiratory Supervisor of any deviations.

4.1.2.2 Weather Information Check

4.1.2.2.1 Every month a call shall be placed to the National Weather Service located in Columbia, SC at 803-794-2330 or 803-794-2593. If these two numbers cannot be reached, an alternate number in Charlotte (704-399-6000) may be used. Obtain wind direction, wind speed, and cloud cover from one of these sources for the vicinity of Catawba Nuclear Station. Obtain the same information from the Catawba Nuclear Station Control Room.

4.1.2.2.2 Record this information on the Weather Information Form (Enclosure 5.2).

4.1.2.2.3 Compare the information from the Control Room and the Weather Bureau. If differences are found greater than 22° in wind direction and/or 50% in wind speed, notify the Health Physics Respiratory Supervisor.

4.1.3 Monthly Emergency Equipment Kits Inventory

4.1.3.1 Enclosure 5.3 gives a list of the locations of all Emergency Equipment Kits.

4.1.3.2 Each kit shall be inventoried monthly and after each use using the appropriate Emergency Equipment Kit Checklist (Enclosures 5.4 - 5.13).

4.1.3.2.1 Perform a battery and response check on all Radiation Monitoring Instruments located in the kit and insure the instruments are within the current calibration date.

NOTE: Batteries shall not be stored in the instrument. After completing check, remove batteries.

4.1.3.2.2 Perform a functional check of the dosimeter charger/reader, and insure that the leak and source check dates on the dosimeters are current.

4.1.3.2.3 Insure the calibration is current on the Canberra Series - 10 Portable MCA.

4.1.3.2.4 Check respiratory equipment as per Reference 2.1.

4.1.3.2.5 Insure that air samplers are within current calibration dates.

4.1.3.2.6 Insure that the TLD's are the appropriate ones for the current quarter.

4.1.3.2.7 Insure the the Potassium Iodide tablets have not exceeded their expiration date.

4.1.3.2.8 Insure the seal on the silver zeolite cartridges packet is not broken.

4.1.3.2.9 Insure that all procedures are up to date with the current Control Copy.

4.1.3.2.10 Check all batteries for strength.

4.1.3.2.11 Upon completion of the inventory, the kit shall be secured with a tamper seal(s) to maintain the integrity of the kit until the next use or inspection.

4.1.3.2.12 If any deviations are found, describe any deviations in the deviations section of the applicable Emergency Equipment Kit Checklist (Enclosures 5.4 - 5.13) and document the deviations in the Emergency Equipment Deviation Authorization Sheet (Enclosure 5.14).

4.1.3.2.13 Following completion of the kit inventory sign off the appropriate kit on the Emergency Kits Inventory Log Sheet (Enclosure 5.15).

4.1.4 Monthly Emergency Respiratory Inventory

4.1.4.1 Insure that all emergency Self Contained Breathing Apparatus (SCBA's) are available.

LOCATIONS	MINIMUM UNITS
Control Room	2
Upper Personnel Hatch	2
Lower Personnel Hatch	2
Health Physics Respiratory Storage Area	8

4.1.4.2 Insure that six large bottles (min. of six hours use for 5 people) of breathing air are located in the Control Room along with 5 airline respirators and associated airline hoses.

4.1.4.3 Steps 4.1.4.1 and 4.1.4.2 shall be documented per Reference 2.1.

4.1.4.4 Any deviations shall be reported to the Health Physics Respiratory Supervisor.

4.2 Deviation Authorization

4.2.1 The Station Health Physicist shall be made aware of any deviation recorded on Enclosure 5.14.

4.2.2 The Station Health Physicist shall have evaluated the consequences the deviation may have upon the capability to respond to an emergency situation.

4.2.3 Enclosure 5.14 shall be used to state the action taken to remedy the deviation, and to state the justification for taking that action.

4.2.4 Sign off the PT printout and forward as per Reference 2.3.

4.3 Upon completion of this procedure all required documentation will be filed in the Emergency Equipment Functional Check and Inventory Log.

5.0 ENCLOSURES

5.1 Sample of Emergency Equipment Check Log Sheet

5.2 Sample of Weather Information Form

5.3 Sample of Emergency Equipment Kits and Locations

5.4 Sample of Recovery Kit Checklist

5.5 Sample of Environmental Survey Kit Checklist

5.6 Sample of Environmental Survey Kit Checklist (Helicopter)

5.7 Sample of Personnel Survey Kit Checklist

5.8 Sample of Personnel Survey Kit Checklist (Evacuation Facility)

5.9 Sample of Medical Decontamination Kit Checklist

5.10 Sample of Medical Decontamination Kit Checklist (Piedmont Medical Center)

5.11 Sample of Operations Support Center Kit Checklist

5.12 Sample of Technical Support Center Kit Checklist

5.13 Sample of Fuel Transfer Kit Checklist

5.14 Sample of Emergency Equipment Deviation Authorization Sheet

5.15 Sample of Emergency Kits Inventory Log Sheet

CATAWBA NUCLEAR STATION

EMERGENCY EQUIPMENT CHECK LOG SHEET

PORTABLE GENERATOR

Date	Generator Number	Comments	Signature

TWO-WAY LOW-BAND RADIO

Date	Radio Call Sign	Contact Made	Corrective Action	Signature

CATAWBA NUCLEAR STATION
WEATHER INFORMATION
HP/0/B/1000/06
ENCLOSURE 5.2

	National Weather Service	Control Room
Wind Direction	____________	____________
Wind Speed	____________	____________
Cloud Cover	____________	____________
Time	____________	____________

Comparison difference: Wind Direction ________ degrees
Wind Speed ________ %

____
Signature/Date

CATAWBA NUCLEAR STATION
EMERGENCY EQUIPMENT AND LOCATIONS
HP/0/B/1000/06
ENCLOSURE 5.3

KITS	LOCATION
Recovery Kits (4)	Allen Steam Station Security PAP Temp. Admin. Bldg. Transmission Line Maint. Bldg.
Environmental Survey Kits (Vehicle) (4)	Aux. Bldg. Rm 517-B
Environmental Survey Kits (Helicopter)	Aux. Bldg. Rm 517-B
Personnel Survey Kits (4)	
Construction Personnel access area (Brass Gate)	Temp. Admin. Bldg.
PAP Area	Security Pap
Evacuation Facility (2)	Transmission Line Maint. Bldg. Allen Steam Station
Medical Decontamination Kit (2)	Aux. Bldg. First Aid Room Piedmont Medical Center
Operations Support Center Kit	Operations Support Center
Technical Support Center Kit	Technical Support Center
Fuel Transfer Kit	Temp. Admin. Bldg.

CATAWBA NUCLEAR STATION
RECOVERY KITS CHECKLIST
HP/0/B/1000/06
ENCLOSURE 5.4

ITEM		AMOUNT	DEV.*
List of Contents		1	______
Eberline E-520 w/HP-270 Probe		1	______
Exempt Source		1	______
Low/High Range Dosimeters (0-500 mR), (0-5R)		2 each	______
Dose Cards		25	______
TLD Badges		6	______
Dosimeter Charger		1	______
Boundary Ribbon or Rope (50 yd. roll)		1	______
Masking Tape (roll)		1	______
Rain Suits (set)		2	______
Protective Clothing (set)		2	______
Poly Bags (Various)		12	______
Caution Signs w/inserts		2	______
Legal Pad		1	______
Instrument/Smear Survey (pad)		1	______
Pens		2	______
Grease Pencil		1	______
Full Face Respiratior With High Efficiency Filters		2	______
First Aid Kit		1	______
Potassium Iodide Tablets	Trans. Line Maint.	275 bottles	______
	Security PAP	150 bottles	______
	Temp. Admin. Bldg.	150 bottles	______
	Allen Steam Station	275 bottles	______
KI Distribution Data Sheet		100	______
Smears (box)		1	______
NuCon Smears		30	______
Flashlight		1	______
Batteries		4	______
Scissors		1	______
Small Sample Bottles	Trans. Line Maint.	100	______
	Security PAP	60	______
	Temp. Admin. Bldg.	60	______
	Allen Steam Station	100	______
HP/0/B/1003/12		1	______
HP/0/B/1009/16		1	______

This Kit has been inventoried and Steps 4.1.3.2.1 through 4.1.3.2.12, if applicable, have been completed.

____
Signature/Date

*Any Deviations will be documented on the Emergency Equipment Deviation Authorization Sheet (Sample Enclosure 5.14).

CATAWBA NUCLEAR STATION
ENVIRONMENTAL SURVEY KITS CHECKLIST
HP/0/B/1000/06
ENCLOSURE 5.5

ITEM	AMOUNT	DEV.*
List of Contents	1	
Eberline E-520 w/HP-270 Probe	1	
Eberline E-140N w/HP-210 Probe (or equivalent)	1	
Exempt Source	1	
Portable MCA**	1	
Eberline PIC 6A	1	
Emergency Radio Transmitter/Receiver	1	
Radeco H809V Air Sampler	1	
Gasoline Generator (Gasoline in Safety Cabinet)	1	
Low/High Range Pocket Dosimeter (0-500 mR), (0-5R)	2 each	
Dose Cards	25	
TLD Badge	6	
Dosimeter Charger	1	
Full Face Respirator With High Efficiency Filter	2	
Potassium Iodide Tablets (bottle)	2	
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	30	
Filter Cartridges Labels & Bags	100	
Smears (box)	1	
NuCon Smears	30	
Instrument/Smear Survey (pad)	1	
Map of Ten Mile Zone Sectors	1	
Legal Pad	1	
Pen	2	
Hand Spade	1	
Grease Pencil and refills	1	
Dime Roll	1	
Scissors	1	
Rain Suits	3	
Telephone location maps	1	
Field Monitoring Data Sheet	20	
Field Monitoring Work Sheet	20	
KI Tablet Distribution Data Sheet	1	
Radio Operator Manual	1	
CPD1 Key	1	
HP/0/B/1009/04	1	

CATAWBA NUCLEAR STATION
ENVIRONMENTAL SURVEY KITS CHECKLIST
HP/0/B/1000/06
ENCLOSURE 5.5

ITEM	AMOUNT	DEV.*
HP/0/B/1009/16	1	______
HP/0/B/1003/02	1	______
HP/0/B/1003/05	1	______
HP/0/B/1003/12	1	______
HP/0/B/1003/17	1	______
HP/0/B/1009/19	1	______
HP/0/B/1003/31 or HP/0/B/1003/11	1	______

This Kit has been inventoried and Steps 4.1.3.2.1 through 4.1.3.2.12, if applicable, have been completed.

____
Signature/Date

*Any Deviations will be documented on the Emergency Equipment Deviation Authorization Sheet (Sample Enclosure 5.14).

**This instrument is stored in the Health Physics Instrument Issue Area.

CATAWBA NUCLEAR STATION
ENVIRONMENTAL SURVEY KITS CHECKLIST (Helicopter)
HP/0/B/1000/06
ENCLOSURE 5.6

ITEM	AMOUNT	DEV.*
List of Contents	1	______
Eberline PIC-6A	1	______
Eberline E-520 w/HP-270 Probe	1	______
Exempt Source	1	______
Low/High Range Pocket Dosimeter (0-500 mR), (0-5R)	2 each	______
Dose Cards	25	______
Field Monitoring Data Sheet	20	______
TLD Badge	6	______
Dosimeter Charger	1	______
Full Face Respirator with High Efficiency Filter	2	______
Potassium Iodide Tablets (bottle)	2	______
KI Distribution Data Sheet	1	______
Stopwatch	1	______
Flashlight	1	______
Batteries	4	______
Map of Ten Mile Zone Sectors	1	______
Legal Pad	1	______
Pen	2	______
Rain Suits	2	______
Instrument/Smear Survey (pad)	1	______
Emergency Radio Transmitter/Receiver	1	______
HP/0/B/1003/05	1	______
HP/0/B/1003/12	1	______
HP/0/B/1009/19	1	______
HP/0/B/1009/04	1	______
HP/0/B/1009/16	1	______

This Kit has been inventoried and Steps 4.1.3.2.1 through 4.1.3.2.12, if applicable, have been completed.

____
Signature/Date

*Any Deviation will be documented on the Emergency Equipment Deviation Authorization Sheet (Sample Enclosure 5.14).

CATAWBA NUCLEAR STATION
PERSONNEL SURVEY KITS CHECKLIST
HP/0/B/1000/06
ENCLOSURE 5.7

ITEM	AMOUNT	DEV.*
List of Contents	1	______
Eberline E-140N w/HP-210 Probe (or equivalent)***	3	______
Sample Slide Tray***	1	______
Exempt Source	1	______
Emergency Radio Transmitter/Receiver**	1	______
Radio Operator Manual	1	______
Low/High Range Dosimeters (0-500 mR/hr), (0-5 R/hr)	2 each	______
Dose Cards	25	______
TLD Badges	2	______
Dosimeter Charger	1	______
Full Face Respirator With High Efficiency Filter	2	______
Potassium Iodine Tablets (bottle)	2	______
KI Distribution Data Sheet	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	______
Instrument/Smear Survey (pad)	1	______
Pens	2	______
Grease Pencil & Refills	1	______
Legal Pad	1	______
Scissors	1	______
Rain Suits	3	______
Decon Kit	1	______
Station Directive 3.8.3	1	______
HP/0/B/1003/31 or HP/0/B/1003/11	1	______
HP/0/B/1004/06	1	______
HP/0/B/1009/05	1	______
HP/0/B/1009/16	1	______
HP/0/B/1009/19**	1	______

This Kit has been inventoried and Steps 4.1.3.2.1 through 4.1.3.2.12, if applicable, have been completed.

____
Signature/Date

*Any Deviation will be documented on the Emergency Equipment Deviation Authorization Sheet (Sample Enclosure 5.14).

**Only the Construction Personnel access area shall have an Emergency Radio and procedure.

***Only the PAP Area shall have (3) E-140N w/HP-210 Probe and Sample Slide Tray.

CATAWBA NUCLEAR STATION
PERSONNEL SURVEY KITS CHECKLIST
(EVACUATION FACILITY)
HP/0/B/1000/06
ENCLOSURE 5.8

ITEM	AMOUNT	DEV.*
List of Contents	1	______
Eberline E-140N w/HP-210 Probe (or equivalent)	3	______
Exempt Source	1	______
Low/High Range Dosimeters (0-500 mR), (0-5R)	4 each	______
Dose Cards	25	______
TLD Badges	4	______
Dosimeter Charger	1	______
Potassium Iodide Tablets (bottle)	2	______
KI Tablet Distribution Data Sheet	1	______
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	______
Instrument/Smear Survey (pad)	1	______
Pens	2	______
Grease Pencil & Refills	1	______
Legal Pad	1	______
Decon Kit	1	______
Scissors	1	______
Disposable Coveralls	40	______
Station Directive 3.8.3	1	______
Evacuation Personnel Dose Record	50	______
HP/0/B/1003/31 or HP/0/B/1003/11	1	______
HP/0/B/1004/06	1	______
HP/0/B/1009/05	1	______
HP/0/B/1009/16	1	______

This Kit has been inventoried and Steps 4.1.3.2.1 through 4.1.3.2.12, if applicable, have been completed.

____
Signature/Date

*Any Deviation will be documented on the Emergency Equipment Deviation Authorization Sheet (Sample Enclosure 5.14).

CATAWBA NUCLEAR STATION
MEDICAL DECONTAMINATION KITS CHECKLIST
HP/0/B/1000/06
ENCLOSURE 5.9

ITEM	AMOUNT	DEV.*
List of Contents	1	______
Eberline E-140N w/HP-210 Probe (or equivalent)	1	______
Exempt Source	1	______
Poly Bags 20" x 40"	2	______
Poly Bags 12" x 18"	4	______
Smears (box)	1	______
NuCon Smears	25	______
Protective Clothing (Full Set)	4	______
Rain Suits	2	______
Tape, Radioactive Material	1	______
Tape, Masking 2"	1	______
Tape, Duct 2"	1	______
Instrument/Smear Survey (pad)	1	______
Pens	2	______
Legal Pad	1	______
Caution Signs w/inserts	3	______
Radioactive Material Tags	50	______
Scissors	1	______
Poly for Ambulances (bundles)	3	______
Protective Clothing for Ambulance Drivers (Sets)	2	______
HP/0/B/1003/31 or HP/0/B/1003/11	1	______
HP/0/B/1004/06	1	______
HP/0/B/1009/08	1	______

This Kit has been inventoried and Steps 4.1.3.2.1 through 4.1.3.2.12, if applicable, have been completed.

____
Signature/Date

*Any Deviation will be documented on the Emergency Equipment Deviation Authorization Sheet (Sample Enclosure 5.14).

CATAWBA NUCLEAR STATION
MEDICAL DECONTAMINATION KITS CHECKLIST
PIEDMONT MEDICAL CENTER
HP/0/B/1000/06
ENCLOSURE 5.10

ITEM	AMOUNT	DEV.*
List of Contents	1	______
Eberline E-520 w/HP-270 Probe	1	______
Eberline E-140N W/210 Probe (or equivalent)	1	______
Exempt Source	1	______
Poly Bags 20" x 30"	10	______
Poly Bags 12" x 18"	4	______
Smears (box)	1	______
NuCon Smears	25	______
Tape, Radioactive Material	1	______
Tape, Masking 2"	2	______
Tape, Duct 2"	2	______
Instrument/Smear Survey (pad)	1	______
Caution Signs w/inserts	5	______
Rad Rope	1	______
TLD Badges	10	______
Pocket Dosimeters (0-500mR)	10	______
Dose Cards	25	______
Dosimeter Charger	1	______
Radioactive Material Tags	50	______
Floor and Vent Covering	1	______
Disposable Coveralls	25	______
Disposable Shoe Covers (pairs)	25	______
Cubitaners	5	______
Decon Kit	1	______
Cotton Gloves (pairs)	50	______
Rubber Gloves (pairs)	20	______
HP/0/B/1003/31 or HP/0/B/1003/11	1	______
HP/0/B/1003/12	1	______
HP/0/B/1004/06	1	______
HP/0/B/1009/08	1	______

This Kit has been inventoried and Steps 4.1.3.2.1 through 4.1.3.2.12, if applicable, have been completed.

____
Signature/Date

*Any Deviation will be documented on the Emergency Equipment Deviation Authorization Sheet (Sample Enclosure 5.14).

CATAWBA NUCLEAR STATION
OPERATIONS SUPPORT CENTER KITS CHECKLIST
HP/0/B/1000/06
ENCLOSURE 5.11

ITEM	AMOUNT	DEV.*
List of Contents	1	______
Protective Clothing (Set)	40	______
Full Face Respirators with High Efficiency Filters	10	______
Flashlights	11	______
Batteries	34	______
Eberline PIC 6A	5	______
E-140N w/HP-210 Probe (or equivalent)	1	______
Exempt Source	1	______
Camera (Polaroid)	1	______
Polaroid Film Pacs	2	______
Masking Tape (Roll)	2	______
Dosimeters (0-100R), (0-5R)	5	______
Dose Cards	25	______
Dosimeter Charger	1	______
Small Sample bottles	10	______
Rain Suits	5	______
Poly Bags	20	______
Radeco H809V Air Sampler	3	______
Silver Zeolite (CP-100G or GY-130) Filter Cartridges and Particulate Filters	30	______
Filter Cartridge Labels	30	______
Potassium Iodide Tablets (bottle)	20	______
KI Distribution Data Sheet	10	______
HP/0/B/1003/02	1	______
HP/0/B/1003/05	1	______
HP/0/B/1003/31 or HP/0/B/1003/11	1	______
HP/0/B/1004/06	1	______
OSC Response Personnel Dose Record	25	______
Decon Kit	1	______
Instrument/Smear Survey (pad)	1	______
Telephone	2	______
Post-Accident Containment Air Sampling Equipment Kit	1	______
Pen	2	______
Grease Pencil (and refill)	1	______

This Kit has been inventoried and Steps 4.1.3.2.1 through 4.1.3.2.12, if applicable, have been completed.

____
Signature/Date

*Any Deviation will be documented on the Emergency Equipment Deviation Authorization Sheet (Sample Enclosure 5.14).

CATAWBA NUCLEAR STATION
TECHNICAL SUPPORT CENTER KIT CHECKLIST
HP/0/B/1000/06
ENCLOSURE 5.12

ITEM	AMOUNT	DEV.*
List of Contents	1	______
Protective Clothing (Set)	20	______
Full Face Respirators with High Efficiency Filters	6	______
Eberline E-520 w/HP-270 Probe	1	______
Eberline PIC-6A	3	______
E-140N w/HP-210 Probe (or equivalent)	1	______
Exempt Source	1	______
Radeco H809V Air Sample	1	______
Dosimeter (0-100R), (0-5R)	6 each	______
Dose Cards	25	______
Silver Zeolite (CP-100G or GY-130) Filter Cartridges and Particulate Filters	25	______
Filter Cartridge Labels	25	______
Dosimeter Charger	1	______
Potassium Iodide Tablets (bottle)	25	______
Boundary Ribbon or Rope (50 yd. roll)	1	______
Caution Signs w/inserts	3	______
Rad Tape	2	______
Smears (box)	1	______
Poly Bags	6	______
Masking Tape (Roll)	1	______
Pen	2	______
Legal Pad	1	______
Grease Pencil	1	______
Flashlights	8	______
Batteries	30	______
Small Sample Bottles	10	______
Rain Suits	6	______
Decon Kit	1	______
Instrument/Smear Survey (pad)	1	______
Aux. Bldg. Drawings (set)	1	______
HP/0/B/1003/02	1	______
HP/0/B/1003/05	1	______
HP/0/B/1003/12	1	______
HP/0/B/1009/16	1	______
HP/0/B/1003/31 or HP/0/B/1003/11	1	______
HP/0/B/1004/06	1	______

This Kit has been inventoried and Steps 4.1.3.2.1 through 4.1.3.2.12, if applicable, have been completed.

____
Signature/Date

*Any Deviation will be documented on the Emergency Equipment Deviation Authorization Sheet (Sample Enclosure 5.14).

CATAWBA NUCLEAR STATION
FUEL TRANSFER KIT CHECKLIST
HP/0/B/1000/06
ENCLOSURE 5.13

ITEM		AMOUNT	DEV.*
List of Contents		1	______
Shoe Covers:	disposable (pair)	20	______
	rubber (Pair)	6	______
Gloves:	disposable (bundle)	1	______
	surgeons (box)	1	______
	rubber (pair)	6	______
Coveralls:	disposable	4	______
	cloth	6	______
Hoods		4	______
Wet Suit		2	______
Hard Hat		3	______
Full Face Respirators with High Efficiency Filters		2	______
Radeco H809V Air Sampler		1	______
Eberline E-140N w/HP-210 Probe (or equivalent)		1	______
Eberline PIC-6A		1	______
Eberline E-520 w/HP-270 Probe		1	______
Exempt Source		1	______
Silver Zeolite Cartridges and Particulate Filters		10	______
Labels for Filters and Cartridges		10	______
Potassium Iodide Tablets (Bottle)		30	______
TLD Badge and Dose Record Card		5	______
Low/High Range Dosimeter (0-500 mR), (0-5R)		5 each	______
Dose Card		25	______
Dosimeter Charger		1	______
Weather-Proof Caution Signs with Inserts		4	______
Radioactive Waste Signs (4" x 6")		12	______
Caution: Radiation/Radioactive Material Tags		12	______
50 yd. Roll of Barricade Tape (Magenta & 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	______
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	______
Flashlights		2	______
Batteries		8	______
Steno Pad with 2 Mechanical Lead Pencils		1	______
Pencil Refills		1	______

CATAWBA NUCLEAR STATION
FUEL TRANSFER KIT CHECKLIST
HP/0/B/1000/06
ENCLOSURE 5.13

ITEM	AMOUNT	DEV.*
Grease Pencils	2	____
All Purpose Marker	2	____
Scotch Tape Roll and Dispenser	1	____
Roll of Dimes	1	____
Gasoline Generator (Gasoline Stored in Safety Cabinet)	1	____
Instrument/Smear Survey (pad)	1	____
HP/0/B/1003/02	1	____
HP/0/B/1003/05	1	____
HP/0/B/1003/12	1	____
HP/0/B/1009/16	1	____
HP/0/B/1003/31 or HP/0/B/1003/11	1	____

This Kit has been inventoried and Steps 4.1.3.2.1 through 4.1.3.2.12, if applicable, have been completed.

____
Signature/Date

*Any Deviation will be documented on the Emergency Equipment Deviation Authorization Sheet (Sample Enclosure 5.14).

CATAWBA NUCLEAR STATION

EMERGENCY EQUIPMENT DEVIATION AUTHORIZATION SHEET

DEVIATION DESCRIPTION	KIT	ACTION TAKEN TO REMEDY DEVIATION	ACTION JUSTIFICATION	SIGNATURE	DATE

CATAWBA NUCLEAR STATION

EMERGENCY KITS INVENTORY LOG SHEET

KIT	LOCATION	INVENTORY COMPLETED	DEV.*	SIGNATURE	DATE
Recovery	Temp. Admin. Bldg.				
Recovery	Security PAP				
Recovery	Allen Steam Station				
Recovery	Trans. Line Maint. Bldg.				
Envir. Survey (vehicle) A	Aux. Bldg. Rm. 517-B				
Envir. Survey (vehicle) B	Aux. Bldg. Rm. 517-B				
Envir. Survey (vehicle) C	Aux. Bldg. Rm. 517-B				
Envir. Survey (vehicle) D	Aux. Bldg. Rm. 517-B				
Envir. Survey (heli.) E	Aux. Bldg. Rm. 517-B				
Personnel Survey	Temp. Admin. Bldg.				
Personnel Survey	Security PAP				
Personnel Survey (Evac.)	Allen Steam Station				
Personnel Survey (Evac.)	Trans. Line Maint. Bldg.				
Medical Decon.	Aux. Bldg. First Aid Rm.				
Medical Decon.	Piedmont Medical Center				
Ops. Support Center	Ops. Support Center				
Tech. Support Center	Tech. Support Center				
Fuel Transfer	Temp. Admin. Bldg.				

* Any deviations will be documented on the Emergency Equipment Deviation Authorization Sheet (Enclosure 5.14).

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: HP/0/B/1009/01
Change(s) 0 to
0 Incorporated

(2) STATION: Catawba

(3) PROCEDURE TITLE: Health Physics Recovery Plan

(4) PREPARED BY: Barry R. Greene DATE: 9/16/83

(5) REVIEWED BY: RRLind DATE: 9-16-83

Cross-Disciplinary Review By: ________ N/R: RRLind

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ________ (SRO) Date: ________

By: ________ Date: ________

(7) APPROVED BY: M.S. Tuckman/wpd Date: 9-16-83

(8) MISCELLANEOUS:

Reviewed/Approved By: ________ Date: ________

Reviewed/Approved By: ________ Date: ________

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HEALTH PHYSICS RECOVERY PLAN

1.0 PURPOSE

1.1 This procedure provides a general recovery plan for Health Physics following a notification of Unusual Event, Alert, Site Area Emergency, or a General Emergency.

2.0 REFERENCES

2.1 NUREG-0654

2.2 Catawba Emergency Plan

2.3 System Health Physics Manual

3.0 LIMITS AND PRECAUTIONS

3.1 This procedure is not intended to anticipate all conditions that may be encountered in an emergency situation, but to address the general principles for developing a plan of action.

3.2 Use appropriate Health Physics procedures.

3.3 Comply with all station exposure and contamination limits and ALARA principles.

3.4 The station recovery phase will be carefully planned by Duke Power Company management with input from the appropriate government agencies.

3.5 On completion of recovery operations, ensure proper documentation of the accident and include all pertinent data involving the incident and recovery operation.

4.0 PROCEDURE

4.1 The initial re-entry into the affected area will be conducted by Health Physics personnel to evaluate radiological hazards and contamination levels.

4.2 The Health Physics recovery operation may proceed, after completion of 4.1, in accordance with the following case examples:

4.2.1 CASE "A" - General emergencies that have resulted in the spread of contamination, evacuation of an area of the station, injured personnel or a change in the operating status of the station.

4.2.1.1 The Station Manager, Station Group Superintendents, Station Health Physicist and his staff, the Recovery Manager at the Crisis Management Center and any other offsite agencies who may be involved will decide what procedures and precautions will be taken in the recovery plan.

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

4.2.1.3 Review radiation exposure history of all personnel scheduled to participate in the recovery operations. Determine the need for additional personnel.

4.2.1.4 Review the adequacy of radiation survey equipment available. Determine the need for additional equipment and a source of procurement.

4.2.1.5 Pre-plan survey 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.

4.2.1.6 Health Physics will, during subsequent re-entries, will conduct comprehensive radiation surveys of station facilities and define all radiological problem areas.

4.2.1.7 Perform visual inspection of station areas and equipment.

4.2.1.8 All radiological conditions discovered and existing in the facility as determined by the re-entry surveys will be evaluated by station management.

4.2.1.9 Upon evaluation of the radiological conditions, station management will determine what procedures are required to restore the site to a normal status.

4.2.1.10 Emergency Coordinators will take appropriate actions to insure that emergency personnel and equipment leaving the Radiation Control Area are within contamination and exposure limits, that radiological conditions at the scene of the emergency are properly defined, barricaded, and posted with appropriate signs.

4.2.1.11 The Station Manager, Station Group Superintendents, and Station Health Physicist will make all necessary decisions to return the unit to normal status and to prevent a recurring problem.

4.2.2 CASE "B" - Site Area Emergencies that have resulted in the evacuation of a station area, the spread of contamination, and/or change in the operating status of the station.

4.2.2.1 The Station Manager, Group Superintendents and Station Health Physicist will make decisions related to their areas of responsibility to recover and normalize any affected areas. All paragraphs of CASE "A" may also be applicable for unit emergencies.

4.2.3 CASE "C" - Alert conditions or notification of Unusual Events that may have resulted in the spread of contamination, unsafe conditions, and/or evacuation of an area due to noxious gases being present.

4.2.3.1 The Station Manager, Station Health Physicist, Station Safety Supervisor and Station Chemist will make decisions related to their areas of responsibility to recover and normalize any affected areas. Applicable paragraphs of CASE "A" may become pertinent in this case.

4.3 Formal reporting of the emergency and recovery shall be completed as required by the Duke Power Company Steam Production Department Administrative Policy Manual for Nuclear Stations.

5.0 ENCLOSURES

N/A

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: HP/0/B/1009/03
Change(s) 0 to
0 Incorporated

(2) STATION: Catawba

(3) PROCEDURE TITLE: Environmental Surveillance Following A Primary To Secondary Leak

(4) PREPARED BY: [signature] DATE: 6/30/83

(5) REVIEWED BY: [signature] DATE: 8/30/83

Cross-Disciplinary Review By: ______ N/R: [initials]

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ______ (SRO) Date: ______

By: ______ Date: ______

(7) APPROVED BY: H. S. Tuckman Date: 8/31/83

(8) MISCELLANEOUS:

Reviewed/Approved By: ______ Date: ______

Reviewed/Approved By: ______ Date: ______

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
ENVIRONMENTAL SURVEILLANCE FOLLOWING
A PRIMARY TO SECONDARY LEAK

1.0 PURPOSE

This procedure describes the manner in which Health Physics personnel will monitor and account for the release of radioactivity to the environment due to a primary to secondary leak.

2.0 REFERENCES

2.1 10CFR20

2.2 10CFR50

2.3 CNS Technical Specifications

2.4 HP/0/B/1000/02 - Taking, Counting, and Recording Surveys

2.5 HP/0/B/1001/02 - Sample Preparation for Counting Room Equipment

2.6 HP/0/B/1001/12 - Gaseous Waste Sampling and Analysis

2.7 HP/0/B/1001/13 - Liquid Waste Sampling and Analysis

2.8 HP/0/B/1009/11 - EMF Loss

2.9 HP/0/B/1004/04 - Request for Liquid Radioactive Waste Release

2.10 HP/0/B/1004/05 - Request for Gaseous Waste Release

3.0 LIMITS AND PRECAUTIONS

3.1 Insure that all controlled releases are within limits required in references 2.1, 2.2, and 2.3.

3.2 Sampling and batch releases shall be terminated when radioactivity identified in two consecutive samples is below 10CFR20 limits and counted to the lower limit of detection (LLD) for principal gamma emitters listed in Technical Specifications Table 4.11-1 and secondary activities have fallen below levels set in Section 4.0 of this procedure.

4.0 PROCEDURE

4.1 Upon notification that the Condensate Steam Air Ejectors (C.S.A.E.) off gas-EMF #33 has alarmed indicating a primary/secondary leak:

4.1.1 The Health Physics Shift Technician on duty shall initiate the C.S.A.E Sample Log (See Sample Enclosure 5.1) and the Turbine Building Sump Sample Log (See Sample Enclosure 5.2). This form shall continue to be used until terminated under the direction of the station Health Physicist when requirements in 3.2 are met, unless the indicated activity is due to EMF malfunction.

4.1.2 The Health Physics Shift Technician on duty shall collect a 3500 ml liquid sample from the T.B. sump and a 4400 ml gaseous sample from the C.S.A.E. using new Marinelli beakers. The samples shall then be submitted to the Counting Room per references 2.6 and 2.7 for analysis.

4.1.3 If the sample results find no net radioactivity above background, refer to reference 2.8.

4.1.4 If the C.S.A.E. sample results indicate net radioactivity above background, but the T.B. sump EMF 31 does not alarm and activity is below 10CFR20, Appendix B, Table II, Column II limits, sampling frequency shall be as stated for the following secondary side radioactivity levels. Notify Operations and Chemistry per C.S.A.E Sample Log (Sample Enclosure 5.1).

4.1.4.1 When secondary side activity samples range between .005 µCi/gm and .01 µCi/gm of the I-131 equivalence, C.S.A.E. samples shall be collected once every eight (8) hours, and T.B. sump samples shall be collected once every twenty-four (24) hours.

4.1.4.2 When secondary side activity samples are greater than .01 µCi/gm but less than or equal to .03 µCi/gm of the I-131 equivalency, then the C.S.A.E. samples shall be collected once every eight (8) hours, and the T.B. sump samples shall be collected once every twelve (12) hours.

4.1.4.3 When secondary side activity samples are greater than .03 µCi/gm of the I-131 equivalency, the C.S.A.E. samples shall be collected once every four (4) hours and the T.B. sump sample shall be collected once every eight (8) hours.

4.1.5 If the C.S.A.E. sample results exceed 10CFR20, Appendix B, Table II, Column I limits, the Health Physics Shift Technician on duty shall initiate reference 2.10.

4.2 Upon notification that the T.B. sump - EMF 31 has alarmed, indicating a primary/secondary leak:

4.2.1 The Health Physics Shift Technician on duty shall initiate the T.B. Sump Sample Log. (See Sample Enclosure 5.2.) This form shall continue to be used until terminated under the direction of the Station Health Physicist, when requirements in 3.2 are met unless the indicated activity is due to EMF malfunction.

4.2.2 The Health Physics Shift Technician on duty shall collect a 3500 ml liquid sample using a new Marinelli beaker. The sample shall then be submitted to the Counting Room per reference 2.7.

NOTE: If T.B. sump sample results indicate net activity above background and EMF-33 is out of service, refer to 4.1.2.

4.2.3 If the T.B. sump sample results indicate no net activity above background, refer to reference 2.8.

4.2.4 If the T.B. sump sample results indicate net radioactivity above background, notify Operations and Radwaste Chemistry per T.B. Sump Sample Log (Sample Enclosure 5.2).

4.2.4.1 Chemistry shall notify Health Physics Shift Technician on duty of any releases to be made.

4.2.4.2 For any liquid releases, refer to references 2.7 and 2.9.

4.2.4.3 Sampling frequency of WC Mixing and Settling Pond and of groundwater drainage shall be determined by Health Physics shift supervision.

4.2.4.3.1 The samples shall be collected in a new liquid Marinelli beaker and submitted to the Counting Room per references 2.5 and 2.7.

5.0 ENCLOSURES

5.1 Sample Enclosure C.S.A.E. Sample Log

5.2 Sample Enclosure T.B. Sump Sample Log

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/03
SAMPLE ENCLOSURE 5.1

C.S.A.E. SAMPLE LOG

This form is to be used any time a primary to secondary leak is indicated.

1. Upon notification from Operations that a primary to secondary leak is indicated per Condensate Steam Air Ejector (EMF-33), record the following:

   Operations Rep.______________________ Date/Time _____/_____

   H.P. Rep. Receiving Call ______________________________

2. Unit #______

   Remarks: ____

   ____

   ____

3. If C.S.A.E. Sample results indicate net radioactivity above background, notify:

   Radwaste Chemistry Rep. ______________________ Date/Time _____/_____

   Operations Rep. ______________________ Date/Time _____/_____

   Notified by H.P. Rep. ______________________

4. The sampling frequency may change during the primary/secondary leakage, as deemed necessary by supervision. Record all changes below.

H.P. Supervisor	Initiated New Sampling Frequency Once Every	Date/Time	Health Physics Shift Technician Recording Change
______________	_____ Hours On	____/____	______________
______________	_____ Hours On	____/____	______________
______________	_____ Hours On	____/____	______________
______________	_____ Hours On	____/____	______________
______________	_____ Hours On	____/____	______________
______________	_____ Hours On	____/____	______________

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/03
SAMPLE ENCLOSURE 5.1

C.S.A.E. SAMPLE LOG

Sample Once Per ___ Hrs.	Date/Time of Sample	Signature	Remarks

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/03
SAMPLE ENCLOSURE 5.2

T.B. SUMP SAMPLE LOG

This form is to be used any time a primary to secondary leak is indicated.

1. Upon notification from Operations that a primary to secondary leak is indicated per Turbine Building Sump (EMF-31), record the following:

   Operations Rep.________________________ Date/Time _____/_____

   H.P. Rep. Receiving Call ____

2. Unit #______

   Remarks: ____

   ____

   ____

3. If T.B. Sump Sample results indicate radioactivity above 10CFR20 Table II Col. II, notify the following representatives that batch releasing is required:

   Radwaste Chemistry Rep. ________________________ Date/Time _____/_____

   Operations Rep. ________________________________ Date/Time _____/_____

   Notified by H.P. Rep. __________________________

4. The sampling frequency may change during the primary/secondary leakage, as deemed necessary by supervision. Record all changes below.

H.P. Supervisor	Initiated New Sampling Frequency Once Every	Date/Time	Health Physics Shift Technician Recording Change
__________	____ Hours On	____/____	__________
__________	____ Hours On	____/____	__________
__________	____ Hours On	____/____	__________
__________	____ Hours On	____/____	__________
__________	____ Hours On	____/____	__________
__________	____ Hours On	____/____	__________

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/03
SAMPLE ENCLOSURE 5.2

T.B. SUMP SAMPLE LOG

Sample Once Per ___ Hrs.	Date/Time of Sample	Signature	Remarks

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: HP/0/B/1009/04
Change(s) 0 to
0 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: ENVIRONMENTAL MONITORING FOR EMERGENCY CONDITIONS WITHIN THE TEN MILE RADIUS OF CATAWBA NUCLEAR STATION

(4) PREPARED BY: Steve Jones DATE: 2-1-84

(5) REVIEWED BY: [illegible] DATE: 2-1-84

Cross-Disciplinary Review By: MEB [illegible] N/R: ______

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ______ (SRO) Date: ______

By: ______ Date: ______

(7) APPROVED BY: [illegible] Date: 2/2/84

(8) MISCELLANEOUS:

Reviewed/Approved By: ______ Date: ______

Reviewed/Approved By: ______ Date: ______

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
ENVIRONMENTAL MONITORING FOR
EMERGENCY CONDITIONS WITHIN THE
TEN MILE RADIUS OF CATAWBA NUCLEAR STATION

1.0 PURPOSE

To provide a method for identifying gaseous plumes or liquid effluent, and obtaining field data indicative of the radiation exposure to the general public following a suspected uncontrolled release of radioactivity. This procedure shall also be implemented by the Crisis Management Center once it is activated.

2.0 REFERENCES

2.1 HP/0/B/1000/06 Emergency Equipment Functional Check and Inventory

2.2 HP/0/B/1002/04 Collection of Operational Environmental Weekly Samples

2.3 HP/0/B/1002/05 Collection of Operational Environmental Monthly Samples

2.4 HP/0/B/1002/06 Collection of Operational Environmental Quarterly Samples

2.5 HP/0/B/1002/08 Collection of Operational Environmental Semimonthly Samples

2.6 HP/0/B/1002/10 Collection of Operational Environmental Semiannual Samples

2.7 HP/0/B/1003/05 Operating and Calibration Procedure: Eberline Model PIC-6A Portable Ion Chamber

2.8 HP/0/B/1003/12 Operating and Calibration Procedure: Eberline Model E-520 Portable Beta-Gamma Geiger Counter

2.9 HP/0/B/1003/17 Operation and Calibration Procedure: Canberra Series - 10 Portable MCA

2.10 HP/0/B/1003/31 Operation and Calibration: Eberline Model E140N Portable Count Rate Meter

2.11 HP/0/B/1009/16 Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release

2.12 HP/0/B/1009/19 Emergency Radio System Operations, Maintenance and Communications

3.0 LIMITS AND PRECAUTIONS

3.1 The Field Monitoring Teams (FMT) should park vehicles completely off the road when sampling.

3.2 Four (4) FMTs consisting of two (2) technicians per team and one (1) helicopter team (1 person) if necessary shall be formed as follows:

Team Call Signs	Transportation
Alpha	Land Vehicle
Bravo	Land Vehicle
Charlie	Land Vehicle
Delta	Land Vehicle
Echo	Helicopter

3.3 Each FMT shall use particulate masks and protective clothing whenever activity justifies it or when directed by the Field Monitoring Coordinator (FMC).

3.4 If the team members are expected to be exposed to I-131 in excess of 10 MPC (9×10^{-8} µCi/ml), and directed by the FMC, each team member should ingest a tablet of potassium iodide per Reference 2.11.

3.5 Environmental sampling during emergency conditions shall not replace, but rather supplement normal environmental monitoring.

3.6 Each FMT shall maintain open radio communications with the FMC per Reference 2.12. If radio becomes inoperable, call in sample results on a phone at 831-8182 or 803/831-2282 (Lake Wylie/Charlotte), 861-0331 (Gaston County), 324-3128 (Rock Hill and Fort Mill).

3.7 If any equipment becomes inoperable, notify the FMC and wait for further instructions.

3.8 Annual training in the use of this procedure and the associated equipment and instrumentation shall be conducted and documented on TSR-10.

3.9 Portable MCA's shall be picked up at the Health Physics instrument issue point when directed by the FMC. Ensure that the dewars are adequately filled per Reference 2.9.

3.10 When returning kits to the Emergency Kit Storage Room, perform an equipment inventory check using the Environmental Survey Kit Checklist (Reference 2.1). Note deviations and forward to the Respiratory/Instrument Calibration Supervisor.

4.0 PROCEDURE

4.1 Activation

4.1.1 Upon notificaton and assembly (FMC), the FMT members shall:

4.1.1.1 Report to the Health Physics area on the 609' elevation (on back shifts report to Administration Building) and wait for further instructions from the FMC.

4.1.1.2 Report to the Emergency Kit Storage Room in the Temporary Administration Building to get Environmental Survey Kits.

4.1.1.3 Ensure the Portable Power Generator is operational and the gas can is fully fueled (Reference 2.1).

4.1.1.4 Ensure the tamper seal on the Environmental Survey kits have not been broken and inventory any that have (Reference 2.1).

4.1.1.5 Don TLD and pocket dosimetry and fill out dose cards.

4.1.1.6 Battery and source check survey instruments and portable MCA for proper operation (References 2.7, 2.8, 2.9, 2.10).

4.1.1.7 Ensure the portable radios are functional before leaving (Reference 2.12).

4.1.1.8 Obtain emergency vehicles as directed in Enclosure 5.8.

4.1.1.9 Each FMT will proceed to the survey point assigned by the FMC (Enclosure 5.3).

4.2 Locating and Tracking the Plume

4.2.1 At the assigned survey point, the FMT shall perform a general area Beta vs. Beta-Gamma survey. This method should be used to locate center and width of plume.

4.2.1.1 Record date, time, location and dose rate (mr/hr) on the Field Monitoring Data Sheet (Enclosure 5.4).

4.2.2 If survey results are less than or equal to expected background, call in the results to the FMC and wait for further instructions.

4.2.3 If survey results are greater than background, take protective actions as necessary. Then, if directed, take an air sample (volume should be > 10^6 ml) equipped with a Silver Zeolite Cartridge and particulate filter.

4.2.3.1 Insert cartridge with arrow pointing in.

4.2.3.2 Insert filter paper with smooth side facing out.

4.2.3.3 Calculate required sample time per Enclosure 5.5.

4.2.3.4 When air sample is completed, place the Silver Zeolite Cartridge in a poly bag for analysis.

4.2.3.5 Place filter in a separate poly bag, label and retain for later analysis.

4.2.3.6 Follow instructions on the Field Monitoring Team Work Sheet and the attached Operator Guidelines (Enclosure 5.6) to record air sample information and analyze the cartridge on the Canberra-10.

4.3 Special Sampling, as directed:

4.3.1 All sampling outside of Auxiliary, Service and Turbine Buildings should be done in conjunction with Operations Support Center (OSC) personnel.

4.3.2 Take smears and place them in separate poly bags, label and retain for later analysis.

4.3.3 Count smears on E140N and record on Field Monitoring Data Sheet (Enclosure 5.4). Call in results to FMC.

4.3.4 Collect water samples in cubitainers using good Health Physics practices and label and retain for later analysis.

4.3.5 Place TLD's in the environment.

4.3.6 Retrieve and replace air sample and/or TLD's that are already located in the environment. Locations are listed in Enclosure 5.1. Place samples in separate poly bags, label and retain for later analysis.

4.3.7 Collect broad leaf vegetation sample (one square meter) label and retain for later analysis (Reference 2.12).

4.3.8 Collect shoreline sediment sample (one liter) label and retain for later analysis (Reference 2.6).

4.3.9 Collect milk sample (one full cubitainer) label and retain for later analysis (Reference 2.5). Locations are listed in Sample Enclosure 5.2.

4.4 Turnover

4.4.1 Each FMT shall be relieved as directed by the FMC.

4.4.2 Inform the relief FMT of the equipment inventory status.

4.4.3 Direct the relief FMT to don TLD's and pocket dosimetry and fill out dose cards.

4.4.4 Return all samples to the Emergency Kit Storage Room as directed by the FMC.

4.4.5 Turn in all data sheets to the FMC or his designee.

5.0 <u>ENCLOSURES</u>

5.1 Air Sampler, TLD, and Water Sample Locations

5.2 Milk Sample Locations

5.3 Predetermined Sampling Locations

5.4 Sample of Field Monitoring Data Sheet

5.5 Sample Time Required For Minimum Sample Volume

5.6 Sample of Field Monitoring Team Work Sheet For Determining Iodine Activity

5.7 TSC Field Monitoring Organization

5.8 Emergency Vehicles

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.1
AIR SAMPLER, TLD, AND WATER SAMPLE LOCATIONS

Air Sample Locations (need key CPD-1)

Zone	& Radius (Mi)	No.	Description
AC	1	1	Hwy 274-N, right Liberty Hill Rd., right in fork to end (Air CNS #200, need key).
A0	1	5	Left at Steam Production entrance on Concord Rd., left on Old Concord Rd., right on Acacia Rd., left on Crepe Myrtle Rd., left on Blue Bird Ln., through gate to end (Air CNS #201, need key).
B1	3	1	Hwy 49-N, right Hwy 160, right at Tega Cay sign (98), right before Tega Cay entrance into Duke Power Company substation (Air CNS #212, need key).
C2	10	5	Hwy 274-S, left Hwy 161, right Mt. Gallant Rd. (195), right Hwy 21-121 By-Pass, right on Hwy 72 - 121 By-pass, left on dirt road (Trash Pile Rd.) across from Wayne's Auto Service, go to Duke Power Company substation (Air CNS #217, need key).
A0	1	26	Behind Catawba Nuclear Station overlook (Air CNS #205, need key).

TLD Locations

I. Site Boundary TLD's

Zone	& Radius (Mi)	No.	Description
A0	1	44	Hwy 274-N, right Liberty Hill Rd., right in fork, pass softball field to large rocks at fence on right. TLD is on fence (TLD CNS #222).
A0	1	1	Hwy 274-N, right Liberty Hill Rd., right in fork to end (TLD CNS #200, need key).
A0	1	5	Left at Steam Production entrance on Concord Rd., left on Old Concord Rd., right on Acacia Rd., left on Crepe Myrtle Rd., left on Blue Bird Ln., through gate to end (TLD CNS #201, need key).
A0	1	8	Left at Steam Production entrance on Concord Rd., left on Old Concord Rd., right on Acacia Rd., left on Crepe Myrtle Rd. Go to first drive on right past Paradise Pl., TLD across road (TLD CNS #202).

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.1
AIR SAMPLER, TLD. AND WATER SAMPLE LOCATIONS

Zone	& Radius (Mi)	No.	Description
A0	1	11	Left at Steam Production entrance on Concord Rd., left on Old Concord Rd., right on Acacia Rd. TLD is .1 miles on left in curve (TLD CNS #223).
A0	1	14	Left at Steam Production entrance on Concord Rd., left on Old Concord Rd., right on Acacia Rd. TLD .2 miles on right (TLD CNS #224).
A0	1	45	Left at Steam Production entrance on Concord Rd., left on Old Concord Rd. to end. TLD on fence on left (TLD CNS #203).
A0	1	17	Left at Steam Production entrance on Concord Rd. to first transmission tower on left after bridge (TLD CNS #225).
A0	1	20	Left at Steam Production entrance on Concord Rd., TLD on left across bridge just past fence (TLD CNS #226).
A0	1	23	Left at Steam Production entrance on Concord Rd., TLD on left at beginning of guardrail posts (TLD CNS #204).
A0	1	26	Behind Catawba Nuclear Station overlook (TLD CNS #205).
A0	1	29	Left at Steam Production entrance on Concord Rd., TLD at Shady Shore Dr. on right corner at Bethel Community Clubhouse sign (TLD CNS #227).
A0	1	32	Right at Steam Production entrance on Concord Rd., TLD at first dirt left (Valelake Dr.) on right corner (TLD CNS #228).
A0	1	35	TLD on top of hill at Catawba Nuclear Station Construction entrance on North side of street (TLD CNS #206).
A0	1	38	Hwy 274-N, right at Liberty Hill Rd., right in fork to third power line on right, walk about 200 yds. South along boundary fence. TLD on fence (TLD CNS #229).
A0	1	41	Hwy 274-N, right at Liberty Hill Rd., go .8 miles (right in fork) TLD on fence on right (TLD CNS #207).

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.1
AIR SAMPLER, TLD, AND WATER SAMPLE LOCATIONS

Zone	& Radius (Mi)	No.	Description
II. 4-5 Mile TLD's			
F1	4	4	Hwy 49-N to River Hills Plantation rear entrance at Robinwood Rd. TLD behind green building on right corner (TLD CNS #230).
F1	4	6	Hwy 49-N to River Hills Plantation front entrance guardhouse (TLD CNS #231).
A1	4	2	Hwy 49-N to intersection of Pleasant Hill Rd. (1109), TLD on power line (TLD CNS #232).
A1	4	4	Hwy 49-N, right Pleasant Hill Rd. (1109), right Youngblood Rd.(1102), left Zoar Rd. (1105), right Thomas Rd. (1104), TLD behind second house on right (TLD CNS #233).
B2	4	2	Hwy 49-N, right Hwy 160 to Home Federal Savings and Loan on left. TLD on left rear corner of building. (TLD CNS #234).
B1	4	3	Hwy 49-N, right Hwy 160, right on Dam Rd. (99), last gravel right in sharp curve before Lake Wylie Dam, left through fence to substation, TLD on right of inner substation fence (TLD CNS #235).
C1	4	1	Hwy 274-S, left Mt. Gallant Rd. (195), left India Hook Rd. (30) to S.C. Wildlife Resources Dept (TLD CNS #236).
C1	4	3	Hwy 274-S, left Mt. Gallant Rd. (195), right Homestead Rd. (657) to end, TLD straight across intersection of Twin Lakes Rd. (TLD CNS #237).
C1	4	5	Hwy 274-S, left Mt. Gallant Rd. (195), right W. Oak Dr. (962) to end at fork, TLD on left at fence (TLD CNS #238).
D1	5	1	Hwy 274-S to Carter Lumber Co., TLD on fence near gate (TLD CNS #239).
D1	4	2	Hwy 274-S, right Campbell Rd. (80), left on Paraham Rd. (54) to transmission tower on right, TLD on brown power pole (TLD CNS #240).
D1	5	4	Hwy 274-S, right Campbell Rd, (80) for about 3 miles, TLD on left at beginning of horse fence (TLD CNS #241).

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.1
AIR SAMPLER, TLD, AND WATER SAMPLE LOCATIONS

Zone	& Radius (Mi)	No.	Description
E1	5	2	Hwy 49-S, right Paraham Rd, (54) to transmission tower on left after bridge (TLD CNS #242).
E1	5	3	Hwy 274-N, left Hwy 55, left Kingsberry Rd. (114) to transmission tower on left (TLD CNS #243).
F1	4	1	Hwy 274-N, left Hwy 55 to Bethel School, TLD on side of small building in back (TLD CNS #244).
F1	4	3	Hwy 274-N left on Glenvista Rd. to Crowder Creek Boat Landing, TLD to East of parking lot (TLD CNS #245).
B2	8	1	Hwy 49-N, right Carowinds Blvd. (1441), left Choate Cir., TLD on inside of fence left of the guardhouse (TLD CNS #246).
B1	3	1	Hwy 49-N, right Hwy 160, right Tega Cay sign (98), right before Tega Cay entrance into Duke Power Company substation (TLD CNS #212).
B2	7	6	Hwy 49-N, right Hwy 160 to Fort Mill, right Lee St., left Self St., TLD at Fort Mill Municipal Water Supply behind Springs Mill (TLD CNS #247).
C2	7	3	Hwy 274-S, right on Herlong Ave. to Piedmont Medical Center emergency entrance to back of hospital. TLD on fence at back right corner of Liquid Oxygen storage area (TLD CNS #248).
C2	10	5	Hwy 274-S to Newport, left at stop light, right on Rawlinson Rd., left Hwy 5, right on Heckle Blvd. (901) to end, left on Hwy 72, right on dirt road just across from Wayne's Auto Service, go to Duke Power Company Substation (TLD CNS #217).
C2	8	6	Hwy 274-S, left Hwy 161, right Rawlinson Rd. (56), left Hwy 5 to Rock Hill Career Development Center, TLD on transmission tower (TLD CNS #249).

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.1
AIR SAMPLER, TLD, AND WATER SAMPLE LOCATIONS

Zone	& Radius (Mi)	No.	Description
D2	10	4	Hwy 274-S, right Campbell Rd. (80), left Hwy 49-S, left Rd. 64, left Hwy 5. Go to Duke Power Company Appliance Center on left. TLD on fence in back (TLD CNS #250).
E2	10	2	Hwy 55 into Clover, TLD at Duke Power Company Appliance Center in rear lot on inner fence (TLD CNS #251).

Water Sample Locations

Zone	& Radius (Mi)	No.	Description
F3	14	4	Hwy 274-N, right Pole Branch Rd. (279), right Hwy 273 into Belmont, right Catawba St., left at next light to Belmont Municipal Water Supply (Water CNS #218).
C2	7	2	Hwy 274-S, left Hwy 161, right Mt. Gallant Road (195) to end. Rock Hill Municipal Water Supply across intersection on left (Water CNS #214).
B2	7	6	Hwy 49-N, right Hwy 160 to Fort Mill, right Lee St., left Self St., go to Fort Mill Municipal Water Supply behind Springs Mill (Water CNS #213).
A0	.1	46	Left exiting Steam Production entrance on Concord Rd., left just after canal bridge. Go to pier (water CNS #208, need key).
B1	4	5	Hwy 49-N, right Hwy 160, right Dam Rd. (99), left Gray Rock Rd. (251) to Lake Wylie Dam. Walk through plant to upstream side of the dam (water CNS #211).
B1	4	6	Hwy 49-N, right Hwy 160, right Dam Rd. (99), left Gray Rock Rd., (251) to Lake Wylie Dam. Ride or walk to river access on downstream side of dam.
C2	7	8	Hwy 274-S left Mt. Gallant Rd. (195), left Hwy 161, left Cherry Rd. (Hwy 21), left on dirt road at Fort-Rock Drive-In to end, go right to Rock Hill Municipal water intake.
A1	4	6	Hwy 49-N, left at Camp Steere sign after crossing Buster Boyd Bridge (Water CNS #215).

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.2
MILK SAMPLE LOCATIONS

Zone	Radius (Mi)	Milk	
D1	6	M	Hwy 274-S, right Hwy 161, left Rd. 1080 to Pursley Dairy.
D2	8	M	Hwy 274-S, right Hwy 161, left Scism Dairy and Equipment Co. (CASE sign).
E2	6	M	Hwy 274-N, left Hwy 55, left Clinton Dairy Rd.
F1	3	M	Hwy 274-N, right Lake Wylie Rd. (1099) to first house on left, (Ingram Richmond residence).
F2	7	M	Hwy 274-N, Hwy 55, right Paraham Rd. (54), left Hwy 557. Barnett Dairy 1 mile on left.
D1	7	M	Hwy 274-S to Newport, left at stop light, right Adnah Church Rd. (81). Woods Dairy 1.5 miles on left.
	13	M	Hwy 274-N, left Hwy 55, go through Clover,SC. Right on Lloyd White Rd. (148), left on Crowders Creek Rd. (1103), next paved right (1125). Oates Dairy is half mile on left.

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.3
PREDETERMINED SAMPLING LOCATIONS

Zone	Radius (Mi)	No.	Description
A0	1	1	Hwy 274-N, right Liberty Hill Rd., right in fork to end (TLD & Air CNS #200, need key).
A0	1	2	Hwy 274-N, right Lake Wylie Rd. (1099), right at Hudson Rd. fork, right at Commodore Pl. fork, left on Tioga Rd. to end.
A0	2	3	Hwy 274-N, right Lake Wylie Rd., (1099), left fork after pavement ends, on Hudson Rd. to end.
A0	2	4	Hwy 49-N, right Pleasant Hill Rd. (1109), right Youngblood Rd. (1102) to dead end at Catawba Yacht Club.
A0	1	5	Left exiting Steam Production entrance on Concord Rd., left on Old Concord Rd., right on Acacia Rd., left on Crepe Myrtle Rd., left on Blue Bird Ln. through gate to end (TLD & Air CNS #201, need key).
A0	1	6	Hwy 49-N, right Pleasant Hill Rd. (1109), right Youngblood Rd. (1102), left on Snug Harbor Rd. (1357), right Coze Cove Rd. (1434) to end.
A0	2	7	Hwy 49-N, right Pleasant Hill Rd. (1109), right Youngblood Rd. (1102), to intersection of Snug Harbor Rd. (1357).
A0	1	8	Left exiting Steam Production entrance on Concord Rd., left on Old Concord Rd., right on Acacia Rd., left on Crepe Myrtle Rd. Go to first drive on right past Paradise Pl., TLD across road (TLD CNS #202).
A0	1	9	Hwy 49-N, right Pleasant Hill Rd. (1109), right Youngblood Rd. (1102), left Snug Harbor Rd. (1357) to end.
A0	2	10	Hwy 49-N, right Pleasant Hill Rd. (1109), right Youngblood Rd. (1102), left Snug Harbor Rd. (1357), stay on Snug Harbor at Kalabash Rd. Fork, take first gravel left (Crosshavens Dr.) after fork to the end (Beware of dogs).
A0	1	11	Left exiting Steam Production entrance on Concord Rd., left on Old Concord Rd., right on Acacia Rd.. TLD is .1 miles on left in curve (TLD CNS #223).

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.3
PREDETERMINED SAMPLING LOCATIONS

Zone	Radius (Mi)	No.	Description
A0	1	12	Hwy 49-N, right Pleasant Hill Rd. (1109), right Youngblood Rd. (1102), left McKee Rd (1100), right Bankhead Rd. to end.
A0	2	13	Hwy 49-N, right Pleasant Hill Rd. (1109), right Youngblood Rd. (1102), left McKee Rd. (1100), right Bankhead Rd. to intersection of Bessbrook Rd.
A0	1	14	Left exiting Steam Production entrance on Concord Rd., left on Old Concord Rd., right on Acacia Rd. TLD .2 miles on right (TLD CNS #224).
A0	1	15	Left exiting Steam Production entrance on Concord Rd., take first dirt fork to left on Kingsberry Dr., Stop at Commodore Yacht Club.
A0	1	16	Left exiting Steam Production entrance on Concord Rd. to last big curve before pavement ends.
A0	1	17	Left exiting Steam Production entrance on Concord Rd. to first transmission tower on left after bridge (TLD CNS #225).
A0	1	18	Left exiting Steam Production entrance on Concord Rd., go to end and turn right on Sandlapper Rd. Stop at transmission tower.
A0	2	19	Hwy 274-S, left Allison Creek Rd. (1081) to end of pavement.
A0	2	20	Left exiting Steam Production entrance on Concord Rd. TLD on left across bridge, just past fence (TLD CNS #226).
A0	1	21	Left Hwy 274-S, left Allison Creek Rd. (1081), left Spratt Rd., to end (Beware of dogs).
A0	2	22	Hwy 274-S, left Allison Creek Rd. (1081) to intersection of Bardale Rd.
A0	1	23	Left exiting Steam Production entrance on Concord Rd. TLD on left at beginning of guardrail posts (TLD CNS #204).

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.3
PREDETERMINED SAMPLING LOCATIONS

Zone	Radius (Mi)	No.	Description
A0	1	24	Hwy 274-S, left Allison Creek Rd. (1081), left at Spratt Rd., left Morrison Rd., then right in next 2 forks, left in next fork to end.
A0	2	25	Hwy 274-S, left Allison Creek Rd. (1081), to intersection of Spratt Rd.
A0	1	26	Behind Catawba Nuclear Station overlook (TLD and Air CNS #205, need key).
A0	1	27	Right exiting Steam Production entrance on Concord Rd., first dirt left on Valelake Rd., left in fork to end.
A0	2	28	Hwy 274-S, left Allison Creek Rd. (1081) to intersection of Colina Rd.
A0	1	29	Left exiting Steam Production entrance on Concord Rd. TLD at Shady Shore Dr. on right corner at Bethel Community Clubhouse sign (TLD CNS #227).
A0	1	30	Right exiting Steam Production entrance on Concord Rd., first dirt left on Valelake Rd., right in fork to end.
A0	2	31	Hwy 274-S to intersection of Campbell Rd. (80).
A0	1	32	Right exiting Steam Production entrance on Concord Rd. TLD at first dirt left (Valelake Dr.) on right corner (TLD CNS #228).
A0	1	33	Right exiting Steam Production entrance on Concord Rd., left on dirt road (Pine Pt. Dr.) just before Granny's Restaurant, stop .5 miles.
A0	2	34	Hwy 274-S to Big Allison Creek bridge.
A0	1	35	TLD on top of hill at intersection of Catawba Nuclear Station Construction entrance and Road 1132 (TLD CNS #206).
A0	1	36	Right exiting Steam Production entrance to transmission line just before Granny's Restaurant on Concord Rd. (1132).
A0	2	37	Hwy 274-N, left Liberty Hill Rd., take first left and go to end.

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.3
PREDETERMINED SAMPLING LOCATIONS

Zone	Radius (Mi)	No.	Description
A0	1	38	Hwy 274-N, right at Liberty Hill Rd., right in fork to third transmission line on right, walk about 200 yds. South along boundary fence. TLD is on fence (TLD CNS #229).
A0	1	39	Hwy 274-N, right at Liberty Hill Rd., right in fork to third transmission line on right.
A0	2	40	Right exiting Steam Production entrance on Concord Rd. to end. Right on Hwy 274-N for 1 mile.
A0	1	41	Hwy 274-N, right at Liberty Hill Rd., go .8 miles (right in fork), TLD on fence on right (TLD CNS #207).
A0	1	42	Hwy 274-N, right at Liberty Hill Rd., right in fork, go to softball field entrance.
A0	2	43	Hwy 274-N, right Lake Wylie Rd. (1099), right Beaver Creek Trail to end.
A0	1	44	Hwy 274-N, right at Liberty Hill Rd., right in fork, pass softball field to large rock piling on fence. TLD is on fence (TLD CNS #222).
A0	1	45	Left exiting Steam Production entrance, left on Old Concord Rd. to end. TLD on fence on left (TLD CNS #203).
A0	1	46	Left exiting Steam Production entrance on Concord Rd. Turn left just after canal bridge. Go to pier (water CNS #208, need key).
A1	3	1	Hwy 49-N to NC side of Buster Boyd Bridge.
A1	4	2	Hwy 49-N to intersection of Pleasant Hill Rd. (1109), TLD on transmission tower (TLD CNS #232).
A1	5	3	Hwy 49-N to Steele Creek Vol. Fire Dept. on right.

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.3
PREDETERMINED SAMPLING LOCATIONS

Zone	Radius (Mi)	No.	Description
A1	4	4	Hwy 49-N, right Pleasant Hill Rd (1109), right Youngblood Rd. (1102), left Zoar Rd. (1105), right Thomas Rd. (1104, TLD behind second house on right in pines (TLD CNS #233).
A1	5	5	Hwy 49-N, right Pleasant Hill Rd. (1109, right Youngblood Rd. (1102), left Hamilton Rd. (1106) to intersection of Hwy 160.
A1	4	6	Hwy 49-N, left at Camp Steere sign after crossing Buster Boyd Bridge (Water CNS #215).
A2	10	1	Hwy 49-N to Fast Fare at Coffey Creek on left.
A3	10	1	Hwy 49-N, right Carowinds Blvd. (1441), left Hwy 51 to Pineville, stop near Sugar Creek bridge.
B1	3	1	Hwy 49-N, right Hwy 160, right on Gold Hill Rd. (98) at Tega Cay sign, right before Tega Cay entrance on gravel road into Duke Power Company substation (TLD & Air CNS #212, need key).
B1	2	2	Hwy 49-N, right Pleasant Hill Rd. (1109), right Youngblood Rd. (1102), left McKee Rd (1100)., left Bankhead Rd., left Bessbrook Rd. to end.
B1	4	3	Hwy 49-N, right Hwy 160, right on Dam Rd. (99), last gravel right in sharp curve before Lake Wylie Dam, left through fence to substation, TLD on right of inner substation fence (TLD CNS #235).
B1	2	4	Hwy 49-N, right Hwy 160, right on Gold Hill Rd. (98) at Tega Cay sign, enter Tega Cay following Tega Cay Dr., right Windjammer Dr., 6 miles, Right at circle, Left Kiwi Point to end.

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.3
PREDETERMINED SAMPLING LOCATIONS

Zone	Radius (Mi)	No.	Description
B1	4	5	Hwy 49-N, right Hwy 160, right Dam Rd. (99), left Gray Rock Rd. (251) to Lake Wylie Dam. Walk through plant to upstream side of the dam (water CNS #211).
B1	4	6	Hwy 49-N, right Hwy 160, right Dam Rd. (99), left Gray Rock Rd. (251) to Lake Wylie Dam. Go to river access on downstream side of dam.
B2	8	1	Hwy 49-N, right Carowinds Blvd. (1441), left Choate Circle, TLD on inside of fence left of the guardhouse (TLD CNS #246).
B2	4	2	Hwy 49-N, right Hwy 160 to Home Federal Savings and Loan on left. TLD on left rear corner of building (TLD CNS #234).
B2	5	3	Hwy 49-N, right Hwy 160, left on Gold Hill Rd. (98) at Home Federal Savings and Loan, stop at intersection of Whitley Rd.
B2	10	4	Hwy 49-N, right Carowinds Blvd. (1441), left Hwy 51 to Pineville, right Hwy 521 (Polk St.) in Pineville, right on Dorman Rd., stop at state line.
B2	5	5	Hwy 49-N, right Hwy 160, right Sutton Rd. (49) to intersection of Gray Rock Rd. (251).
B2	7	6	Hwy 49-N, right Hwy 160 to Fort Mill, Right Lee St., left Self St. TLD at Fort Mill Municipal Water Supply on right behind Springs Mill (TLD CNS #247, also Water CNS #213).
B2	10	7	Hwy 49-N, right Hwy 160 through Fort Mill to the Sugar Creek bridge.
C1	4	1	Hwy 274-S, left Mt. Gallant (195), left India Hook Rd. (30) to SC Wildlife Resources Dept. (TLD CNS #236).
C1	5	2	Hwy 274-S, left Mt. Gallant Rd. (195), go beyond India Hook to Red Burketts Body Shop on right.

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.3
PREDETERMINED SAMPLING LOCATIONS

Zone	Radius (Mi)	No.	Description
C1	4	3	Hwy 274-S, left Mt. Gallant Rd. (195), right Homestead Rd. (657) to end. TLD straight across intersection of Twin Lakes Rd. (TLD CNS #237).
C1	5	4	Hwy 274-S, left Mt. Gallant Rd. (195), right Homestead Rd. (657) to end.
C1	4	5	Hwy 274-S, left Mt. Gallant Rd. (195), right W. Oak Dr. (962) to end at fork. TLD on left at fence (TLD CNS #238).
C1	5	6	Hwy 274-S, left Mt. Gallant Rd. (195), right at York County Museum (658) to end at SC National Guard Armory.
C1	5	7	Hwy 274-S to Carter Lumber Co.
C2	10	1	Hwy 274-S, left Hwy 161, left in fork on Celanese Rd. (50) to intersection of Springdale Rd.
C2	7	2	Hwy 274-S, left Hwy 161, right Mt. Gallant Rd. (195) to end. Go to Rock Hill Municipal Water Supply across intersection on left (Water CNS #214).
C2	7	3	Hwy 274-S, right on Herlong Ave. to Piedmont Medical Center emergency entrance to back of hospital. TLD on fence at back right corner of Liquid Oxygen storage area (TLD CNS #248).
C2	10	4	Hwy 274-S, left Hwy 161, right Mt. Gallant Rd. (195), right Hwy 21-121 By-pass to Fast Fare on left at intersection of Springsteen Rd.
C2	10	5	Hwy 274-S to Newport, left at stop light, right on Rawlinson Rd., left Hwy 5, right on Heckle Blvd. (901) to end, left on Hwy 72, right on dirt road across from Wayne's Auto Service. Go to Duke Power Company substation (TLD & Air CNS #217, need key).
C2	8	6	Hwy 274-S, left Hwy 161, right Rawlinson Rd. (56), left Hwy 5 to Rock Hill Career Development Center, TLD on transmission tower (TLD CNS #249).

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.3
PREDETERMINED SAMPLING LOCATIONS

Zone	Radius (Mi)	No.	Description
C2	10	7	Hwy 274-S, left Hwy 161, right Adnah Church Rd. (81), right on Hwy 5, left on Eastview Rd. (102) to intersection of Oak Park Rd. (103).
C2	7	8	Hwy 274-S, left Mt. Gallant Rd. (195), left Hwy 161, left Hwy 21, left on dirt road at Fort-Rock Drive-In to end, go right to Rock Hill Municipal Water Intake.
D1	5	1	Hwy 274-S to Carter Lumber Co. TLD on fence near gate (TLD CNS #239).
D1	4	2	Hwy 274-S, right Campbell Rd. (80), left Paraham Rd. (54) to transmission tower on right, TLD on power pole (TLD CNS #240).
D1	5	3	Hwy 274-S, right Campbell Rd. (80), left Paraham Rd. (54), next right on Rd. 815 to Allison Creek bridge.
D1	5	4	Hwy 274-S, right Campbell Rd. (80) for about 3 miles, TLD on left at beginning of horse fence (TLD CNS #241).
D2	10	1	Hwy 274-S, left Hwy 161, right Adnah Church Rd. (81), right Hwy 5, quick left on Eastview Rd. (102), right Holland Rd. (157), right Turkey Farm Rd. (1172), left Russell Rd. (536), go .2 miles.
D2	10	2	Hwy 274-S, left Hwy 161, right Adnah Chruch Rd. (81), right Hwy 5, left Billy Wilson Rd. (1451), right Turkey Farm Rd. (1172) to Fishing Creek bridge.
D2	10	3	Hwy 274-S, right Campbell Rd. (80), left Hwy 49-S, stop at Pantry before entering York.
D2	10	4	Hwy 274-S, right Campbell Rd. (80), left Hwy 49-S, left Rd. 64, left Hwy 5. Go to Duke Power Company Appliance Center on left. TLD on fence in back (TLD CNS #250).

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.3
PREDETERMINED SAMPLING LOCATIONS

Zone	Radius (Mi)	No.	Description
D2	10	5	Hwy 274-S, right Campbell Rd. (80), left 49-S, right Old Limestone Rd. (172) to end.
E1	5	1	Hwy 274-S, right Campbell Rd. (80) to intersection of Hwy 49.
E1	5	2	Hwy 49-S, right Paraham Rd. (54) to transmission tower on left after bridge (TLD CNS #242).
E1	5	3	Hwy 274-N, left Hwy 55, left Kingsberry Rd. (114) to transmission tower on left (TLD CNS #243).
E1	5	4	Hwy 274-N, left Hwy 55 to intersection of Kingsberry Rd. (114).
E2	5	1	Hwy 274-S, right Campbell Rd. (80), right Paraham Rd. (54) to intersection of Dr. Nichols Rd. (819).
E2	10	2	Hwy 274-N, left Hwy 55 into Clover, go to Duke Power Company Appliance Center on left. TLD on fence in back (TLD CNS #251).
E2	10	3	Hwy 274-N, left Hwy 55 to Pantry at intersection of Hwy 321 in Clover (behind Pantry).
F1	4	1	Hwy 274-N, left Hwy 55 to Bethel School. TLD on side of small building in back (TLD CNS #244).
F1	5	2	Hwy 274-N, left Hwy 55, right Bethel School Rd. (152) to intersection of Hollandale Dr.
F1	4	3	Hwy 274-N left on Glenvista Rd. to Crowder Creek boat landing, TLD to east of parking lot (TLD CNS #245).
F1	4	4	Hwy 49-N to River Hills Plantation rear entrance at Robinwood Rd. TLD behind green building on right corner (TLD CNS #230).

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.3
PREDETERMINED SAMPLING LOCATIONS

Zone	Radius (Mi)	No.	Description
F1	5	5	Hwy 49-N, left Sherer Church Rd. to end.
F1	4	6	Hwy 49-N to River Hills Plantation entrance guardhouse (TLD CNS #231).
F1	5	7	Hwy 49-N, left Montgomery Rd. at the River Rat Restaurant. Stop in horseshoe curve near lake.
F2	10	1	Hwy 274-N, left Hwy 557, right Ridge Rd. (27) to Bowling Green Presbyterian Chruch.
F2	5	2	Hwy 274-N, left Hwy 557 to Pine Grove Baptist Chruch.
F3	10	1	Hwy 274-N, left Hwy 557, next paved right on Oakridge Rd. at Bethel Fire Dept. (Rd. 435) to intersection of Hwy 274 (in NC).
F3	10	2	Hwy 274-N, right Pole Branch Rd. (279) to Friendship Baptist Church on left.
F3	10	3	Hwy 274-N, right Pole Branch Rd. (279), right Hwy 273 to Allen Steam Plant Bridge.
F3	14	4	Hwy 274-N, right Pole Branch Rd. (279), right Hwy 273 into Belmont, right Catawba St., left at next light to Belmont Municipal Water Supply (Water CNS #218).

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.4
FIELD MONITORING DATA SHEET

Date _________ Team Members/Call Sign _____/_____ Inst. Type/No. _____/_____

Sample Location	Time Survey Taken	Dose Rate (mR/hr)	Smear Activity (DPM)

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.5
SAMPLE TIME REQUIRED FOR MINIMUM SAMPLE VOLUME

FLOW RATE CFM		LPM	MINIMUM REQUIRED SAMPLING TIME IN MINUTES
.5	=	14	71
1.0	=	28	36
1.5	=	42	24
2.0	=	56	18
2.5	=	70	15
3.0	=	84	12
3.5	=	99	11
4.0	=	113	9
4.5	=	127	8

NOTE: When estimating time required to get a minimum volume of 1×10^6 ml if flow rate for the air sampler in use is not on table, go to next Lower flow rate. The LPM are rounded off on the conservative side to be safe.

Example: Air Sampler flow rate = 106 LPM. Minimum time 11 minutes

DUKE POWER COMPANY
CATAWBA NCULEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.6
FIELD MONITORING TEAM WORK SHEET FOR DETERMINING IODINE ACTIVITY

Team Members ________________ Date ______________ Air Sampler No. ____________

Team Call Sign ______________ Canberra No. ________________

AIR SAMPLE INFORMATION — ANALYSIS RESULTS

A Sample ID. No./Time/Location	B Air Sampler Run Time (Min)	C Flow Rate (LPM)	D Iodine Activity Microcuries/ml	E Dose Rate mrem/hr	F Results Reported By:
___/___/______					
___/___/______					
___/___/______					
___/___/______					
___/___/______					
___/___/______					
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___/___/______					
___/___/______					

Column A) Number of Sample/Time it was Taken/Sampling Location (ex. AO-2-10).
Column B) Length of time the air sampler ran.
Column C) Air sampler meter flow rate.
Column D) Activity from Canberra.
Column E) Dose rate from Canberra.
Column F) Signature of person that calls in results to FMC.

5.6.1 MCA and Detector Set-Up

5.6.1.1 Disconnect DC power cord from unit.

5.6.1.2 Turn the contrast switch on the front of the unit clockwise to the ON mode.

5.6.1.3 Place sample holder with Na-22 check source onto the detector.

5.6.1.4 Press TEST SYSTEM.

5.6.1.5 Press ENTER to begin test.

5.6.1.6 If test failed, press CLEAR ENTRY and remove the instrument from service.

5.6.1.7 If test passed, press ENTER.

5.6.2 Collecting and Measuring Filter Cartridges

NOTE: Record data on Field Monitoring Team Work Sheet for Determining Iodine Activity (Sample Enclosure 5.6).

5.6.2.1 Press ANALYZE FILTER SAMPLE.

5.6.2.2 Press ENTER.

5.6.2.3 For each sample:

5.6.2.3.1 Place cartridge with the recognizable side toward the detector (in small poly bag) in sample holder.

5.6.2.3.2 Put detector and sample holder in shield.

5.6.2.3.3 Press ENTER to accept ID number.

5.6.2.3.4 Press ENTER to accept current Flow Rate (LPM). Otherwise, change number and press ENTER.

5.6.2.3.5 Press ENTER to accept current Flow Time (min). Otherwise, change number and press ENTER.

5.6.2.3.6 If the volume is determined to be too small, resample, press ENTER and return to Step 5.6.2.3.

5.6.2.3.7 Press ENTER to start Collect/Analyze.

5.6.2.3.8 Report/Record Iodine activity (μCi/ml) and dose rate (mrem/hr).

5.6.2.3.9 Press NEXT SAMPLE.

5.6.2.3.10 Label the cartridge and retain for later analysis.

5.6.3 After sampling completion, turn the contract switch counter-clockwise to the STAND-BY mode.

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.7
TSC FIELD MONITORING ORGANIZATION

POSITION	NAME	BUSINESS PHONE	HOME PHONE
Field Monitoring Coordinators:			
Primary:	C. V. Wray	803/831-2282	[redacted]
Alternates:	R. L. Rivard	803/831-2282	[redacted]
	J. E. Threatt	803/831-2282	[redacted]
TSC Radio Operators:			
Primary:	D. E. Sexton	803/831-2282	[redacted]
Alternate:	T. W. O'Donohue	803/831-2282	[redacted]
Field Monitoring Teams:			

All Health Physics personnel with Field Monitoring Training.

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/04
ENCLOSURE 5.8
EMERGENCY VEHICLES

The two designated emergency vehicles are the Operations pick-up truck and the Technical Services vehicle used primarily by Chemistry. These two vehicles are to be obtained (as directed by the FMC) by getting the keys from the Health Physics key box. A member of the Health Physics Shift Group can open the key box. On back shifts the key can be obtained from the front desk Security Officer.

Obtain any other Station vehicles (if available) as directed by the FMC. Voluntary use of personnal vehicles is another alternative that may be considered.

Form SPD-1002-1

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: HP/0/B/1009/05
Change(s) 0 to
2 Incorporated

(2) STATION: Catawba

(3) PROCEDURE TITLE: Personnel/Vehicle Monitoring For Emergency Conditions

(4) PREPARED BY: Gerald Z Bozeh DATE: 1-23-84

(5) REVIEWED BY: R. Clemmons DATE: 1-23-84

Cross-Disciplinary Review By: MERold N/R:

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: (SRO) Date:

By: Date:

(7) APPROVED BY: J. W. Cox/wgd Date: 1-24-84

(8) MISCELLANEOUS:

Reviewed/Approved By: Date:

Reviewed/Approved By: Date:

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
PERSONNEL/VEHICLE MONITORING
FOR EMERGENCY CONDITIONS

1.0 PURPOSE

To provide guidance for personnel and vehicle monitoring during a site evacuation resulting from a radiological emergency.

2.0 REFERENCES

2.1 HP/0/B/1003/31, Operation and Calibration: Eberline Model E-140N Portable Count Rate Meter

2.2 HP/0/B/1004/06, Personnel Decontamination

2.3 HP/0/B/1004/21, Equipment Decontamination

2.4 HP/0/B/1009/09, Guideline for Accident and Emergency Response

2.5 HP/0/B/1009/16, Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release

2.6 RP/0/A/5000/10, Conducting a Site Assembly or Evacuation

2.7 Station Directive 3.0.7, Site Assembly/Evacuation

2.8 Station Directive 3.8.3, Contamination Provention, Control, and Decontamination Responsibilities

2.9 Catawba Nuclear Station Emergency Plan

2.10 System Health Physics Manual

3.0 LIMITS AND PRECAUTIONS

3.1 If survey teams are expected to be exposed to I-131 in excess of 10 MPC (9×10^{-8} mCi/ml), and as directed by S&C Coordinator, each team member should ingest one tablet of Potassium Iodide.

3.2 Ensure that the Radiation Monitoring equipment has been battery checked and source response checked as per HP/0/B/1003/31.

3.3 If emergency vehicle is found to be contaminated as per Catawba Nuclear Station Directive 3.8.3, Section 6, and alternative transportation is not available, that vehicle may be released if needed for assistance and be decontaminated to below acceptable limits at the first opportunity as per Catawba Nuclear Station HP/0/B/1004/21 Equipment Decontamination.

4.0 PROCEDURE

4.1 The Surveillance and Control Coordinator shall designate a supervisor or lead technician to assume the responsibilities of the Reserve Personnel/Personnel Monitoring Leader (RP/PM Leader).

4.1.1 The RP/PM Leader shall be responsible for personnel monitoring when an evacuation occurs due to a radiological incident and other responsibilities as outlined in Reference 2.4.

4.1.2 The RP/PM Leader shall discuss, per Step 4.4, with the Surveillance and Control Coordinator the practicalities of relocating monitoring stations when the background is above 350 ccpm for friskers.

4.1.3 The RP/PM Leader shall also arrange for monitoring of the assembly points and initiate action when dose rates approach 2 mr/hr.

4.2 The RP/RM Leader shall dispatch an Emergency Personnel Monitoring Team to the following locatrions upon initiation of a site assembly resulting from a radiological incident.

4.2.1 Personnel Access Portal (PAP)

4.2.2 Construction Personnel Exit Area (Brass Gate).

4.2.3 All on-site assembly points as listed in Reference 2.7.

NOTE: Manpower shall be supplied with respect to the nature of the accident and the availability of Health Physics Personnel.

4.2.4 Each survey team shall have a copy of HP/0/B/1009/05 Personnel Monitoring for Emergency Conditions, Catawba Nuclear Station Directive 3.8.3 Contamination and Decontamination Responsibilities and an Personnel Monitoring Kit.

4.2.5 Upon reaching their designated locations, the survey teams shall verify their position with the RP/PM Leader.

4.2.6 The Construction Personnel Exit Area Team shall insure all personnel receive proper monitoring leaving via this exit during evacuation.

4.2.7 The PAP Area Survey Team shall insure that the portal monitors are used properly and provide additional monitoring in order to expedite evacuation.

4.2.8 If an individual is found to be contaminated as per Catawba Nuclear Station Directive 3.8.3, the survey team shall:

4.2.8.1 Dress the individual in the appropriate protective clothing and when time permits, decontaminate as per Catawba Nuclear Station HP/0/B/1004/06.

4.2.8.2 Notify the RP/PM Leader of all cases of personnel contamination.

4.2.9 Survey teams will be supplemented, relieved or secured as directed.

4.2.10 Survey teams will monitor dose rates at exit areas. Should dose rates exceed 2 mr/hr, team will initiate discussion with RP/PM Leader to expedite any evacuation through that exit point.

4.2.11 The RP/PM Leader should notify the Surveillance and Control Coordinator of all action taken.

4.3 The RP/PM Leader shall assemble another Emergency Monitoring Team upon initiation of a site assembly from a radiological incident for random monitoring of employee vehicle and when site evacuation is initiated, dispatch this team to the Evacuation Facility (site Alpha: Transmission Line Maintenance Warehouse near Hwy SC 274 and SC 161. Site Bravo: Allen Steam Station, Hwy NC 273, South of Belmont).

NOTE: Monitoring equipment for vehicles is located in the Personnel Monitoring Kit located in the PAP area.

4.3.1 If a vehicle is found to be contaminated as per Catawba Nuclear Station Directive 3.8.3, the survey team shall:

4.3.1.1 Prevent further movement of the vehicle.

4.3.1.2 Post the vehicle as a contaminated area.

4.3.1.3 Provide general information on contamination surveys to the RP/PM Leader.

4.3.1.4 Monitor all vehicles in the area for contamination.

4.3.1.5 Decontaminate Vehicle using best method(s) available on property owned by Duke Power Company that does not drain to a water system.

4.3.2 Upon site evacuation and notification of Evacuation Facility (Alpha or Bravo), the RP/PM Leader shall:

4.3.2.1 Move with the monitoring team to the Evacuation Facility.

4.3.2.2 Locate Personnel Survey Kit at evacuation Facility and prepare to monitor incoming personnel. Personnel Survey Kit storage locations are identified on the Evacuation Facility Layout Drawing, Enclosure 5.1.

4.3.2.3 Supervise the monitoring and release of personnel as described in Steps 4.2.3 through 4.2.9 and 4.2.10.

4.3.2.4 List all personnel's names, social security number and Health Physics badge number on Evacuation Personnel Dose Record Sheet, Enclosure 5.2. This form should be used for dose commitment at a later time.

4.3.2.5 Supervise monitoring of employee vehicles and take action as appropriate per Step 4.3.1.

4.3.2.6 Notify Surveillance and Control Coordinator of all actions taken.

4.4 If background radiation readings render frisker and/or portal monitor useless, the RP/PM Leader shall:

4.4.1 Discuss with the Surveillance and Control Coordinator relocating the personnel monitoring location a location of lower background.

4.4.2 Procure from the Temporary Administration Building at 20 watt portamoble radio for communication with the OSC. Check operability of the radio.

4.4.3 Move with the monitoring teams to an area of lower background where personnel control can be maintained and prepare to monitor personnel.

4.4.4 Supervise the monitoring and release of personnel as described in Steps 4.2.3 through 4.2.9 and 4.2.10.

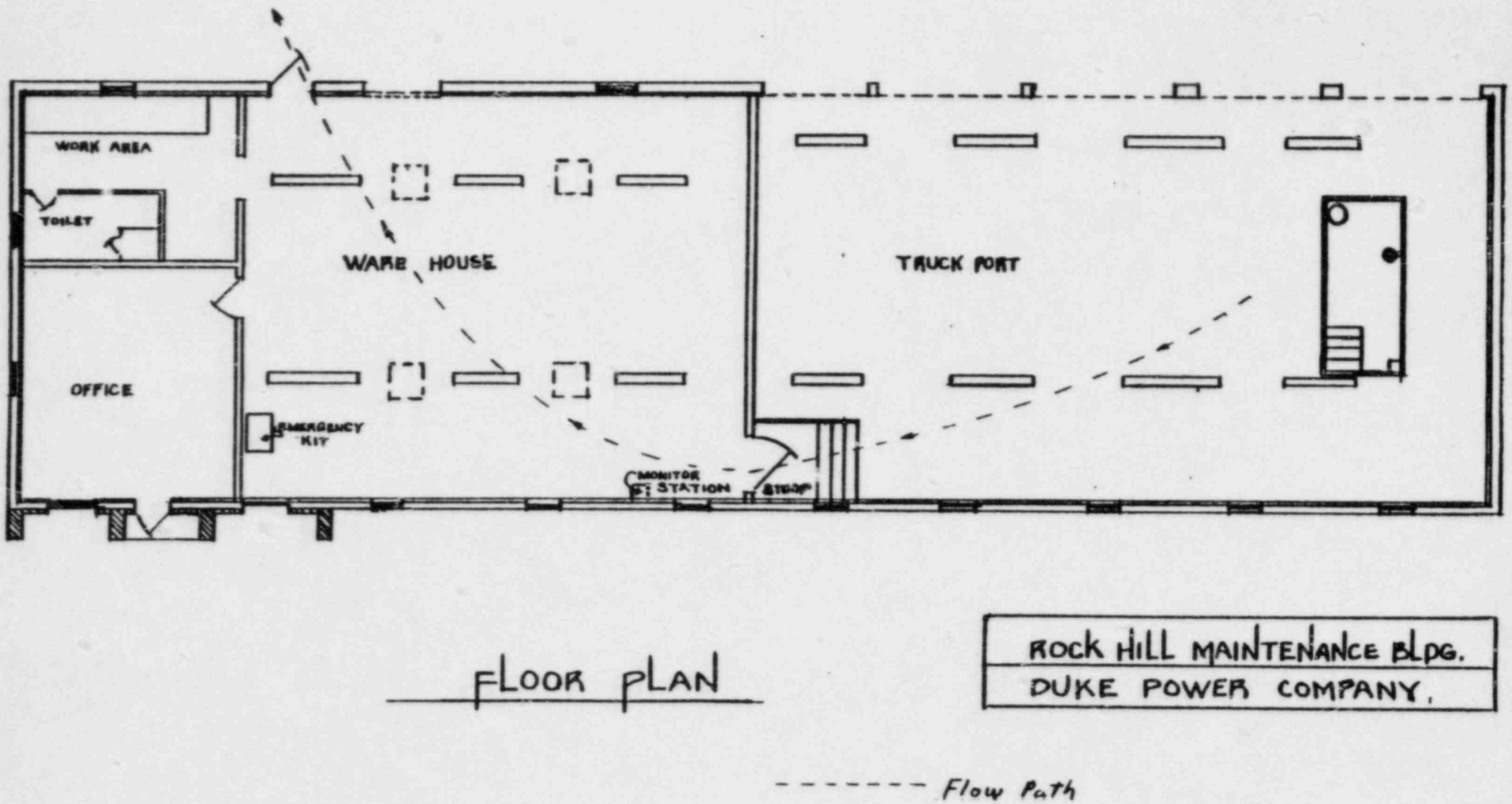
4.4.5 Supervise monitoring of employee vehicles and take actions as appropriate per Step 4.3.1.

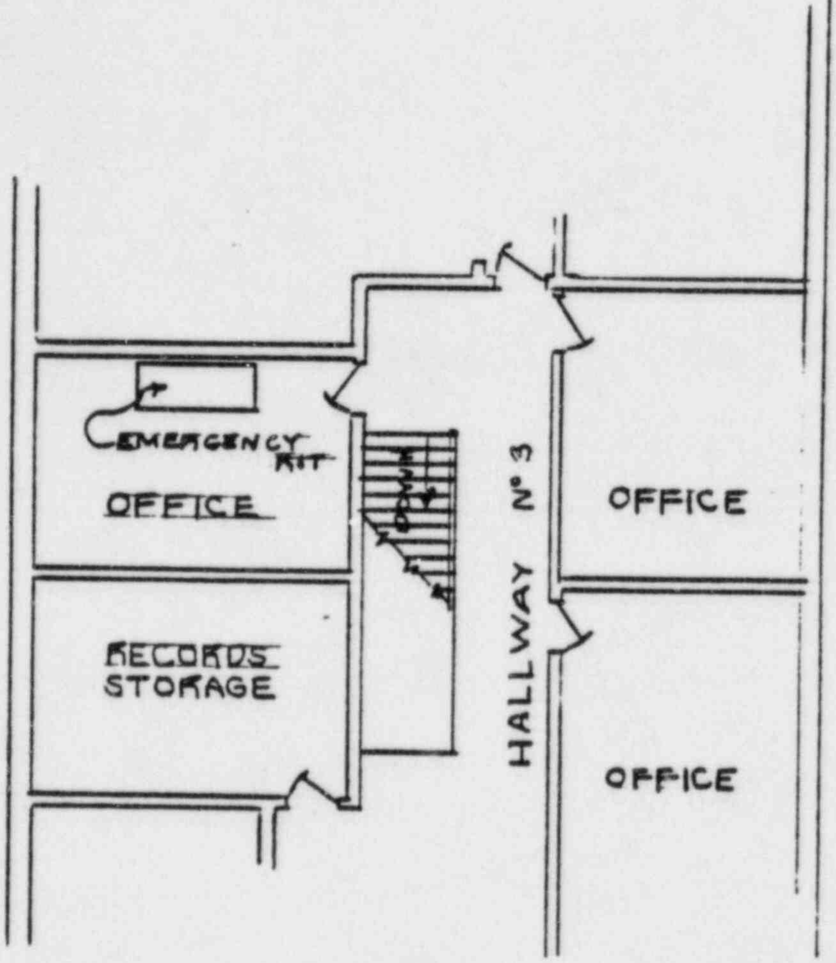
4.4.6 Notify Surveillance and Control Coordinator of all actions taken.

5.0 <u>ENCLOSURES</u>

5.1 Evacuation Facilities Layout Drawings

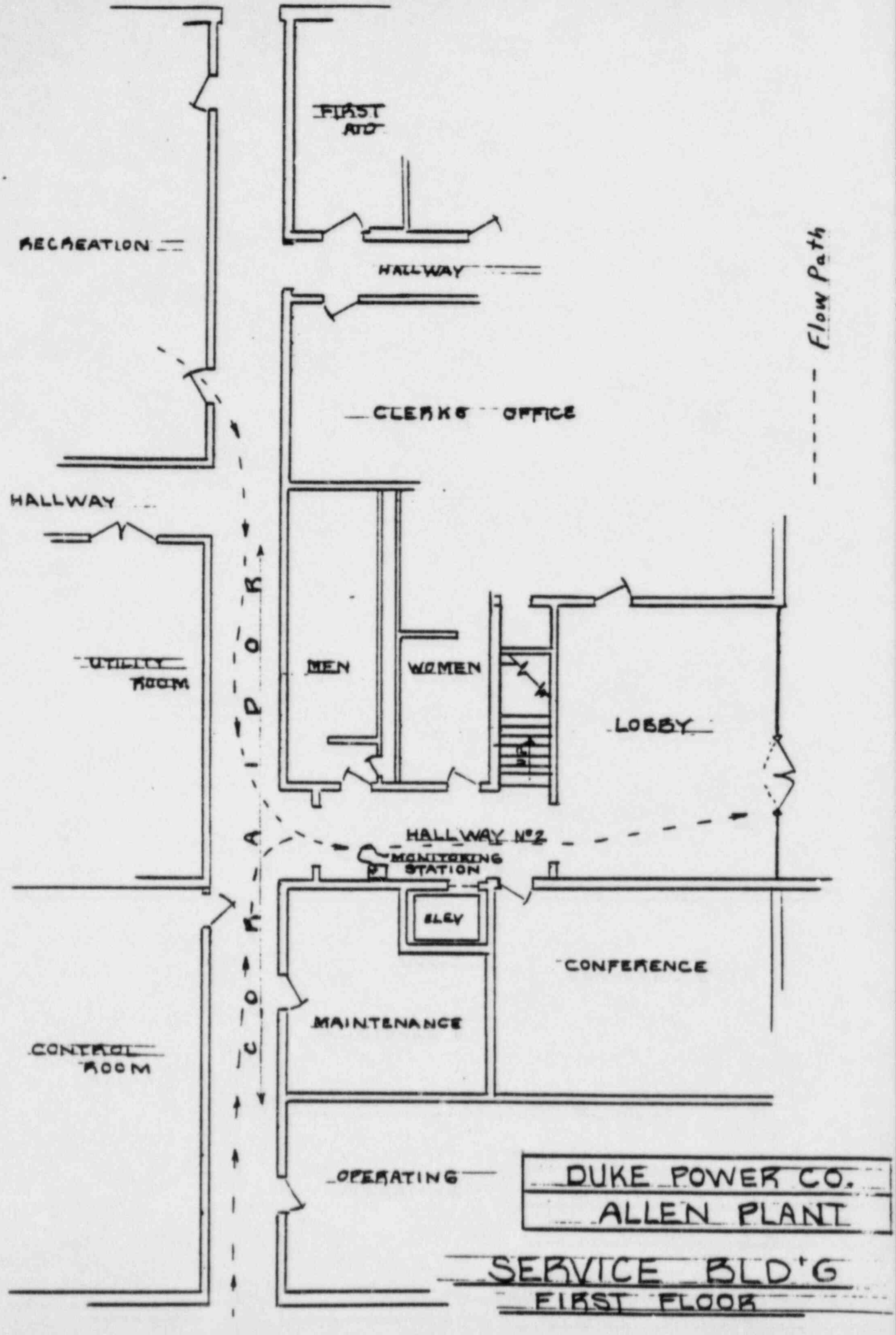
5.2 Evacuation Personnel Dose Record


WORK AREA
TOILET
OFFICE
EMERGENCY KIT
WARE HOUSE
MONITOR STATION
STOOP
TRUCK PORT
FLOOR PLAN
ROCK HILL MAINTENANCE BLDG.
DUKE POWER COMPANY.
Flow Path



SERVICE BLD'G
SECOND FLOOR

DUKE POWER COMPANY
ALLEN PLANT


FIRST AID
RECREATION
HALLWAY
CLERKS OFFICE
Flow Path
HALLWAY
UTILITY ROOM
CORRIDOR
MEN
WOMEN
LOBBY
HALLWAY No 2
MONITORING STATION
ELEV
CONFERENCE
MAINTENANCE
CONTROL ROOM
OPERATING
DUKE POWER CO.
ALLEN PLANT
SERVICE BLD'G
FIRST FLOOR

EVACUATION PERSONNEL DOSE RECORD

NAME	SOCIAL SECURITY NUMBER	H.P. BADGE NUMBER	DOSE (mrem)	COMMENTS

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: HP/0/B/1009/06
Change(s) 0 to
0 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: ALTERNATIVE METHOD FOR DETERMINING DOSE RATE WITHIN THE REACTOR BUILDING

(4) PREPARED BY: [signature] DATE: 1/24/84

(5) REVIEWED BY: R. D. Kinard DATE: 1-24-84

Cross-Disciplinary Review By: MCBolet N/R: ______

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ______ (SRO) Date: ______

By: ______ Date: ______

(7) APPROVED BY: J.W. [signature] Date: 1/26/84

(8) MISCELLANEOUS:

Reviewed/Approved By: ______ Date: ______

Reviewed/Approved By: ______ Date: ______

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
ALTERNATIVE METHOD FOR DETERMINING DOSE RATE WITHIN THE REACTOR BUILDING

1.0 PURPOSE

This procedure describes an alternative method for determining the dose rate within the Reactor Building in the event the Reactor Building monitor is inoperable.

2.0 REFERENCES

2.1 System Health Physics Manual

2.2 HP/0/B/1000/02 Taking, Counting and Recording Surveys

3.0 LIMITS AND PRECAUTIONS

3.1 This procedure is written for use under abnormal conditions which could involve extremely high radiation levels.

Only Health Physics management should authorize the use of this procedure when needed and should provide appropriate surveillance and control.

3.2 Check that survey instrument(s) to be used have been calibrated and response checks have been performed.

3.3 The method described below for determining the Reactor Building dose rate is an approximation and consideration shall be given to interference to background sources in the area.

4.0 PROCEDURE

4.1 Method Using Dose Rate at Upper Personnel Hatch

4.1.1 Using a high range survey meter, obtain the dose rate at the upper personnel hatch by placing the meter's detector in contact with the center of the hatch's outside door.

NOTE: Consider use of extendable probe instruments to limit dose.

4.1.2 Determine the Reactor Building dose rate from the following equation.

$$R_B = 661 \times R_H$$

R_B = Reactor Building Dose Rate (R/hr)

R_H = Survey Meter Dose Rate at Upper Personnel Hatch (R/hr)

$$661 = \frac{1}{2 \cdot .001293\ g/cm^3 \cdot 21.67\ cm \cdot 2.7\ E\text{-}2\ cm^2/g}$$

4.2 Record results on appropriate HP forms as per Reference 2.2.

5.0 ENCLOSURES

N/A

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: HP/0/B/1009/07
Change(s) 0 to
1 Incorporated

(2) STATION: Catawba

(3) PROCEDURE TITLE: In-Plant Particulate and Iodine Monitoring Under Accident Conditions

(4) PREPARED BY: Jennifer M. Cameron DATE: 1·25·84

(5) REVIEWED BY: R.D. Kinard DATE: 1-25-84

Cross-Disciplinary Review By: MEBolch N/R: ____

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ____ (SRO) Date: ____

By: ____ Date: ____

(7) APPROVED BY: J.W. Cox Date: 1/25/84

(8) MISCELLANEOUS:

Reviewed/Approved By: ____ Date: ____

Reviewed/Approved By: ____ Date: ____

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
IN-PLANT PARTICULATE AND IODINE
MONITORING UNDER ACCIDENT CONDITIONS

1.0 PURPOSE

To provide a method of particulate and iodine assay in the plant under accident/emergency conditions when normal analysis equipment is not available.

2.0 REFERENCES

2.1 HP/0/B/1000/02 - Taking, Counting, and Recording Surveys

2.2 HP/0/B/1003/02 - Operating and Calibration Procedure: Low Volume, Portable Air Samplers

2.3 HP/0/B/1009/16 - Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release

2.4 Catawba Nuclear Station Emergency Plan - Section I.2

2.5 NUREG-0694: TMI - Related Requirements for New Operating Licenses

3.0 LIMITS AND PRECAUTIONS

3.1 This procedure is written for use only under abnormal accident/emergency conditions when normal methods of quantifying iodine are not available.

3.2 Purging of silver zeolite cartridges should be done under a filtered hood whenever practical. In all cases it should be done in an uncontaminated area.

3.3 The activity calculations performed in this procedure are no longer valid once more reliable counting methods, (e.g. MCA, etc.), become available.

3.4 If exposure is expected from I-131 in excess of 10 MPC (9×10^{-9} μCi/ml), and directed by the S&C Coordinator, technicians should ingest one tablet of Potassium Iodide as per Reference 2.3.

3.5 Respiratory protective equipment should be used where possible to limit uptakes.

4.0 PROCEDURE

4.1 Sample Collection and Preparation

4.1.1 Using filter paper and a silver zeolite cartridge, collect a representative sample per references 2.1 and 2.2.

4.1.2 Remove and separate the filter and the cartridge. Place each in an individual sample bag and label accordingly.

4.1.3 In order to remove unwanted (i.e.; Xenon, ect.) gases from the cartridge, purge as follows:

4.1.3.1 Remove the cartridge from the sample bag and place it in a sample holder with a clean filter.

4.1.3.2 Orient the sample holder such that flow will be in the same direction as during collection.

4.1.3.3 The sample shall be purged for a time about one-third the time of sample duration at a low purge flow rate.

NOTE: Low purge flow rate can be obtained by cracking purge valve until flow is noticed. Care should be taken since a high flow rate could cause a release of Radioactive Iodine from the cartridge.

4.1.3.4 Remove the cartridge and place in a clean sample bag. Mark the bag with original sample information, and note the purge date and time.

4.1.4 Transport samples to an adequate sample counting location, and complete the top portion of the Emergency Particulate/ Iodine Assay Form (Sample Enclosure 5.1).

4.2 Iodine Activity Determination

4.2.1 With the cartridge still in the bag determine the dose rate at 1/2 inch from the inlet face of the cartridge.

4.2.1.1 For samples reading ≥ .1 mrem/hr above background on a low range survey instrument, record the dose rate on Sample Enclosure 5.1.

NOTE: Derivations of formulas used on Sample Enclosure 5.1 are provided on Enclosure 5.2.

4.2.1.2 For samples reading <.1 mrem/hr above background, use an RM-14/HP-260 or equivalent to determine corrected counts per minute (ccpm).

Divide the ccpm by 3600 (or other correction factor if available) to determine mrem/hr, and record on Sample Enclosure 5.1.

4.2.2 Complete the "Iodine Activity" section of Sample Enclosure 5.1 to determine Iodine Activity.

4.3 Particulate Activity Determination (Gross)

4.3.1 Remove the filter paper from bag for counting.

4.3.2 If a scaler is available, use it to count the filter paper and record results and other necessary data on Sample Enclosure 5.1.

4.3.3 If a scaler is not available, use an RM-14/HP-210 or equivalent and record the average corrected counts per minute. If no efficiency factor is available, use 10.

4.3.4 Complete the "Particulate Activity" section of Sample Enclosure 5.1 to determine particulate activity.

4.3.5 Return the filter paper to its bag.

4.4 Sample and data handling

4.4.1 Attach the samples to a copy of the completed Sample Enclosure 5.1 and hold for possible further analysis.

4.4.2 Notify appropriate personnel of results.

5.0 <u>ENCLOSURES</u>

5.1 Sample Emergency Particulate/Iodine Assay

5.2 Derivation of Activity Calculation Formulas

EMERGENCY PARTICULATE/IODINE ASSAY

Sample Location ______________________ Date ______________

Start Time ______________ Performed By ______________________

Stop Time ______________ Air Sampler Type/No. __________/__________

Sample Duration ______________ Flow Rate ______________________

Sample Volume ______________ (1 ft^3 = 2.83E4 cc)

IODINE ACTIVITY

Instrument Type/No. ______________/______________

Sample Dose Rate @ 1" = ______________ mrem/hr

$$\text{Iodine Activity} = \frac{\_\_\_\_\_\_(A) \times 28.2}{\_\_\_\_\_\_(B)} = \_\_\_\_\_\_ \frac{\mu Ci}{cc}$$

Where: A = Sample Dose Rate in mrem/hr

B = Sample Volume in cc (or ml)

PARTICULATE ACTIVITY

Instrument Type/No. ______________/______________

Background ______________ Efficiency Factor ______________

Total Counts __________ ÷ Count Time __________ = ______________ cpm

cpm __________ - Background __________ = ______________ ccpm

$$\text{Gross Particulate Activity} = \frac{\_\_\_\_\_\_(A) \times \_\_\_\_\_\_(B) \times 4.5E\text{-}7}{\_\_\_\_\_\_(C)} =$$

$$\_\_\_\_\_\_ \frac{\mu Ci}{cc}$$

Where: A = ccpm B = Efficiency Factor in dpm/cpm

C = Sample Volume in cc (or ml)

Remarks: ____

____

DERIVATION OF ACTIVITY CALCULATION FORMULAS

1. Iodine Activity

I-131 $\bar{E}$ = .19 MeV for beta

volume of cartridge, $v = \pi r^2 h$

$$= \pi\ (1.13 \text{ in} \times 2.54 \text{ cm/in})^2 \times (1.04 \text{ in} \times 2.54 \text{ cm/in})$$

$$= 67.76 \text{ cm}^3$$

mass of cartridge, m = 4 oz x 28.35 gm/oz = 113.4 gm

density of cartridge, $\rho = \frac{m}{v} = \frac{113.4 \text{ gm}}{67.76 \text{ cm}^3} = 1.67 \text{ gm/cm}^3$

thickness of cartridge, $x = 1.67 \text{ gm/cm}^3 \times (1.04 \text{ in} \times 2.54 \text{ cm/in})$

$$= 4.41 \text{ gm/cm}^2$$

.19 MeV beta particle energy range = 40 mg/cm^2
(p. 123, Rad Health Handbook)

absorption coefficient, $\mu = \frac{1}{40 \text{ mg/cm}^2} = .025 \text{ cm}^2/\text{mg}$

self absorption correction: (p. 136, Principles of Radioisotope Methodology, Third Ed.)

$$fs = \frac{1 - e^{-\mu x}}{\mu x}$$

fs = self absorption coefficient
μ = absorption coefficient, cm^2/mg
x = sample thickness, mg/cm^2

$$fs = \frac{1 - e^{-.025 \text{ cm}^2/\text{mg} \times 1000 \text{ mg/gm} \times 4.41 \text{ gm/cm}^2}}{.025 \text{ cm}^2/\text{mg} \times 1000 \text{ mg/gm} \times 4.41 \text{ gm/cm}^2} = .009$$

$$1 \text{ mR/hr} \times \frac{87.8 \text{ erg/gm}}{\text{R}} \times \frac{1 \text{ R}}{1000 \text{ mR}} \times \frac{1 \text{ MeV}}{1.6 \times 10^{-6} \text{erg}} \times \frac{1 \text{ hr}}{3600 \text{ sec}} \times \frac{1\ \mu\text{Ci}}{3.7 \times 10^4 \text{ dps}}$$

$$\times \frac{\text{d}}{.19 \text{ MeV}} \times 113.4 \text{ gm} = .245\ \mu\text{Ci}$$

so, $\frac{.245\ \mu\text{Ci}}{1 \text{ mR/hr}} = .245\ \mu\text{Ci/mR/hr}$

DERIVATION OF ACTIVITY CALCULATION FORMULAS

$$\frac{.245}{.009}\ \mu Ci/mR/hr = 28.2\ \mu Ci/mR/hr$$

$$\frac{mR/hr \times 28.2\ \mu Ci/mR/hr}{cc} = \frac{\mu Ci}{cc}$$

assume 1 mR = 1 mRem

2. Particulate Activity

$$\frac{ccpm \times dpm/cpm \times 4.5 \times 10^{-7}\ \mu Ci/dpm}{cc} = \frac{\mu Ci}{cc}$$

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: HP/0/B/1009/08
Change(s) 0 to
0 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: CONTAMINATION CONTROL DURING TRANSPORTATION OF CONTAMINATED INJURED INDIVIDUALS

(4) PREPARED BY: Timothy V Wright DATE: 1-24-84

(5) REVIEWED BY: David 7. Node DATE: 1-24-84

Cross-Disciplinary Review By: MEBolch N/R: D.7 Node

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ______________________ (SRO) Date: ______________

By: ______________________ Date: ______________

(7) APPROVED BY: JW Cox Date: 1/26/84

(8) MISCELLANEOUS:

Reviewed/Approved By: ______________ Date: ______________

Reviewed/Approved By: ______________ Date: ______________

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
CONTAMINATION CONTROL DURING TRANSPORTATION OF
CONTAMINATED INJURED INDIVIDUALS

1.0 PURPOSE

To provide guidance for the control of radioactive contamination due to transportation of a contaminated injured individual(s):

A. At the accident scene.
B. In the First Aid Room.
C. In the Ambulance.
D. During initial treatment in the hospital.

2.0 REFERENCES

2.1 HP/0/B/1000/05, Delineation of RCZ's

2.2 HP/0/B/1003/31, Operation and Calibration: Eberline Model E140N Portable Count Rate Meter

2.3 HP/0/B/1004/06, Personnel Decontamination

2.4 HP/0/B/1004/21, Equipment Decontamination

2.5 HP/0/B/1009/02, Investigation of Possible Overexposure, Personnel Contamination and/or Unusual Radiological Occurrences

2.6 Catawba Nuclear Station Emergency Plan

2.7 NCRP Report No. 65

3.0 LIMITS AND PRECAUTIONS

3.1 Lifesaving first aid and the preservation of vital functions shall have priority over contamination control.

3.2 Appropriate respiratory equipment shall be used to prevent or minimize internal exposure in any planned rescue attempt.

3.3 Utilize as few people as necessary for the rescue and treatment of contaminated injured individuals.

3.4 Ensure that all personnel involved in the rescue and treatment of contaminated injured individuals receive proper monitoring and decontamination, if necessary.

3.5 If the emergency vehicle is found to be contaminated, that vehicle may be released if needed for assistance in life threatening situations and be decontaminated to below acceptable limits at the first opportunity as per Reference 2.4.

3.6 Ensure that valuables which are collected from the injured person are monitored and turned over to security.

3.7 Ensure that the tamper seal on the Medical Decontamination Kit has not be broken. Inventory the kit if it has.

3.8 Ensure that Security Supervision has been notified.

3.9 Body excretions and vomitus should be collected in separate containers and transported with the injured person to the hospital. Containers should be labeled with the type of sample, date, and time collection. All effluents should be returned to Health Physics for radiological analysis.

4.0 PROCEDURE

4.1 Control at Accident Scene

4.1.1 Incapacitated Victims

4.1.1.1 Have victim brought to the RCZ exit nearest the accident scene.

4.1.1.2 Have rescue workers place injured on stretcher in such a way as to minimize cross contamination.

4.1.1.3 Once victim is on stretcher, cover him/her with blanket securely to prevent the spread of contamination while in motion.

4.1.1.4 Ensure a Health Physics representative is available in the First Aid Room to assist medical personnel.

4.1.2 Minor Injuries

4.1.2.1 For victims with minor injuries, have them exit their work area in the normal fashion.

4.1.2.2 Accompany victim to Contaminated Change Room and monitor with available frisker. If contamination is found decontaminate in accordance with Reference 2.3, using Contaminated Change Room facilities.

4.1.2.3 Have victim report to Contaminated First Aid Room (Auxiliary Building) to receive any additional treatment.

4.1.3 If accident occurred in a normally non-contaminated area and the possibility of accident induced contamination exists, control access to the area as per Reference 2.1.

4.1.4 After victim(s) have been evacuated from accident site and taken to Contaminated First Aid Room, smear survey the route taken. If contamination is found, post area as such and take appropriate steps for decontamination.

4.2 Control in the Contaminated First Aid Room

4.2.1 Prepare victim laydown areas by covering them with a protective covering before placing victim down.

4.2.2 Prepare sufficient facilities for the storage of contaminated waste generated during first aid treatment.

4.2.3 Ensure that all personnel in the First Aid Room are wearing anti-contamination clothing appropriate for the levels of contamination expected.

4.2.4 Upon victim(s) arrival, collect their dosimetry and place in polyethylene bag for subsequent evaluation.

4.2.5 Line the covered victim laydown area(s) with blankets if available and place victim(s) there.

4.2.6 Personnel Monitoring

4.2.6.1 Victims in Anti-C Clothing

4.2.6.1.1 Assume all victims in Anti-C's have surface contamination.

4.2.6.1.2 Remove Anti-C's by cutting midline and peeling to each side.

4.2.6.1.3 Place disrobed victim on clean blanket and fold ANTI-C's into blanket that was previously under victim.

4.2.6.1.4 Proceed to monitor entire body surface with an E140N and HP-210 probe.

4.2.6.1.5 Note contamination levels on Personnel Contamination and Decontamination survey sheets.

4.2.6.2 Victims in Street Clothing

4.2.6.2.1 Monitor victim with E140N and HP-210 probe.

4.2.6.2.2 If contamination is found, remove clothing by cutting midline and peeling to the sides.

4.2.6.2.3 Place disrobed victim on clean blanket and fold clothing into blanket that was previously under victim.

4.2.6.2.4 Resurvey victim.

4.2.6.2.5 Fill out Personnel Contamination and Decontamination Survey Sheet. (Enclosure 5.1).

NOTE: Now, victim(s) can be handled according to their contamination level.

4.2.7 Health Physics in conjunction with medical personnel will determine if victim decontamination should be initiated or if immediate transporation to hospital is necessary.

4.2.8 If decontamination is to be initiated in accordance with Reference 2.3, attempt to use shower, if victim cannot be showered, perform decontamination utilizing damp towels and wiping specific areas.

4.2.9 After decontamination, resurvey victim and complete (Enclosure 5.1).

4.2.10 Prior to victims laydown on ambulance stretcher, insure that the area is securely covered with a protective covering.

4.2.11 Pass victims through double doors of Contaminated First Aid Room to ambulance personnel, being sure to minimize the spread of contamination.

4.2.12 Prior to loading on ambulance, cover all contaminated victims (ex: blankets, sheets), and cover necessary areas of the ambulance to minimize the spread of contamination.

4.2.13 Have a Health Physics Technician and Nurse (if available) accompany the contaminated victim to the hospital with the following items:

Enclosure 5.1
E140N and HP-210 Probe

NOTE: If there is significant contamination, additional support should be dispatched to hospital.

4.2.14 First Aid Room should be posted for radiation and contamination present until decontamination can be performed.

4.3 Control in the Ambulance

4.3.1 Reference (Enclosure 5.1) to obtain degree of contamination present. Contamination control can be determined with the use of this information.

4.3.2 Ensure that ambulance personnel are adequately dressed for degree of contamination present.

4.3.3 Provide polyethylene bag for disposal of all items coming in contact with the victim and return to Catawba Nuclear Station for decontamination or disposal.

4.3.4 Upon arrival at hospital, secure bags appropriately.

4.3.5 Instruct ambulance personnel in proper Health Physics practices while involved in treating the contaminated injured individual.

4.3.6 Upon victims transfer from ambulance to hospital, see that all doors and windows of ambulance are secured and post as a potentially contaminated area until further monitoring can be performed.

4.4 Control During Initial Treatment In Hospital

4.4.1 Ensures that all personnel in the treatment area are wearing proper dosimetry, and that dosimetry has been properly labeled and that dose cards have been filled out before returning them to Health Physics for evaluation.

4.4.2 Control or minimize spread of contamination when entering facility as not to hinder access to emergency room in regards to non-radiological patients and personnel.

4.4.2.1 RCZ should be set up in accordance with Reference 2.1 at the entrance of the treatment area.

4.4.2.2 Ensure that floor covering is taped to the floor of the treatment area.

4.4.2.3 Ensure that ventilation ducts in the treatment area are secured by taping a covering over them.

4.4.3 Control or minimize spread of contamination in regards to treatment.

4.4.3.1 Monitor personnel and equipment leaving the treatment area.

4.4.3.2 Ensure that all personnel in the treatment area are wearing anti-contamination clothing appropriate for the levels of contamination present and that diagnostic equipment is properly covered.

4.4.3.3 Prepare sufficient facilities for the storage of contaminated waste generated during treatment.

4.4.4 During treatment, depending on urgency of treatment, instruct hospital personnel in proper Health Physics practices by radiological advisement and assessment.

NOTE: Do not interfere with treatment.

4.4.5 After treatment, monitor room and equipment. If contaminated, initiate decontamination. This procedure involves proper wrapping and tagging of materials. Transportation of contaminated materials should be a consideration.

5.0 <u>ENCLOSURES</u>

5.1 Sample of Personnel Contamination and Decontamination Survey Sheet

INVESTIGATION OF PERSONNEL CONTAMINATION
(CONTAMINATION/DECONTAMINATION SURVEY SHEET)

Date ______________

Date and Time of Contamination ______________

Name of Individual ______________ HP Badge Number ______________

Individual's Supervisor ______________ Work Group ______________

Job Description (RWP/SRWP) ______________

____

____

Cause of Personnel Contamination ______________

____

____

Check and answer in the space below: ( ) Action recommended to prevent a recurrence of Personnel Contamination.

( ) Decontamination Method used in decontamination of Personnel.

____

____

____

____

____

Use additional sheets as necessary.

Use the reverse for recording contamination levels on Personnel. Use additional sheets as necessary during decontamination of Personnel.

HP Instruments Used: Type ______ Number ______ EF./F ______
Type ______ Number ______ EF./F. ______
Type ______ Number ______ EF./F. ______

Initial contamination survey performed by ______________

Decontamination completed by ______________

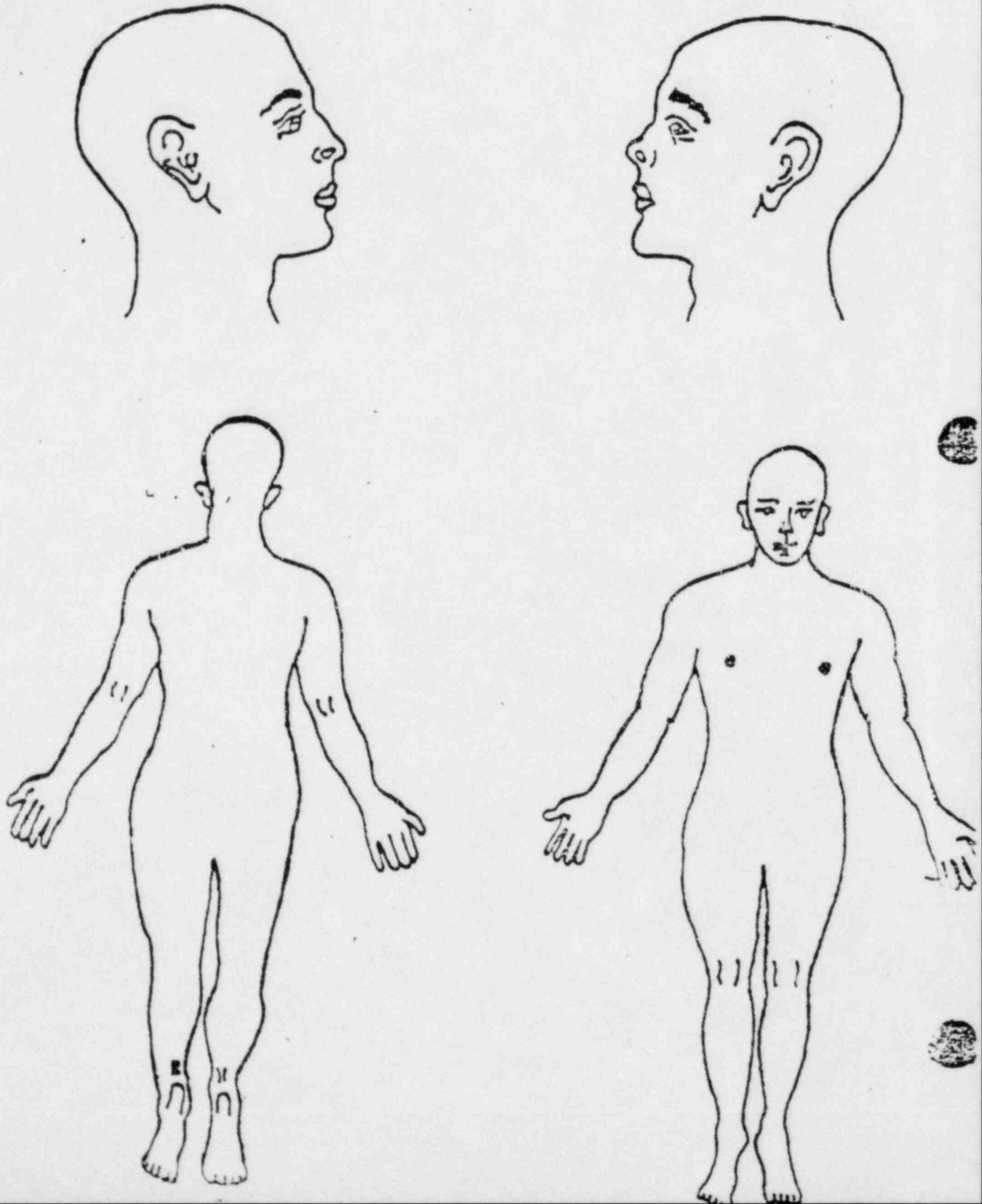
Supervisor ______________

PERSONNEL CONTAMINATION/DECONTAMINATION SURVEY SHEET

All readings should be recorded as corrected counts per minute (ccpm) or millirem per (mrem/hr). Subtract Background before recording as (ccpm or mrem/hr)

General Area Background: cpm ________

mrem/hr ________



Form SPD-1002-1

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: HP/0/B/1009/09
Change(s) 0 to
2.0 Incorporated

(2) STATION: Catawba

(3) PROCEDURE TITLE: Guidelines For Accident and Emergency Response

(4) PREPARED BY: Gerald T. Mode DATE: 1-23-84

(5) REVIEWED BY: R. Clemmons DATE: 1-23-84

Cross-Disciplinary Review By: ME Bolch N/R:

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ____________ (SRO) Date: ____________

By: ____________ Date: ____________

(7) APPROVED BY: J. W. Cox/wgd Date: 1-24-84

(8) MISCELLANEOUS:

Reviewed/Approved By: ____________ Date: ____________

Reviewed/Approved By: ____________ Date: ____________

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
GUIDELINES FOR ACCIDENT
AND EMERGENCY RESPONSE

1.0 PURPOSE

1.1 To provide guidance for notification/activation of the Health Physics Organization in the event of an emergency situation.

1.2 To assure proper assignment of responsibility.

1.3 To give general guidance for initial response of the Health Physics organization.

1.4 To give general guidance for continuing response of the Health Physics organization.

2.0 REFERENCES

2.1 Catawba Nuclear Station Emergency Plan.

2.2 HP/0/B/1009/04, Environmental Monitoring for Emergency Conditions Within the Ten Mile Radius of Catawba Nuclear Station

2.3 HP/0/B/1009/05, Personnel Monitoring for Emergency Conditions.

2.4 HP/0/B/1009/06, Alternative Method for Determining Dose Rate Within the Reactor Building.

2.5 HP/0/B/1009/07, In-plant Particulate and Iodine Monitoring Under Accident Conditions.

2.6 HP/0/B/1009/08, Contamination Control During Transportation of Contaminated Injured Individuals.

2.7 HP/0/B/1009/10, Body Burden Analysis Following Suspected Uptakes of Mixed Fission or Activation Products.

2.8 HP/0/1009/12, Quantifying Gaseous Releases Through Steam Relief Valves Under Post-Accident Conditions.

2.9 HP/0/B/1009/13, Off-Site Dose Projection - Uncontrolled Release of Radioactive Material Through the Unit Vent.

2.10 HP/0/B/1009/14, Off-Site Dose Projection - Uncontrolled Release of Liquid Radioactive Material.

2.11 HP/0/B/1009/15, Off-Site Dose Projection - Uncontrolled Release of Gaseous Radioactive Material Other Than Through the Unit Vent.

2.12 HP/0/B/1009/16, Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release.

2.13 HP/0/B/1009/17, Nuclear Post Accident Containment Air System Operation.

2.14 HP/0/B/1009/19, Emergency Radio System Operations, Maintenance, and Communications.

2.15 System Health Physics Manual

2.16 Catawba Nuclear Station, Station Directive 3.8.4, Onsite Emergency Organization

3.0 LIMITS AND PRECAUTIONS

3.1 This procedure shall only be initiated at the direction of Health Physics Supervision.

3.2 This procedure may be initiated in part or whole, depending on the type and severity of emergency.

3.3 This procedure provides general guidance for initial response. Any particular situation may require actions not addressed in this procedure.

3.4 For incidents occurring during backshifts, Health Physics shift personnel shall be responsible for on-site response only until directed otherwise by the Station Health Physicist.

4.0 PROCEDURE

4.1 Upon notification of an emergency condition, the Station Health Physicist shall activate the Health Physics organization by notifying one or all of the following:

4.1.1 Surveillance and Control Coordinator.

4.1.2 Support Functions Coordinator.

4.1.3 Staff Coordinator.

4.1.4 Shift Technician (To advise, if during back shift).

4.2 Individual coordinators will notify alternates and supervisors to be under their direction during the emergency, and will make arrangements through the supervisors for the notification of non-exempt personnel.

4.3 If the emergency is classified above the Notification of Unusual Event category, the Station Health Physicist shall proceed to the Technical Support Center (TSC), and coordinate the overall Health Physics response. Enclosures 5.2 and 5.3 provide general guidelines for response.

4.4 When notified to respond to an emergency, the Surveillance and Control Coordinator shall assume alternate responsibility for the Station Health Physicist, and shall activate the S&C Coordinator identified in Reference 2.16 who will act according to Enclosures 5.4 and 5.5.

4.5 When notified to respond to an emergency, the Support Functions Coordinator shall assume alternate responsibility for the Station Health Physicist and shall activate the Support Functions Coordinator identified in Reference 2.16 who will act according to Enclosures 5.6 and 5.7.

4.6 When notified to respond to an emergency, the Staff Coordinator shall act according to Enclosures 5.8 and 5.9.

4.7 When notified to respond to an emergency, the Field Monitoring Coordinator shall act according to Enclosures 5.10 and 5.11.

4.8 When notified to respond to an emergency, the Operation Support Center (OSC) Supervisor shall act according to Enclosures 5.12 and 5.13.

5.0 <u>ENCLOSURES</u>

5.1 Guidelines For Planned Emergency Exposures

5.2 Station Health Physicist - Initial Response

5.3 Station Health Physicist - Continuing Response

5.4 Surveillance and Control Coordinator - Initial Response

5.5 Surveillance and Control Coordinator - Continuing Response

5.6 Support Functions Coordinator - Initial Response

5.7 Support Functions Coordinator - Continuing Response

5.8 Staff Data Analysis Coordinator - Initial Response

5.9 Staff Data Analysis Coordinator - Continuing Response

5.10 Field Monitoring Coordinator - Initial Response

5.11 Field Monitoring Coordinator - Continuing Response

5.12 OSC Supervisor - Initial Response

5.13 OSC Supervisor - Continuing Response

5.14 Reserve Personnel/Personnel Monitoring Leader Response

5.15 OSC Response Personnel Dose Record Form

5.16 Procurement of Helicopters for Aerial Environmental Surveillance

HP/0/B/1009/09
ENCLOSURE 5.1

GUIDELINES FOR PLANNED EMERGENCY EXPOSURES

1.0 Obtain the verbal or written approval of the Emergency Coordinator to exceed planned maximum limits.

2.0 If it is necessary to remedy a situation immediately hazardous to life and property, an individual (Duke Power personnel, or Outside Services) may receive exposure up to:

Whole Body	5 rems (25 rem)*
Skin of the Whole Body or Thyroid	30 rems (125 rem)*
Extremities	75 rems

* Doses up to this limit may be authorized by the Recovery Manager.

3.0 If it is necessary to save lives or prevent loss of lives and/or extensive damage to property, an individual may volunteer to receive exposure up to:

Whole Body	25 rems (75 rem)*
Skin of the Whole Body or Thyroid	150 rems
Extremities	375 rems

* Doses up to this limit may be authorized by the Recovery Manager, Station Manager or Emergency Coordinator.

4.0 If possible, the individual(s) should be selected by the following conditions:

4.1 Personnel should be volunteers or professional rescue personnel.

4.2 Personnel should be broadly familiar with the potential consequences of such exposure.

4.3 Women capable of reproduction should not take part in these actions.

4.4 All factors being equal, volunteers above the age of 45 should be selected.

5.0 Exposure shall be maintained ALARA.

6.0 Internal exposure should be minimized by the use of the best available respiratory protection, and the contamination should be controlled by the use of available protective clothing.

7.0 Exposures below the guidelines of Section 3.0 may require an occupational penalty.

8.0 Exposures above the guidelines of Section 3.0 should be authorized by the Recovery Manager, Station Manager or Emergency Coordinator and will require a medical decision as to whether the individual may continue in radiological work and should be limited to once in a lifetime.

9.0 Planned emergency doses shall be recorded, estimated if necessary, and included in the individual's exposure history record.

10.0 Reports of planned emergency exposures shall be reported as per Catawba Nuclear Station Directive 2.8.1 (Reporting Requirements).

HP/0/B/1009/09
ENCLOSURE 5.2
STATION HEALTH PHYSICIST
INITIAL RESPONSE

5.2.1 Assemble supporting materials and take to TSC.

5.2.2 The Station Health Physicist shall as necessary:

5.2.2.1 Establish the exposure limit for blanket dose extension, for Exposure Class 1 to a maximum of 1000 mRem/qtr; for Exposure Class 3 to a maximum of 2500 mRem; for Exposure Class 2 personnel (pregnant females) they shall not be extended above their weekly limit, and should be reassigned to work locations in the Administration Building until radiation levels are evaluated.

5.2.2.2 Govern planned emergency exposures by Enclosure 5.1 (Guidelines For Planned Emergency Exposures).

5.2.2.3 Coordinate the overall Health Physics response.

5.2.2.4 Recommend protective action on-site for assembled personnel and those with work duties.

5.2.2.5 Recommend off-site protective action to the Emergency Coordinator until the CMC (Crisis Management Center) is activated.

5.2.2.6 Initiate, as necessary, HP/0/B/1009/16, Distribution of Potassium Iodide Tablet in the Event of a Radioactive Release.

HP/0/B/1009/09
ENCLOSURE 5.3
STATION HEALTH PHYSICIST
CONTINUING RESPONSE

5.3.1 Interface with the CMC when it is activated.

5.3.2 Coordinate Health Physics shift rotation and augmentation of personnel and equipment.

5.3.3 Should evacuation be required; coordinate the identification of "Non-Essential" personnel with other TSC groups.

5.3.3.1 All females should be given first consideration due to limited use in a radiological exposure situation.

5.3.3.2 Sufficient personnel should be retained to support need for backup personnel.

5.3.4 Direct trending of available information to support Health Physics TSC response.

5.3.5 When CMC is in place, continue Protective Action assessment and recommendations as a confirming response.

HP/0/B/1009/09
ENCLOSURE 5.4
SURVEILLANCE AND CONTROL COORDINATOR
INITIAL RESPONSE

5.4.1 Assemble supporting materials and take to TSC.

5.4.2 Establish radiological access controls for the Station and Control Room.

5.4.2.1 Initiate, as necessary, HP/0/B/1009/07, In-Plant Particulate and Iodine Monitoring Under Accident Conditions.

5.4.2.2 Initiate, as necessary, HP/0/B/1009/08, Contamination Control During Transportation of Contaminated Injured Individuals.

5.4.2.3 Initiate discussions by need for Buddy System for radiological conditions.

5.4.3 If the emergency is classified above the Notification of Unusual Event category:

5.4.3.1 Send the following personnel as necessary to the Operations Support Center (OSC):

5.4.3.1.1 One Supervisor to coordinate Health Physics support and communicate with the TSC and shall act according to Enclosures 5.12 and 5.13.

5.4.3.1.2 One Technician to provide job coverage (sampling, operation maintenance, etc.).

5.4.3.1.3 Two Technicians to monitor and report plant radiological status.

5.4.3.1.4 Two Technicians to provide fire/medical emergency/rescue team/damage control coverage.

5.4.3.1.5 Direct sufficient personnel to the Administration Building, DRC office, as staging area.

5.4.3.2 Identify a Supervisor or Lead Technician to Reserve Personnel/Personnel Monitoring Leader and he/she shall act according to Enclosure 5.14.

5.4.3.3 Proceed to the TSC and coordinate Surveillance and Control response, with emphasis upon OSC activities.

5.4.3.4 Request TSC Security staff to provide locations of officers remaining on post. Evaluate exposure potential for these officers and recommend protective actions as necessary.

HP/0/B/1009/09
ENCLOSURE 5.5
SURVEILLANCE AND CONTROL COORDINATOR
CONTINUING RESPONSE

5.5.1 The S&C Coordinator shall, as necessary:

5.5.1.1 Initiate through RP/PM Leader HP/0/B/1009/05, Personnel Monitoring for Emergency Conditions, when a site assembly occurs due to radiological conditions.

5.5.1.2 Initiate, as necessary, HP/0/B/1009/17, Nuclear Post Accident Containment Air Systems Operation.

5.5.2 Provide direction and support to the OSC Health Physics Supervisor:

5.5.2.1 Coordinate in-plant and on-site monitoring in support of TSC needs.

5.5.2.2 Keep OSC Supervisor appraised of TSC events and activities that may require OSC response (planned maintenance, operation, sampling).

5.5.2.3 Coordinate with OSC and TSC groups to ensure adequate pre-planning occurs to limit radiation exposures.

5.5.2.4 Obtain additional emergency kit items and supplies to support OSC if needed.

5.5.3 Monitor dose rate in TSC. Initiate discussion with Station Health Physicist on the need to evaluate the TSC should dose rate exceed 5 mR/hr and be expected to continue.

HP/0/B/1009/09
ENCLOSURE 5.6
SUPPORT FUNCTIONS COORDINATOR
INITIAL RESPONSE

5.6.1 Assemble supporting materials and take to TSC.

5.6.2 Evaluate the need to establish an alternate location for sample analysis.

5.6.3 Establish a count room sample priority list if emergency radiological sampling is in progress or is going to begin.

5.6.4 Initiate, as necessary, HP/0/B/1009/10, Body Burden Analysis Following Suspected Uptake of Mixed Fission or Activation Products.

5.6.5 If the emergency is classified above the Notification of Unusual Event category:

5.6.5.1 Establish alternate dosimetry issue points for personnel and high range dosimetry, as necessary.

5.6.5.2 Issue blanket dose extensions for OSC personnel, to the limit established by the Station Health Physicist.

5.6.5.3 Provide representatives from Dosimetry and Records Control in the OSC to: -

5.6.5.3.1 Record the following information on the OSC Response Personnel Dose Record Form (Sample Enclosure 5.14) as emergency response personnel enter the OSC.

5.6.5.3.1.1 Name

5.6.5.3.1.2 Health Physics Badge Numbers

5.6.5.3.1.3 Social Security Number

5.6.5.3.1.4 Birthdate

5.6.5.3.1.5 Age

5.6.5.3.1.6 Exposure Class

5.6.5.3.1.7 Work Group

5.6.5.3.1.8 Quarterly and yearly dose to date

5.6.5.3.1.9 Permissible lifetime dose

5.6.5.3.1.10 Total lifetime dose to date

NOTE: This may be obtained at the first available opportunity.

5.6.5.3.2 As personnel return to OSC from entering a radiation field, dosimeters shall be checked for rezeroing and the following information recorded on the OSC Response Personnel Dose Record Form (Sample Enclosure 5.14):

5.6.5.3.2.1 Date, Time

5.6.5.3.2.2 Dosimeter Reading

5.6.5.3.2.3 Retotal of quarterly dose.

5.6.5.4 Proceed to the TSC and coordinate Support Function Response.

HP/0/B/1009/09
ENCLOSURE 5.7
SUPPORT FUNCTIONS COORDINATOR
CONTINUING RESPONSE

5.7.1 Ensure collection and retention of collected samples is adequate to reconstruct data following the emergency.

5.7.2 Acquire additional anti-contamination clothing, dosimetry, respiratory or monitoring equipment from:

- Existing Station Stock
- CMC Admin and Logistics Groups

5.7.3 Direct implementation of HP/0/B/1001/12, Technical Specification Gaseous Waste Sampling and Analysis as necessary to collect containment and unit vent samples.

- All sampling will be coordinated with OSC Health Physics personnel to determine habitability and RWP requirements.

5.7.4 Retrieve radiation instrumentation from Instrument Issue area and stage in DRC office.

HP/0/B/1009/09
ENCLOSURE 5.8
STAFF (DATA ANALYSIS) COORDINATOR
INITIAL RESPONSE

5.8.1 Assemble supporting materials and take to TSC.

5.8.2 Initiate the following procedures as necessary.

5.8.2.1 HP/0/B/1009/13, Off-Site Dose Projection - Uncontrolled Release of Radioactive Material through the Unit Vent.

5.8.2.2 HP/0/B/1009/14, Off-Site Dose Projection - Uncontrolled Release of Liquid Radioactive Material.

5.8.2.3 HP/0/B/1009/15, Off-Site Dose Projection - Uncontrolled Release of Gaseous Radioactive Material other than through the Unit Vent.

5.8.3 Assume the duties of the Data Analysis Coordinator if the emergency is classified above the Notification of Unusual Event Category and:

5.8.3.1 Proceed to the TSC.

5.8.3.2 Initiate activation of the Field Monitoring Organization by notifying the Field Monitoring Coordinator to respond according to Enclosure 5.10 and 5.11.

5.8.3.3 Initiate the following procedures as necessary:

5.8.3.3.1 HP/0/B/1009/06, Alternate Methods for Determining Dose Rates Within the Reactor Building.

5.8.3.3.2 HP/0/B/1009/12, Quantifying Gaseous Release through Steam Relief Valves Under Post-Accident Conditions.

5.8.3.4 Provide special evaluation in areas such as shielding, off-site consquences of a containment loss or steam generator tube rupture, BBA, etc.

HP/0/B/1009/09
ENCLOSURE 5.9
STAFF (DATA ANALYSIS) COORDINATOR
CONTINUING RESPONSE

5.9.1 Evaluate the need to recalculate dose projections based upon:

5.9.1.1 Known changes in meterological status (wind speed, wind direction, ΔT, percipitation).

5.9.1.2 Known changes in EMF readings.

5.9.1.3 Projected change in meterological conditions.

5.9.2 Evaluate total effect of dose projections when making multiple releases (containment, vent releases, etc.).

5.9.3 Evaluate total effect of dose projections when releases are expected to continue for longer than two hours, or to otherwise be effected by extended evacuation times.

HP/0/B/1009/09
ENCLOSURE 5.10
FIELD MONITORING COORDINATOR
INITIAL RESPONSE

5.10.1 Assemble supporting materials and take to TSC.

5.10.1 Initial Response

5.10.2.1 Activate the field monitoring organization by:

5.10.2.1.1 Notifying the TSC Radio Operator to report to the TSC and initiate HP/0/B/1009/19, Emergency Radio Operations, Maintenance and Communications.

5.10.2.1.2 Selecting nine (9) Catawba Nuclear Station Field Monitoring Team (FMT) members to be organized as follows:

Team Call Sign	Number of Members	Transportation
Alpha	2	Land Vehicle
Bravo	2	Land Vehicle
Charlie	2	Land Vehicle
Delta	2	Land Vehicle
Echo	1	Helicopter

5.10.2.1.3 Instruct FMT's to complete checkout steps from HP/0/B/1009/04, Environmental Monitoring for Emergency Conditions Within the Ten Mile Radius of Catawba Nuclear Station.

5.10.2.2 Obtain plant radiological status and evaluate the potential or existence of an off-site release of radioactive material (liquid or gaseous).

5.10.2.3 Obtain meterological information and determine initial sample direction.

5.10.2.4 Determine the need for aerial environmental surveillance based on plant radiological status and meterological information.

5.10.2.4.1 If immediately needed, obtain helicopter support per Enclosure 5.15, Procurement of Helicopters for Aerial Environmental Surveillance.

5.10.2.4.2 If the possibility exist for future need, put helicopter support on standby per Enclosure 5.15.

5.10.2.5 Proceed to the TSC.

HP/0/B/1009/09
ENCLOSURE 5.11
FIELD MONITORING COORDINATOR
CONTINUING RESPONSE

5.11.1 Continuing Response

5.11.1.1 Dispatch FMT's based on plant radiological status and meterological information to sample locations listed in HP/0/B/1009/04.

5.11.1.1.1 Plume location strategy should be to send FMT's back and forth across sectors to locate the plume. Only after the plume is located should detailed field monitoring begin.

5.11.1.2 Direct and implement field monitoring strategies by:

5.11.1.2.1 Reviewing plant radiological status, field data and meterological information approximately every 15 minutes for changes which might affect field monitoring strategies.

5.11.1.2.2 Directing FMT's to monitor locations.

5.11.1.2.3 Instructing FMT's to take, as needed, special samples per HP/0/B/1009/04.

5.11.1.3 Advise the Data Analysis Coordinator to field monitoring results.

5.11.1.4 Maintain an up-to-date 10 mile radius map by:

5.11.1.4.1 Posting current FTM locations.

5.11.1.4.2 Posting latest instrument survey results for each monitoring location.

5.11.1.4.3 Illustrating approximate plume shape and location.

5.11.1.5 Maintain an organized file of all sample results/data generated from FMT activities.

5.11.1.6 Maintain FMT equipment and supplies including protective clothing, liquid nitrogen, etc.; and schedule shift coverage.

5.11.2 CMC Turnover

5.11.2.1 Once CMC is established, coordinate turnover of FMT's to CMC control.

5.11.2.2 Turnover of TSC FMT's to CMC Control shall occur at the intersection of SC 274 and SC 49. Should plume location interfere, alternate turnover location may be established.

5.11.2.3 Once CMC has assumed control of FMT's, notify the Data Analysis Coordinator and dissolve TSC field monitoring organization.

OPERATION SUPPORT CENTER
HEALTH PHYSICS SUPERVISOR - INITIAL RESPONSE

5.12.1 Assemble supporting materials and take to OSC.

5.12.2 Contact OSC Operation Supervisor and coordinate Health Physics support for OSC activities. Assist in implementation of RP/0/B/5000/12.

5.12.3 Provide immediate job coverage as necessary. Give due consideration to the fact that plant conditions may be unstable and radiological conditions unknown.

5.12.4 Provide immediate Health Physics coverage as necessary to support Fire Brigade, damage control, medical emergency and other emergency activities.

5.12.5 Direct technicians to obtain preliminary radiological information available in Control Room.

5.12.5.1 Emphasis should be placed upon determining the areas of the plant experiencing increasing radiation levels.

5.12.6 Based upon initial Control Room indications, direct technicians to monitor and report radiological status which will support OSC activities.

5.12.7 Establish control over all OSC personnel radiation exposure and limit to blanket dose extension levels.

5.12.7.1 All activities which cause these levels to be approached or exceeded, require pre-planning and coordination with TSC S&C Coordinator.

5.12.8 Direct assignment of additional dosimetry to provide adequate monitoring for the conditions expected.

5.12.9 Direct the use of protective clothing to limit the spread of contamination consistent with the conditions expected.

5.12.10 Obtain additional instrumentation to support OSC activities (Teletector, neutron instrument alpha instrument, friskers), if necessary.

5.2.11 Require each exit from OSC to Auxiliary Building be preceeded by a briefing on task to be done and radiological conditions expected when applicable.

5.2.12 Coordinate Health Physics activities for assessment and repair teams in accordance with RP/0/B/5000/12.

5.2.13 Post blanket dose extension valves.

HP/0/B/1009/09
ENCLOSURE 5.13
OPERATION SUPPORT CENTER
HEALTH PHYSICS SUPERVISOR - CONTINUING RESPONSE

5.13.1 Maintain routine contact with TSC S&C Coordinator to provide update on OSC activities and to receive plant status reports.

5.13.2 Obtain thru S&C Functions Coordinator additional dosimetry/protective clothing/emergency kit items necessary to support OSC activities.

5.13.3 Coordinate OSC activities requiring pre-planning.

5.13.3.1 Emphasis should be placed upon:

- Dosimetry (Whole Body & Extremities)
- Protective Clothing
- Route to and from task
- Respiratory equipment
- Need for Buddy System because of safety hazard (radiological and non-radiological)
- Establishing dose limits and/or dose rate considerations for high exposure jobs on unknown situations
- Communications equipment
- Additional monitoring instrumentation

5.13.4 Monitor dose rate in OSC. Should General Area reach 5 mR/hr., initiate discussion with S&C Coordinator on the need to evacuate the OSC, should dose rate be expected to continue.

5.13.5 All RE-ENTRY efforts should consider the special problems that may exist:

- High gamma fields
- Increased Beta fields
- High Contamination levels
- High airborne rad levels

HP/0/B/1009/09
ENCLOSURE 5.14
RESERVE PERSONNEL/PERSONNEL MONITORING LEADER

5.14.1 Assemble all Health Physics personnel not initially required for emergency response. Non essential personnel should be evaluated for use in the emergency.

5.14.2 Identify personnel and/or personnel monitoring teams for the following locations.

5.14.2.1 All on-site assembly areas are identified in Station Directive 3.0.7.

5.14.2.2 PAP Area.

5.14.2.3 Construction Personnel Exit Area (Brass Gate).

5.14.2.4 Evacuation Facility (Alpha or Bravo). Two monitoring teams if both location are used.

5.14.3 Initiate, as necessary, HP/0/B/1009/05, Personnel Monitoring for Emergency Conditions.

5.14.4 Initiate random monitoring of vehicles located in the upper and lower parking lots starting with vehicles nearest the affected unit. The monitoring team identified in Step 5.14.2.4 should be used for this purpose.

5.14.5 Coordinate with the TSC Surveillance and Control Coordinator on relocating personnel monitoring teams if background radiation renders normal monitoring locations unfit.

5.14.6 Supervise Health Physics efforts at the Evacuation Facility(s) as per 2.4.

5.14.7 Provide direction to reserve Health Physics personnel:

5.14.7.1 Direct and control personnel in the staging area (DRC office in the Administration Building).

5.14.7.2 Coordinate with Surveillance and Control Coordinator to provide addition manpower, as necessary.

5.14.7.3 Coordinate with Support Functions Coordinator to provide additional manpower, as necessary.

5.14.7.4 Direct activities of Field Monitoring Teams if relieved by CMC personnel.

5.14.7.5 Begin scheduling activities for Health Physics personnel.

HP/0/B/1009/09
ENCLOSURE 5.16
PROCUREMENT OF HELICOPTERS FOR AERIAL ENVIRONMENTAL SURVEILLANCE

Inland Airways, Myrtle Beach, S.C., is under contract to Duke Power Company to furnish one helicopter upon request and an additional helicopter within six hours following notification. Once a helicoptar is requested, there is a maximum elapsed time of three hours for the helicopter to arrive at Catawba Nuclear Station or other dispatched locations.

Helicopter service is limited to daylight hours and adequate flying weather. The helicopters will hold three people, the pilot and two passengers. To perform surveys, instrumentation may limit the passenger space.

To obtain helicopter(s) for emergency service contact:

		Office	Home
1.	B. A. Turpin	704-331-4319	[redacted]
2.	L. W. Johnson	704-331-4172	[redacted]
3.	L. M. Whisonant	704-331-4173	[redacted]
4.	D. M. Staggs	704-331-4157	[redacted]

NOTE: These contacts are in Duke Power Company Transmission Dept., Line Division. The microwave extension for the office numbers is 220.

HP/0/B/1009/12
QUANTIFYING GASEOUS RELEASE THROUGH STEAM RELIEF VALVES UNDER POST ACCIDENT CONDITIONS
(DECEMBER 1983)

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: HP/0/B/1009/13
Change(s) 0 to
1 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: OFFSITE DOSE PROJECTION - UNCONTROLLED RELEASE OF RADIOACTIVE MAT[illegible]IAL THROUGH THE UNIT VENT

(4) PREPARED BY: [illegible] DATE: 2/6/84

(5) REVIEWED BY: R.D. Kinard DATE: 2-6-84

Cross-Disciplinary Review By: ______ N/R: [illegible]

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ______ (SRO) Date: ______

By: ______ Date: ______

(7) APPROVED BY: J.W. [illegible] Date: 2/7/84

(8) MISCELLANEOUS:

Reviewed/Approved By: ______ Date: ______

Reviewed/Approved By: ______ Date: ______

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
OFFSITE DOSE PROJECTION - UNCONTROLLED RELEASE OF RADIOACTIVE MATERIAL THROUGH THE UNIT VENT

1.0 PURPOSE

This procedure describes the method for projecting the potential offsite dose following an uncontrolled release of radioactive materials through the unit vent.

2.0 REFERENCES

2.1 EPA-520/1-75-001, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents

2.2 Regulatory Guide 1.109, Calculation of Annual Doses to Man From Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10CFR50, Appendix I

2.3 Letter from Civil/Environmental Division CN-1108.1, 1434.00, 1227.00 Atmospheric Dispersion Factor for Emergency Planning

2.4 Regulatory Guide 1.4, Assumptions Used for Evaluating the Potential Radiological Consequences of a Loss of Coolant Accident for Pressurized Water Reactors

3.0 LIMITS AND PRECAUTIONS

3.1 Use actual sample data when possible. Radiation monitor readings are susceptible to several sources of error. When radiation monitor readings are used for downwind concentrations, note this in the report of offsite dose assessment.

3.2 Environmental data should be collected and analyzed to verify these calculations. This procedure considers all releases to be ground level releases.

3.3 This procedure applies to releases made from Catawba Nuclear Station only. Many of the values contained in this procedure are site specific.

4.0 PROCEDURE

4.1 Obtain the following information from the Control Room and record it on Enclosure 5.1 (Vent Release Data Sheet).

4.1.1 Time of reactor trip.

4.1.2 Lower tower wind speed in MPH.

4.1.3 Direction from which the wind is blowing in degrees from North (Tower Wind).

4.1.4 Temperature gradient in degrees C.

4.1.5 Vent discharge flow rate in CFM.

4.1.6 Available weather forecast information.

4.2 Determine the release concentration as follows:

4.2.1 If vent sample analysis is not available, go to Step 4.2.4.

4.2.2 Obtain the following vent sample analysis results and record on Enclosure 5.1.

4.2.2.1 Date/time of sample.

4.2.2.2 Gross noble gas concentration in μCi/ml.

4.2.2.3 Iodine equivalent concentration (or data for calculation).

4.2.2.4 Gamma E-bar value in mev/dis (or data for calculation).

4.2.3 Go to Step 4.3

4.2.4 Obtain the following unit vent data and record on sample Enclosure 5.1:

4.2.3.1 Date/Time of collection.

4.2.3.2 EMF36 Low and High range readings in cpm (gas monitor).

4.2.3.3 ΔEMF37 reading in cpm (iodine monitor).

4.2.3.4 Δt in minutes for ΔEMF37 reading.

4.2.3.5 Calculate release concentrations as shown on Enclosure 5.1.

4.3 Project the impact of the release on the downwind population by using the manual calculations outlined below.

4.3.1 Determine the X/Q values for each point of interest downwind as follows.

NOTE: If no points have been requested, use the .5, 2, 5 and 10 mile values.

4.3.1.1 From Enclosure 5.2 (Table of Two-Hour Relative Concentration Factors), locate the relative two hour concentration value (CH) for each point and record on sample Enclosure 5.3 (Manual Calculation Worksheet), (Reference 2.3).

4.3.1.2 Convert these values to X/Q by,

$$X/Q = \frac{CH(MPH\text{-}Sec/m^3)}{\text{Wind Speed (MPH)}}$$

4.3.1.3 Record results on Enclosure 5.3 (Manual Calculation Worksheet).

4.3.2 Calculate the gas and iodine downwind concentrations for each point using the equation,

$$Conc_{DW} = Conc_V \cdot F_V \cdot X/Q \cdot U_{DWC}$$

where,

$Conc_{DW}$ = downwind concentration (μCi/ml)

$Conc_V$ = vent discharge concentration (μCi/ml)

F_V = vent discharge flow rate (CFM)

X/Q = dispersion factor in sec/m³

U_{DWC} = unit conversions derived from ($2.832E\text{-}2m^3/ft^3$), (0.017 min/sec) = $4.8E\text{-}4 \dfrac{m^3 \cdot min}{ft^3 \cdot sec}$

Sample Enclosure 5.3 provides work space for this calculation.

4.3.3 Determine the potential whole body gamma dose downwind using the gas concentrations calculated in 4.3.2 and the equation,

$$D_{WB} = U_G \cdot \bar{E} \cdot Conc_{DW} \cdot Time$$

where,

D_{WB} = whole body gamma dose due to submersion in a cloud of radioactive gas (rem)

U_G = unit conversion derived from,

3.7E4 (dis/sec-μCi)(1cc/1.2E-3g)

(1.602E-6 erg/MeV) (g - rem/100 ergs)

$\cdot\ 1/2 = 2.5E\text{-}1 \ \dfrac{\text{dis-rem-cm}^3}{\mu\text{Ci-sec-MeV}}$

$(2.5E\text{-}1 \ \dfrac{\text{dis-rem-cm}^3}{\mu\text{Ci-hr-Mev}})(3600 \ \dfrac{\text{sec}}{\text{hr}})$

$= 9.00\ E2 \ \dfrac{\text{dis-rem-cm}^3}{\mu\text{Ci-hr-Mev}}$

NOTE: 1/2 is the constant used (in the case of gamma radiation) when assuming that the receptor is exposed to only one-half the cloud owing to the presence of the ground, (Reference 2.4).

$Conc_{DW}$ = downwind concentration (μCi/ml)

Time = projected duration of exposure (hrs); use 2 hours unless otherwise directed.

$\bar{E}$ = average gamma energy per disintegration (Mev/dis)

NOTE: If $\bar{E}$ cannot be obtained from the sample results, the following values may be used:

Hours from Trip	$\bar{E}$ (Mev/dis)
0-12	0.40
12-48	0.20
48-∞	0.10

4.3.3.1 Record results on Enclosure 5.3.

4.3.4 Determine the potential child thyroid dose downwind using the iodine concentrations calculated in 4.3.2 and the equation,

$D_{THY} = U_I \cdot Conc_{DW} \cdot Time$

where,

D_{THY} = thyroid dose due to uptake of radioactive iodine (rem)

U_I = constants derived from a <u>child's breathing rate</u> (1.17E2 cc/sec.), I-131 dose conversion factor (4.39 E-3 mrem/pCi), and coversion of pCi to µCi (10^6), mrem to rem (10^{-3}), and hrs. to sec (3600 secs/hr) = 1.86E6 $\frac{cc \cdot Rem}{\mu ci \cdot hr}$

$Conc_{CW}$ = downwind concentration of iodine (µCi/ml)

Time = projected exposure time (hrs); use 2 hours unless otherwise directed.

4.3.4.1 Record results on sample Enclosure 5.3.

4.3.4.2 Project the adult thyroid dose by dividing the child dose by two (2).

4.3.4.3 Record results of all calculations on Enclosure 5.5 (Dose Assessment Report).

4.4 Determine he potentially affected area using the method outlined in Enclosure 5.4.

4.4.1 Record sectors on Enclosure 5.5.

4.5 Complete sample Enclosure 5.5 and submit it to the Station Health Physicist. Include any comments and information pertinent to the evaluation of offsite hazards.

4.6 Maintain a file of all worksheets and printouts used in dose calculations.

5.0 <u>ENCLOSURES</u>

5.1 Sample of Vent Release Data Sheet

5.2 Table of Two Hour Relative Concentration Factors

5.3 Sample of Manual Calculation Worksheet

5.4 Evaluation of Plume Location

5.5 Sample of Dose Assessment Report

ENCLOSURE 5.1
HP/0/B/1009/13
VENT RELEASE DATA SHEET

Unit ________ Date/time of Rx trip _______/_______

METEOROLOGICAL DATA

1) Lower Tower Wind Speed ____________________ MPH

2) Lower Tower Wind Direction From ___________ °

3) Temp. Gradient (ΔT) ________________ °C

4) Vent Flow ___________________________ CFM

5) Date/time ____________/___________

VENT SAMPLE ANALYSIS

1) Total Gas _______________ µCi/ml

2) I-131 Equiv. _____________ µCi/ml

3) Gas $\bar{E}$ _______________ Mev/dis (Gamma)

VENT MONITOR DATA

1) EMF-36L (lo range) ____________ CPM

2) EMF-36H (hi range) ____________ CPM

3) ΔEMF-37 (iodine) _____________ CPM; Δt ________________ min

CALCULATED DISCHARGE CONCENTRATION

1) Gas (Use hi readings if EMF-36H is > 100 CPM)

$$Conc_{V\text{-}low} = \frac{(\text{EMF 36L CPM})}{2.70E7 \frac{\text{CPM-ml}}{\mu\text{Ci}}} = \_\_\_\_\ \mu\text{Ci/ml, or } Conc_{V\text{-}hi} = \frac{(\text{EMF-36H CPM})}{4.0E3 \frac{\text{CPM-ml}}{\mu\text{Ci}}} =$$

_____ µCi/ml

2) Iodine

$$Conc_{V\text{-}I} = \frac{(\Delta\text{EMF-37 CPM})\ (2.4E\text{-}10)}{\Delta t} = \_\_\_\_\_\_\_\_\_\_\ \mu\text{Ci/ml}$$

ENCLOSURE 5.2
HP/0/B/1009/13
TWO-HOUR RELATIVE CONCENTRATION FACTORS (CH)

Temperature Difference (°C)	Stability Class	Distance (Miles)										
		.5	1	2	3	4	5	6	7	8	9	10
1) < - .6	A	1.4E-5	1.2E-6	5.9E-7	4.1E-7	3.2E-7	2.5E-7	2.0E-7	1.9E-7	1.8E-7	1.6E-7	1.5E-7
2) -.6 to-.5	B	1.5E-4	4.5E-5	1.3E-5	6.3E-6	3.9E-6	2.7E-6	1.9E-6	1.4E-6	1.1E-6	8.3E-7	7.8E-7
3) -0.4 to-0.2	C	3.8E-4	1.4E-4	4.9E-5	2.7E-5	1.7E-5	1.2E-5	9.2E-6	7.3E-6	6.0E-6	5.0E-6	4.3E-6
4) -0.1 to+.4	D	6.9E-4	2.5E-4	9.6E-5	5.5E-5	3.5E-5	2.5E-5	2.0E-5	1.6E-5	1.3E-5	1.1E-5	9.7E-6
5) +.5 to +1.2	E	1.1E-3	5.1E-4	2.0E-4	1.2E-4	8.2E-5	6.3E-5	5.1E-5	4.3E-5	3.8E-5	3.3E-5	3.0E-5
6) > 1.2	F	1.8E-3	1.1E-3	4.3E-4	2.7E-4	2.0E-4	1.7E-4	1.3E-4	1.2E-4	8.6E-5	7.8E-5	7.3E-5

From other sources of meteorological data (Section 4.1) use the wind speed and time of day to determine which row of CH values to use:

Time of Day	Wind Speed	Row #
10:00 A.M. - 4:00 P.M.	N/A	3
4:00 P.M. - 10:00 A.M.	> 15 MPH	4
4:00 P.M. - 10:00 A.M.	≤ 15 MPH	6

ENCLOSURE 5.3
HP/0/B/1009/13
MANUAL CALCULATION WORKSHEET

) Discharge Concentration ($Conc_V$):

Gas= ______________ µci/ml

Iodine = ______________ µci/ml

2) Vent Discharge Flow Rate:

F_V = ______________ CFM

3) Wind Speed:

______ MPH

) Two Hour Relative Conc. Factors

(CH = sec-mph/m^3 X/Q = CH/mph = sec/m^3)

@ ____ Mi CH = ______________; X/Q = ______________ Sec/m^3

@ ____ Mi CH = ______________; X/Q = ______________ Sec/m^3

@ ____ Mi CH = ______________; X/Q = ______________ Sec/m^3

@ ____ Mi CH = ______________; X/Q = ______________ Sec/m^3

5) Downwind Concentrations

$Conc_{DW} = Conc_V \cdot F_V \cdot X/Q \cdot (4.8E\text{-}4 \frac{m^3 \cdot min}{ft^3 \cdot sec})$

A) Gas

$Conc_{DW}$ = ______________ µCi/ml

$Conc_{DW}$ = ______________ µCi/ml

$Conc_{DW}$ = ______________ µCi/ml

$Conc_{DW}$ = ______________ µCi/ml

B) Iodine

$Conc_{DW}$ = ______________ µCi/m

$Conc_{DW}$ = ______________ µCi/m

$Conc_{DW}$ = ______________ µCi/m

$Conc_{DW}$ = ______________ µCi/m

Time = ______________ hours

@ ______________ Mi

@ ______________ Mi

@ ______________ Mi

@ ______________ Mi

6) Potential Whole Body Gamma Dose;

$D_{WB} = (9.00E2) \cdot Conc_{DW} \cdot \bar{E} \cdot Time$

$\bar{E}$ = ______________ Mev/dis

D_{WB} = ______________ Rem

D_{WB} = ______________ Rem

D_{WB} = ______________ Rem

D_{WB} = ______________ Rem

7) Potential Child Thyroid Dose;

$D_{THY} = (1.86E6) \cdot Conc_{DW} \cdot Time$

D_{THY} = ______________ Rem

D_{THY} = ______________ Rem

D_{THY} = ______________ Rem

D_{THY} = ______________ Rem

ENCLOSURE 5.4
HP/0/B/1009/13
EVALUATION OF PLUME LOCATION

1. Acquire the following information from Enclosure 5.1 and record on Enclosure 5.5.

   a) wind direction in degrees from north

   b) wind speed (mph)

   c) ΔT (°C)

   d) Stability Class

   e) thyroid and whole body doses

2. Protective action guides submitted to the Station Health Physicist are to be made based on the calculated dose on Enclosure 5.1 and the following information.

   a) For doses:

      > 5 Rem Whole Body or,

      > 25 Rem Thyroid

      Recommend Evacuation of Population in Affected Area.

   B) For doses:

      1-5 Rem Whole Body or,

      5-25 Rem Thyroid

      Recommend evacuation of children and pregnant women, and sheltering of remainder of personnel in the affected area.

   C) For doses:

      < 1 Rem Whole Body or,

      < 5 Rem Thyroid

      Recommend no action.

3. Determine the affected zones, based on wind direction and wind speed, with the following tables.

Table 3.1 0-2 Mile Affected Zones

Wind Direction	Affected Zone
0° - 360°	AO

ENCLOSURE 5.4
HP/0/B/1009/13
EVALUATION OF PLUME LOCATION

Table 3.2 2-5 Mile Affected Zones

Wind Speed < 5 mph		Wind Speed > 5 mph	
Wind Direction	Affected Zones	Wind Direction	Affected Zones
0° - 360°	A1,B1,C1,D1,E1,F1	0.1° - 22°	C1, D1
		22.1° - 73°	C1, D1, E1
		73.1° - 108°	C1, D1, E1, F1
		108.1° - 120°	D1, E1, F1
		120.1° - 159°	E1, F1
		159.1° - 207°	E1, F1, A1
		207.1° - 247°	F1, A1, B1
		247.1° - 265°	A1, B1
		265.1° - 298°	A1, B1, C1
		298.1° - 338°	B1, C1
		338.1° - 360°	B1, C1, D1

Table 3.3 5-10 Mile Affected Zones

Wind Direction	Affected Zones
0.1° - 27°	C2, D2
27.1° - 69°	C2, D2, E2
69.1° - 95°	D2, E2, F2
95.1° - 132°	D2, E2, F2, F3
132.1° - 144°	E2, F2, F3
144.1° - 160°	E2, F2, F3, A2
160.1° - 201°	F2, F3, A2
201.1° - 229°	F2, F3, A2, B2
229.1° - 249°	F3, A2, B2
249.1° - 259°	A2, A3, B2
259.1° - 290°	A2, A3, B2, C2
290.1° - 304°	A3, B2, C2
304.1° - 333°	B2, C2
333.1° - 360°	B2, C2, D2

4. Record sectors requiring protective action on Sample Enclosure 5.5 along with the recommended protective action.

Duke Power Company Crisis Management Plan Off-Site Dose Report - Catawba

Prepared By ________________ Date/Time _____/_____ Emergency Drill (Circle One)

Meteorology

Wind Speed	________	MPH
Wind Direction	________	Degrees from North
Vertical Temp. Diff.	________	Degrees C/100ft.
Stability Class (Circle One)		A B C D E F E

Source Term

	Time	Noble Gas		1-31 ea.	
Containment Rad. Monitor	________	________	R/hr.	________	R/hr
Containment Sample	________	________	µCi/ml	________	µCi/ml
Unit Vent (Sample or EMF)	________	________	µCi/ml	________	µCi/ml
Curie Release Rate	________	________	Ci/sec	________	Ci/sec

Corresponds to:
_____ LOCA _____ LOCA through filter
_____ Core Damage _____ Core Damage through filter
_____ Tube rupture _____ Gas Decay Tank
_____ New Fuel _____ Old fuel _____ Other

Dose Projections

		.5 mi	2 mi	5 mi	10 mi
2 hr Dose (rem) based on Containment release @ ________ ml/hr	Whole Body	______	______	______	______
	Child thyroid	______	______	______	______
2 hr Dose (rem) based on Unit Vent release @ ________ cfm	Whole Body	______	______	______	______
	Child thyroid	______	______	______	______
2 hr Dose (rem) based on Steam release @ ________	Whole Body	______	______	______	______
	Child thyroid	______	______	______	______
2 hr Dose (rem) based on ______ release @ ________	Whole Body	______	______	______	______
	Child thyroid	______	______	______	______

Field Monitoring Data

Location	Distance (mi)	Direction	Dose Rate (mrem/hr) Whole Body	Dose Rate (mrem/hr) Child Thyroid	Contamination (dpm/100 cm2)
______	______	______	______	______	______
______	______	______	______	______	______
______	______	______	______	______	______
______	______	______	______	______	______

Affected Zones (Circle Zones)	0-2 mi	2-5 mi	5-10 mi	9-10 mi
	A0	A1 B1 C1 D1 E1 F1	A2 B2 C2 D2 E2 F2	A3 F3

Comments: ____

XC: Data Analysis Coordinator, Station Health Physicist

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: HP/0/B/1009/14
Change(s) 0 to
0 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: HEALTH PHYSICS ACTIONS FOLLOWING AN UNCONTROLLED RELEASE OF LIQUID RADIOACTIVE MATERIAL

(4) PREPARED BY: Phillip N McClain DATE: 2/6/84

(5) REVIEWED BY: R. D. Kenold DATE: 2-6-84

Cross-Disciplinary Review By: ______ N/R: David Z. Mock

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ______ (SRO) Date: ______

By: ______ Date: ______

(7) APPROVED BY: JW Cox Date: 2/7/84

(8) MISCELLANEOUS:

Reviewed/Approved By: ______ Date: ______

Reviewed/Approved By: ______ Date: ______

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HEALTH PHYSICS ACTIONS FOLLOWING AN
UNCONTROLLED RELEASE OF LIQUID RADIOACTIVE MATERIAL

1.0 PURPOSE

This procedure describes the methods to be used for calculating the radionuclide concentration at area water intakes following an uncontrolled release of liquid radioactive material, and the subsequent actions to be taken when the concentration exceeds Technical Specifications.

2.0 REFERENCES

2.1 HP/0/B/1009/04, Environmental Monitoring for Emergency Conditions Within the Ten Mile Radius of Catawba Nuclear Station

2.2 Control Room Unit Data Book

2.3 10CFR20, Appendix B, Table II, Column 2

2.4 CNS FSAR Sections 2, 11, 12 and 15

2.5 CNS Technical Specifications Sections 3/4.3, 3/4.11 and 5.0

2.6 Letter to Master File CN-1227.00 Dilution Factor - Rock Hil' Intake from Design Engineering dated February 23, 1983

2.7 CNS Emergency Plan

3.0 LIMITS AND PRECAUTIONS

3.1 The full implementation of this procedure should be used in emergency situations that could result in the contamination and possible shutdown of area water supply intakes.

3.2 Full implementation of the protective actions in this procedure require station management authorization.

3.3 This procedure is for use under abnormal conditions and results in conservative recommendations. Care must be exercised to ensure only appropriate actions are taken.

3.4 Conservatism exists in the calculations utilized in this procedure and includes, but is not limited to:

3.4.1 Decay

3.4.2 Dilution factor

3.5 Transit time from CNS to the nearest municipal water intake is reduced from three days to one-half day under extreme meteorological conditions (Ref CNS FSAR 2.4.12).

4.0 PROCEDURE

4.1 Health Physics will determine concentration of effluent released from site boundary by the following method(s):

4.1.1 Determine effluent concentration from EMF-49 if possible. Concentration may be determined from analysis of sample drawn directly from EMF sample tap, if necessary.

NOTE: Conversion graph for EMF data from CPM to uCi/ml located in Control Room Unit Data Book.

4.1.2 Determine effluent concentration from volume and activity if release is made from other than through Waste Liquid System, if possible.

4.1.3 Collect representative sample from Environmental Sampling Pier (Location Site #A0 1 46) at Station Service Water Discharge Canal and analyze sample for concentration.

4.1.4 Should utilize most restrictive (highest) concentration from applicable procedure Steps 4.1.1, 4.1.2, 4.1.3 above.

4.2 Determine the potential for contamination of area water supplies using Enclosure 5.1 (Transit Time/Radionuclide Concentration Calculations) and sampling data from Health Physics.

4.3 If data indicates that a release made through the Station Service Water Discharge Canal to Lake Wylie will exceed 10CFR20, Appendix B, Table II, Column 2 limits at affected area water intakes, Health Physics shall recommend the following to the Emergency Coordinator:

4.3.1 Request minimum flow at Lake Wylie Hydro Station from System Load Dispatcher (to extend transit time).

NOTE: Transit time to Rock Hill water intake is approximately 14 days with NO FLOW through Lake Wylie Dam, (based on dam leakage rate).

4.3.2 Request Field Monitoring Teams (FMT) to track the release by sampling and evaluation of sample concentrations taken from discharge point at Environmental Sampling Pier (Location Site # A0 1 46), above Lake Wylie Dam (Location Site # B1 4 5), directly below Lake Wylie Dam (Location Site # B1 4 6), and at Rock Hill municipal water intake structure (Location Site # C2 7 8), per Ref. 2.1, as deemed necessary.

NOTE: Transit time is calculated as three days under normal meteorological conditions with all units in operation at Lake Wylie Hydro Station.

4.3.3 Notify (through the State) the area water supply pumping stations that a release of radioactive materials to Lake Wylie has occurred and that limited protective actions (sampling and analysis) are being taken.

4.3.3.1 In the event that sampling confirms the contamination levels at area water intakes will exceed 10CFR20, Appendix B, Table II, Column 2 limits, request (through the state) that area water pumping stations cease operations during the period of time contaminated water is passing the pumping station intakes (see Enclosure 5.2).

4.3.4 Request System Load Dispatcher regulate flow through dam as required.

NOTE: Maximum flow through dam will allow "boxcar" to pass critical areas in least time.

4.4 Discontinue environmental surveillance efforts when concentration (contamination levels) indicate that protective actions are no longer appropriate.

5.0 ENCLOSURES

5.1 Transit Time/Radionuclide Concentration Calculation

SAMPLE ENCLOSURE 5.1
TRANSIT TIME/RADIONUCLIDE CONCENTRATION CALCULATION

DESCRIPTION

Transit time(s) and radionuclide concentration(s) for an uncontrolled release of liquid radioactive materials from a Catawba Nuclear Station release point to the municipal (or industrial) water intake structures of Rock Hill, Celanese Fibers Company (Rock Hill), Fort Mill and Springs Mills, Inc. (Fort Mill).

NOTE #1: All municipal or industrial water intake concentration calculations are based on Rock Hill water intake sampling point unless specified otherwise by Station Health Physicist or Emergency Coordinator.

CNS Discharge Point	Formula Test Criteria	Water Intake	Transit Time (NOTE #2)	Dilution Factor $(\frac{1}{ft^3})$	Formula Required
via WL System (dischg header)	Conc and Vol known	Rock Hill	3 days	4×10^{-9}	#1
other than WL System	Conc and Vol known	Rock Hill	3 days	4×10^{-9}	#2
via WL System (dischg header)	Conc and Vol unknown	Rock Hill	3 days	4×10^{-9}	#3
other than WL System	Conc and Vol unknown	Rock Hill	3 days	4×10^{-9}	#3

NOTE #2: Transit time assumes all units in operation at Lake Wylie Hydro Station.

FORMULAS:

#1 - $C_w = C_o \times D \times \{\text{time } (RR_e + RR_d)\} \times \frac{RR_e}{RR_d}$

#2 - $C_w = C_o \times D \times V_k$

#3 - $C_w = C_o \times D \times V_c$ (see NOTE #3)

Where: C_w = Radionuclide concentration at municipal water intake (uCi/ml)

C_o = Undiluted discharge point concentration (uCi/ml)

D = dilution factor $(4 \times 10^{-9} \frac{1}{ft^3})$

time = taken from WL Release Worksheet (sec) - (time WMT pump is running)

RR_e = effluent release rate (cfs) - (from WL Release Worksheet)

RR_d = RL (and RN) flow rate(s) (cfs)

$\frac{RR_e}{RR_d}$ = dilution variable (no units)

V_k = known volume (ft^3)

V_c = 13,268,000 ft^3 (discharge canal volume)

Conversion Factors: cfs = $(2.22 \times 10^{-3}$ cfs/gpm (Xgpm)

ft^3 = gal/7.481

NOTE #3: When using formula #3, must assume entire contents of discharge canal as effluent release and evaluated sample concentration as C_o (Undiluted effluent concentration).

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: HP/0/B/1009/15
Change(s) 0 to
0 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: OFFSITE DOSE PROJECTIONS - UNCONTROLLED RELEASE OF RADIOACTIVE MATERIAL OTHER THAN THROUGH THE UNIT VENT

(4) PREPARED BY: Greg C. Crotty DATE: 1/24/84

(5) REVIEWED BY: R.D. Kinard DATE: 1-24-84

Cross-Disciplinary Review By: MEBolch N/R:

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: (SRO) Date:

By: Date:

(7) APPROVED BY: J W Cox Date: 1/25/84

(8) MISCELLANEOUS:

Reviewed/Approved By: Date:

Reviewed/Approved By: Date:

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
OFFSITE DOSE PROJECTIONS
UNCONTROLLED RELEASE OF GASEOUS RADIOACTIVE MATERIAL
OTHER THAN THROUGH THE UNIT VENT

1.0 PURPOSE

To describe an approved method for projecting dose commitment from a noble gas or iodine release, other than a unit vent release, during an emergency.

2.0 REFERENCES

2.1 Reg Guide 1.109

2.2 Reg Guide 1.4

2.3 HP/0/B/1009/06, Alternative Method for Determining Dose Rate Within the Reactor Building

2.4 Variables used in HP/0/B/1009/15, Letter File Number CN.: 134.10

3.0 LIMITS AND PRECAUTIONS

3.1 It is assumed that the iodine whole body dose from a release is very small compared to the iodine thyroid dose. Thus, iodine whole body dose is not considered here.

3.2 This procedure applies to releases made from Catawba Nuclear Station only. Many of the values contained in this procedure are site specific.

3.3 This procedure considers all releases to be ground level releases.

4.0 PROCEDURE

4.1 Acquire the following information and record on sample Enclosure 5.1.

NOTE: Should site meteorological data be unavailable, obtain wind speed and wind direction from the National Weather Service (United States Government - National Oceanic & Atmospheric Administration).

NOTE: If appropriate, obtain advance meteorological data to calculate doses due to changing meteorological conditions.

4.1.1 Reactor Unit, date and time of reactor trip.

4.1.2 Lower tower wind speed (mph).

4.1.3 Tower wind direction in degrees from North (North = $0°$).

4.1.4 Temperature gradient ($\Delta T°C$).

4.1.5 Radiation Monitor (EMF 53A or 53B) reading (R/hr) or calculated per Reference 2.3.

4.1.6 Date and time of calculations.

4.2 Determine the Containment Building leakage rate (LR) and record it on sample Enclosure 5.1.

4.2.1 LR (ml/hr) is the total leak rate for the containment which is one of the following:

4.2.1.1 a "best guess" assumption,

4.2.1.2 the measured leak rate where suitable means are available;

4.2.1.3 The design leakage rate (LR_{DLR}) which is determined by:

$$LR_{DLR} = \text{Containment Volume} \cdot \text{Design Leak Constant}$$

$$= 2.83 \times 10^{10} \text{ ml} \cdot \frac{0.0025}{\text{day}} \cdot \frac{\text{day}}{24 \text{ hr}}$$

$$= 2.95 \times 10^{6} \text{ ml/hr}$$

4.3 Determine the X/Q values for each point of interest downwind and record on Enclosure 5.1.

If no points have been requested, use the .5, 2, 5 and 10 mile values.

4.3.1 Locate the relative two-hour downwind concentration value (CH) for each point from Enclosure 5.2 and record onto sample Enclosure 5.1.

4.3.2 Convert these values to X/Q by,

$$X/Q = \frac{CH\ (\text{MPH-Sec/m}^3)}{\text{Tower Wind Speed (MPH)}}$$

4.4 Determine the potential whole body dose from submersion in a cloud of noble gas and record on Enclosure 5.1.

4.4.1 Calculate the whole body two (2) hour dose commitment,

$$D_{WB} = DR_M \cdot LR \cdot X/Q \cdot U_{NG}$$

Where,

D_{WB} = Whole body two (2) hour dose commitment

DR_M = Monitor dose rate

ADC = Average Decay constant for noble gases =

$$2.2622E-2 \ \frac{\mu Ci \cdot MeV \cdot hr^2}{ml \cdot d \cdot R}$$

LR = Containment leakage rate in ml/hr

X/Q = dispersion factor in sec/m³

$$U_{NG} = \frac{(3.7E4/sec \cdot \mu Ci)\ (1.6E-6ergs/MeV)}{2\ (100\ ergs/g\text{-}rad)\ (1.2E-3g/cm^3)\ (1E6cm^3/m^3)} \ X\ ADC =$$

$$5.7E-9 \ \frac{hr^2\text{-}m^3 - rad}{ml\text{-}R\text{-}sec}$$

4.5 Determine the potential thyroid dose from uptake of radioiodine and record on Enclosure 5.1.

4.5.1 Locate the time plus one (1) hour after trip on Enclosure 5.3 and record the corresponding Decay Constant on Enclosure 5.1.

4.5.2 Calculate a child's thyroid two (2) hour dose commitment using time plus one (1) hour,

$$DR_T = DR_M \cdot DC \cdot LR \cdot X/Q \cdot U_I$$

Where,

DR_T = thyroid two (2) hour dose commitment

DR_M = monitor dose rate

DC = Decay Constant in $\frac{\mu Ci \cdot mrem \cdot hr^2}{ml \cdot pCi \cdot R}$ for time plus one (1) hour (see Enclosure 5.3)

LR = Leak rate in ml/hr

X/Q dispersion in sec/m³

U_I = breathing rate for child times µCi to pCi conversion factor

$$(1.17E-4m^3/sec)\ \ 1E3 \ \frac{pCi\text{-}rem}{\mu Ci\text{-}mrem} = 1.17E-1 \ \frac{m^3\text{-}pCi\text{-}rem}{sec\ \text{-}\mu Ci\text{-}mrem}$$

4.6 Determine the potentially affected zones using Enclosure 5.4. Record the affected zones on Enclosure 5.5.

4.7 Complete Enclosure 5.5 and submit it to the Data Analysis Coordinator. Include any comments pertinent to the evaluation of offsite hazards.

5.0 ENCLOSURES

5.1 Sample Projected Offsite Dose Released From Containment

5.2 Sample Table of Two Hour Relative Concentration Factors (C_H)

5.3 Sample Table of Iodine and Noble Decay Constant (DC)

5.4 Sample of Evaluation of Plume Location

5.5 Sample Dose Assessment Report

5.6 Estimation of Containment Leak Rate

ENCLOSURE 5.1
HP/0/B/1009/15
PROJECTED OFFSITE DOSE RELEASED FROM CONTAINMENT

Unit ________________ Date/Time of Reactor Trip __________/__________

METEOROLOGICAL DATA

1. Tower wind speed ____________________ mph

2. Tower wind direction ____________________ °

3. Temperature gradient (ΔT) ____________________ °C

MONITOR DATA

1. EMF 53A or 53B/Survey Inst. # __________, DR_M = ____________ R/hr
(Circle One)

NOTE: If containment monitor information is not useable, refer to Reference 2.3.

DOSE CALCULATION DATE/TIME ______________

1. LR ____________ml/hr

2. C_H @ ____ mi. = ______, X/Q = __________ sec/m³
C_H @ ____ mi. = ______, X/Q = __________ sec/m³
C_H @ ____ mi. = ______, X/Q = __________ sec/m³
C_H @ ____ mi. = ______, X/Q = __________ sec/m³

A. Whole Body 2 hr. dose projection from noble gases:

by $D_{WB} = DR_M \cdot LR \cdot X/Q \cdot 5.7E-9$,

Miles Out	D_{WB} 2 hr Dose Commitment
________	____________________
________	____________________
________	____________________
________	____________________

ENCLOSURE 5.1
HP/0/B/1009/15
PROJECTED OFFSITE DOSE RELEASED FROM CONTAINMENT

B. Thyroid 2 hr. dose projection from iodine:

DC ________,

by $DR_T = DR_M \bullet DC \bullet LR \bullet X/Q \bullet (1.17E\text{-}1)$,

Miles Out	D_{WB} 2 hr Dose Commitment
________	____________________
________	____________________
________	____________________
________	____________________

DEFINITIONS

D_{WB} = whole body 2 hour dose commitment from noble gases

DR_T = thyroid 2 hr dose commitment from iodine

LR = containment leakage rate

X/Q = "Chi over Q" is downwind concentration correction factor

C_H = 2 hr relative downwind concentration - MPH (X/Q • MPH)

DC = Decay constant

DR_M = dose rate at the containment monitor

ENCLOSURE 5.2
HP/0/B/1009/15
TWO-HOUR RELATIVE CONCENTRATION FACTORS (C_H)

Temperature Difference (°C)	Stability Class	Distance (Miles)										
		.5	1	2	3	4	5	6	7	8	9	10
1) < -.6	A	1.4E-5	1.2E-6	5.9E-7	4.1E-7	3.2E-7	2.5E-7	2.0E-7	1.9E-7	1.8E-7	1.6E-7	1.5E-7
2) -.6 to -.5	B	1.5E-4	4.5E-5	1.3E-5	6.3E-6	3.9E-6	2.7E-6	1.9E-6	1.4E-6	1.1E-6	8.3E-7	7.8E-7
3) -0.4 to -0.2	C	3.8E-4	1.4E-4	4.9E-5	2.7E-5	1.7E-5	1.2E-5	9.2E-6	7.3E-6	6.0E-6	5.0E-6	4.3E-6
4) -0.1 to +.4	D	6.9E-4	2.5E-4	9.6E-5	5.5E-5	3.5E-5	2.5E-5	2.0E-5	1.6E-5	1.3E-5	1.1E-5	9.7E-6
5) +.5 to +1.2	E	1.1E-3	5.1E-4	2.0E-4	1.2E-4	8.2E-5	6.3E-5	5.1E-5	4.3E-5	3.8E-5	3.3E-5	3.0E-5
6) > 1.2	F	1.8E-3	1.1E-3	4.3E-4	2.7E-4	2.0E-4	1.7E-4	1.3E-4	1.2E-4	8.6E-5	7.8E-5	7.3E-5

From other sources of meteorological data (Section 4.1) use the wind speed and time of day to determine which row of C_H values to use:

Time of Day	Wind Speed	Row #
10:00 A.M. - 4:00 P.M.	N/A	3
4:00 P.M. - 10:00 A.M.	> 15 MPH	4
4:00 P.M. - 10:00 A.M.	≤ 15 MPH	6

ENCLOSURE 5.3
TABLE
IODINE & NOBLE DECAY CONSTANT(DC)
0 - 498 HRS
HP/0/B/1009/15

HOUR	DC	HOUR	DC	HOUR	DC	HOUR	DC	HOUR	DC
0	2.0649E-05	100	5.6125E-04	200	6.8787E-04	300	7.4438E-04	400	7.9109E-04
2	5.7902E-05	102	5.6595E-04	202	6.8925E-04	302	7.4537E-04	402	7.9197E-04
4	8.1506E-05	104	5.7050E-04	204	6.9060E-04	304	7.4636E-04	404	7.9285E-04
6	1.0296E-04	106	5.7492E-04	206	6.7194E-04	306	7.4735E-04	406	7.9373E-04
8	1.2295E-04	108	5.7920E-04	208	6.9326E-04	308	7.4833E-04	408	7.9460E-04
10	1.4170E-04	110	5.8335E-04	210	6.9457E-04	310	7.4932E-04	410	7.9548E-04
12	1.5933E-04	112	5.8737E-04	212	6.9586E-04	312	7.5029E-04	412	7.9635E-04
14	1.7591E-04	114	5.9127E-04	214	6.9714E-04	314	7.5127E-04	414	7.9722E-04
16	1.9159E-04	116	5.9504E-04	216	6.9840E-04	316	7.5224E-04	416	7.9809E-04
18	2.0648E-04	118	5.9870E-04	218	6.9965E-04	318	7.5321E-04	418	7.9896E-04
20	2.2071E-04	120	6.0225E-04	220	7.0089E-04	320	7.5418E-04	420	7.9982E-04
22	2.3439E-04	122	6.0569E-04	222	7.0212E-04	322	7.5515E-04	422	8.0068E-04
24	2.4757E-04	124	6.0903E-04	224	7.0333E-04	324	7.5611E-04	424	8.0155E-04
26	2.6034E-04	126	6.1226E-04	226	7.0454E-04	326	7.5707E-04	426	8.0240E-04
28	2.7272E-04	128	6.1540E-04	228	7.0574E-04	328	7.5803E-04	428	8.0326E-04
30	2.8475E-04	130	6.1844E-04	230	7.0692E-04	330	7.5899E-04	430	8.0412E-04
32	2.9645E-04	132	6.2140E-04	232	7.0810E-04	332	7.5994E-04	432	8.0497E-04
34	3.0784E-04	134	6.2426E-04	234	7.0926E-04	334	7.6089E-04	434	8.0583E-04
36	3.1893E-04	136	6.2705E-04	236	7.1042E-04	336	7.6184E-04	436	8.0668E-04
38	3.2975E-04	138	6.2975E-04	238	7.1157E-04	338	7.6279E-04	438	8.0753E-04
40	3.4029E-04	140	6.3238E-04	240	7.1272E-04	340	7.6373E-04	440	8.0837E-04
42	3.5058E-04	142	6.3493E-04	242	7.1385E-04	342	7.6467E-04	442	8.0922E-04
44	3.6062E-04	144	6.3741E-04	244	7.1498E-04	344	7.6561E-04	444	8.1006E-04
46	3.7042E-04	146	6.3983E-04	246	7.1610E-04	346	7.6655E-04	446	8.1090E-04
48	3.7999E-04	148	6.4218E-04	248	7.1721E-04	348	7.6748E-04	448	8.1174E-04
50	3.8933E-04	150	6.4447E-04	250	7.1832E-04	350	7.6842E-04	450	8.1258E-04
52	3.9846E-04	152	6.4670E-04	252	7.1942E-04	352	7.6935E-04	452	8.1342E-04
54	4.0738E-04	154	6.4887E-04	254	7.2051E-04	354	7.7028E-04	454	8.1425E-04
56	4.1609E-04	156	6.5099E-04	256	7.2160E-04	356	7.7120E-04	456	8.1509E-04
58	4.2460E-04	158	6.5306E-04	258	7.2268E-04	358	7.7213E-04	458	8.1592E-04
60	4.3291E-04	160	6.5508E-04	260	7.2376E-04	360	7.7305E-04	460	8.1675E-04
62	4.4103E-04	162	6.5705E-04	262	7.2483E-04	362	7.7397E-04	462	8.1757E-04
64	4.4896E-04	164	6.5897E-04	264	7.2590E-04	364	7.7489E-04	464	8.1840E-04
66	4.5669E-04	166	6.6085E-04	266	7.2696E-04	366	7.7581E-04	466	8.1923E-04
68	4.6425E-04	168	6.6269E-04	268	7.2802E-04	368	7.7672E-04	468	8.2005E-04
70	4.7161E-04	170	6.6450E-04	270	7.2907E-04	370	7.7763E-04	470	8.2087E-04
72	4.7879E-04	172	6.6626E-04	272	7.3012E-04	372	7.7854E-04	472	8.2169E-04
74	4.8579E-04	174	6.6799E-04	274	7.3116E-04	374	7.7945E-04	474	8.2250E-04
76	4.9262E-04	176	6.6969E-04	276	7.3220E-04	376	7.8036E-04	476	8.2332E-04
78	4.9926E-04	178	6.7135E-04	278	7.3323E-04	378	7.8126E-04	478	8.2413E-04
80	5.0573E-04	180	6.7298E-04	280	7.3427E-04	380	7.8217E-04	480	8.2495E-04
82	5.1202E-04	182	6.7458E-04	282	7.3529E-04	382	7.8307E-04	482	8.2576E-04
84	5.1815E-04	184	6.7615E-04	284	7.3632E-04	384	7.8397E-04	484	8.2657E-04
86	5.2410E-04	186	6.7770E-04	286	7.3734E-04	386	7.8486E-04	486	8.2737E-04
88	5.2989E-04	188	6.7922E-04	288	7.3835E-04	388	7.8576E-04	488	8.2818E-04
90	5.3551E-04	190	6.8072E-04	290	7.3936E-04	390	7.8665E-04	490	8.2898E-04
92	5.4097E-04	192	6.8219E-04	292	7.4037E-04	392	7.8754E-04	492	8.2978E-04
94	5.4627E-04	194	6.8364E-04	294	7.4138E-04	394	7.8843E-04	494	8.3058E-04
96	5.5142E-04	196	6.8507E-04	296	7.4238E-04	396	7.8932E-04	496	8.3138E-04
98	5.5641E-04	198	6.8648E-04	298	7.4338E-04	398	7.9020E-04	498	8.3218E-04

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
ENCLOSURE 5.4
HP/0/B/1009/15
EVALUATION OF PLUME LOCATION

5.4.1. Acquire the following information from sample Enclosure 5.1 and record on sample Enclosure 5.5.

5.4.1.1 Wind direction in degrees from North

5.4.1.2 Wind speed (mph)

5.4.1.3 ΔT (°C)

5.4.1.4 Stability class

5.4.1.5 Thyroid and whole body dose

5.4.2. Determine the affected zones, based on wind direction and wind speed, with the following tables:

Table 3.1 0-2 Mile Affected Zones

Wind Direction	Affected Zones
0° - 360°	A0

Table 3.2 2-5 Mile Affected Zones

Wind Speed < 5 mph		Wind Speed > 5 mph	
Wind Direction	Affected Zones	Wind Direction	Affected Zones
0° - 360°	A1,B1,C1,D1,E1,F1	0.1° - 22°	C1, D1
		22.1° - 73°	C1, D1, E1
		73.1° - 108°	C1, D1, E1, F1
		108.1° - 120°	D1, E1, F1
		120.1° - 159°	E1, F1
		159.1° - 207°	E1, F1, A1
		207.1° - 247°	F1, A1, B1
		247.1° - 265°	A1, B1
		265.1° - 298°	A1, B1, C1
		298.1° - 338°	B1, C1
		338.1° - 360°	B1, C1, D1

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
ENCLOSURE 5.4
HP/0/B/1009/15
EVALUATION OF PLUME LOCATION

Table 3.3 5-10 Mile Affected Zones

Wind Direction	Affected Zones
0.1° - 27°	C2, D2
27.1° - 69°	C2, D2, E2
69.1° - 95°	D2, E2, F2
95.1° - 132°	D2, E2, F2, F3
132.1° - 144°	E2, F2, F3
144.1° - 160°	E2, F2, F3, A2
160.1° - 201°	F2, F3, A2
201.1° - 229°	F2, F3, A2, B2
229.1° - 249°	F3, A2, B2
249.1° - 259°	A2, A3, B2
259.1° - 290°	A2, A3, B2, C2
290.1° - 304°	A3, B2, C2
304.1° - 333°	B2, C2
333.1° - 360°	B2, C2, D2

5.4.3 Determine the protective action guides (PAG), based on the calculated dose(s) on Sample Enclosure 5.1 and the following information:

5.4.3.1 For doses:

< 1 Rem Whole Body or,

< 5 Rem Thyroid

Recommend no action.

5.4.3.2 For doses:

1-5 Rem Whole Body or,

5-25 Rem Thyroid

Recommend evacuation of children and pregnant women and sheltering of remainder of personnel in the affected area.

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
ENCLOSURE 5.4
HP/0/B/1009/15
EVALUATION OF PLUME LOCATION

5.4.3.3 For doses:

> 5 Rem Whole Body or,

> 25 Rem Thyroid

Recommend Evacuation of Population in Affected Area.

5.4.4. Record only the affected zones requiring protective action on sample Enclosure 5.5 along with the recommended protective action.

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/15
ENCLOSURE 5.5
DOSE ASSESSMENT REPORT

Duke Power Crisis Company Management Plan Off-Site Dose Report - CATAWBA

Prepared By ____________ Date/Time ______/______ Emergency Drill (circle one)

Meteorology
Wind Speed ________ MPH
Wind Direction ________ degrees from North
Vertical Temp. Diff. ________ degrees C/100 ft.
Stability Class (circle one) A B C D E F G

Source Term	Time	Noble Gas	I-131 equivalent
Containment Rad. Monitor	______	______ R/hr	______ R/hr
Containment Sample	______	______ μCi/ml	______ μCi/ml
Unit Vent (Sample of EMF)	______	______ μCi/ml	______ μCi/ml
Curie Release Rate	______	______ Ci/sec	______ Ci/sec

Corresponds to: ____ LOCA ____ LOCA through filter
____ Core damage ____ Core damage through filter
____ Tube rupture ____ Gas Decay Tank
____ New fuel ____ Old fuel Other ______

Dose Projections

		.5 mi	2 mi	5 mi	10 mi
2hr Dose(rem) based on Containment release @________ml/hr	Whole Body	______	______	______	______
	Child thyroid	______	______	______	______
2hr Dose(rem) based on Unit Vent release @________cfm	Whole Body	______	______	______	______
	Child thyroid	______	______	______	______
2hr Dose(rem) based on Steam release	Whole Body	______	______	______	______
	Child thyroid	______	______	______	______
2hr Dose(rem) based on ______ release @________	Whole Body	______	______	______	______
	Child thyroid	______	______	______	______

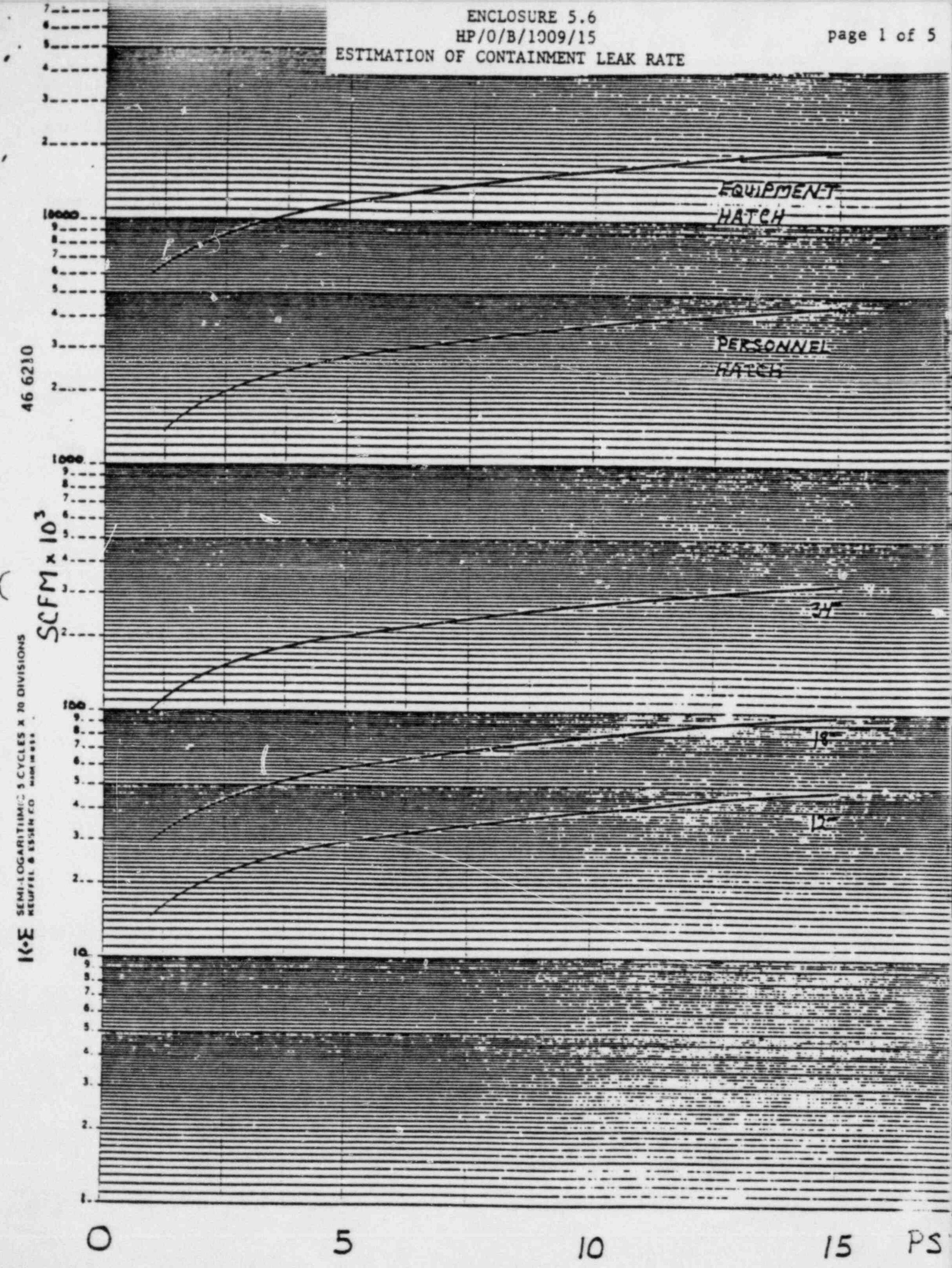
Field Monitoring Data

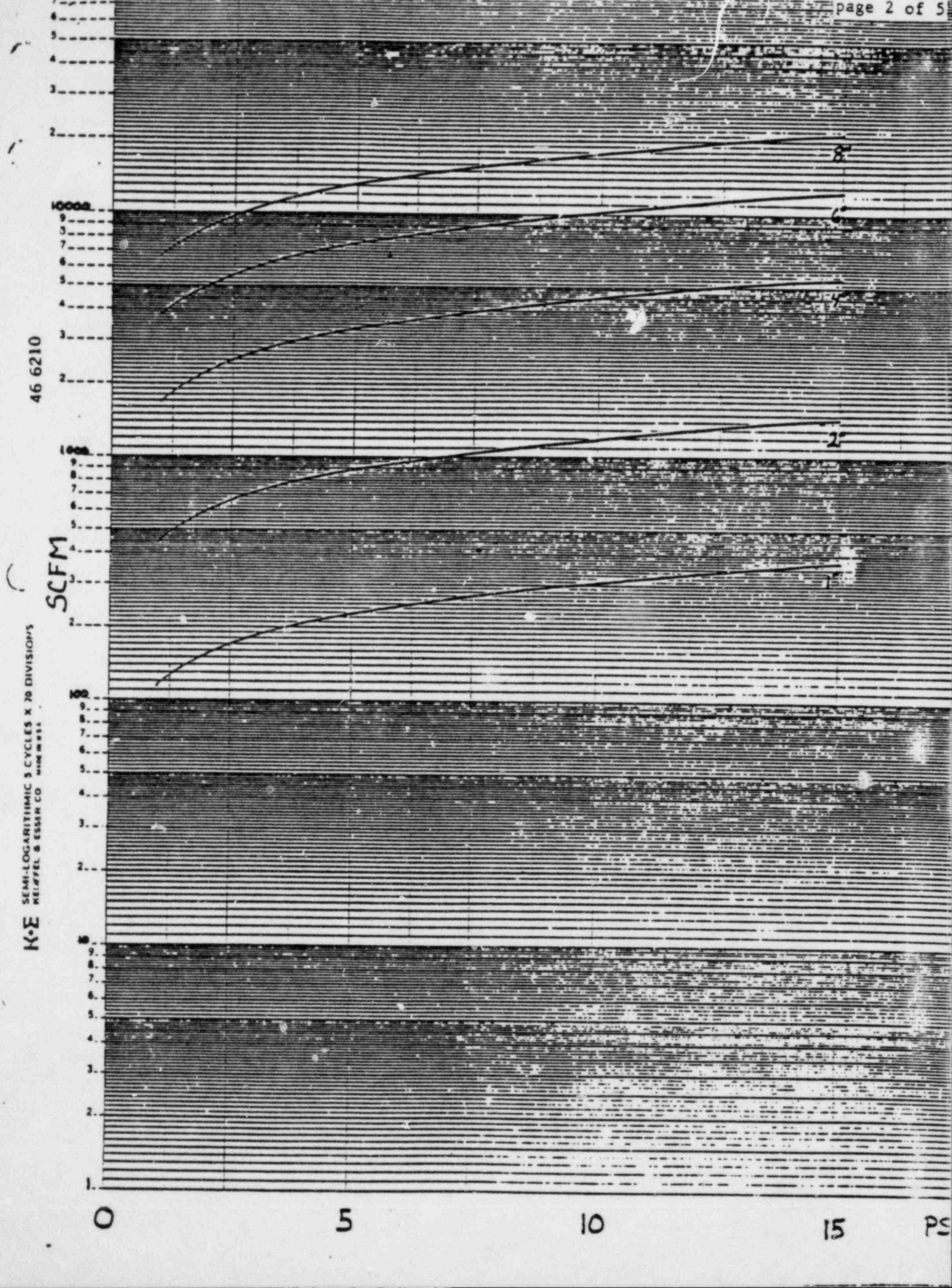
Location	Distance (mi)	Direction	Dose Rate (mrem/hr) Whole body	Dose Rate (mrem/hr) Child thyroid	Contamination (dpm/100 cm^2)
______	______	______	______	______	______
______	______	______	______	______	______
______	______	______	______	______	______
______	______	______	______	______	______

Affected Zones (circle zones)	0-2 mi	2-5 mi	5-10 mi	9-10 mi
	A0	A1 B1 C1 D1 E1 F1	A2 B2 C2 D2 E2 F2	A3 F3

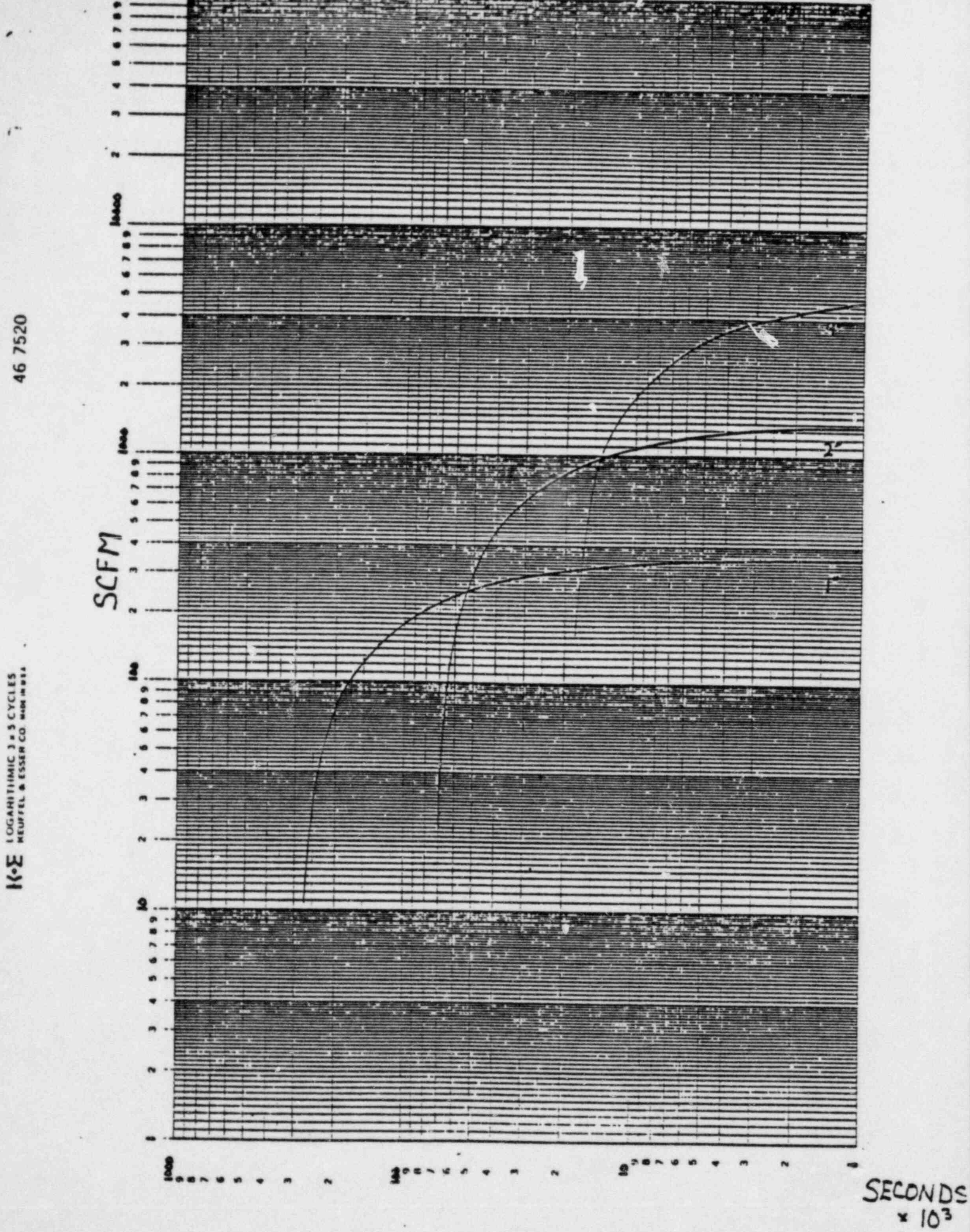
COMMENTS: ____

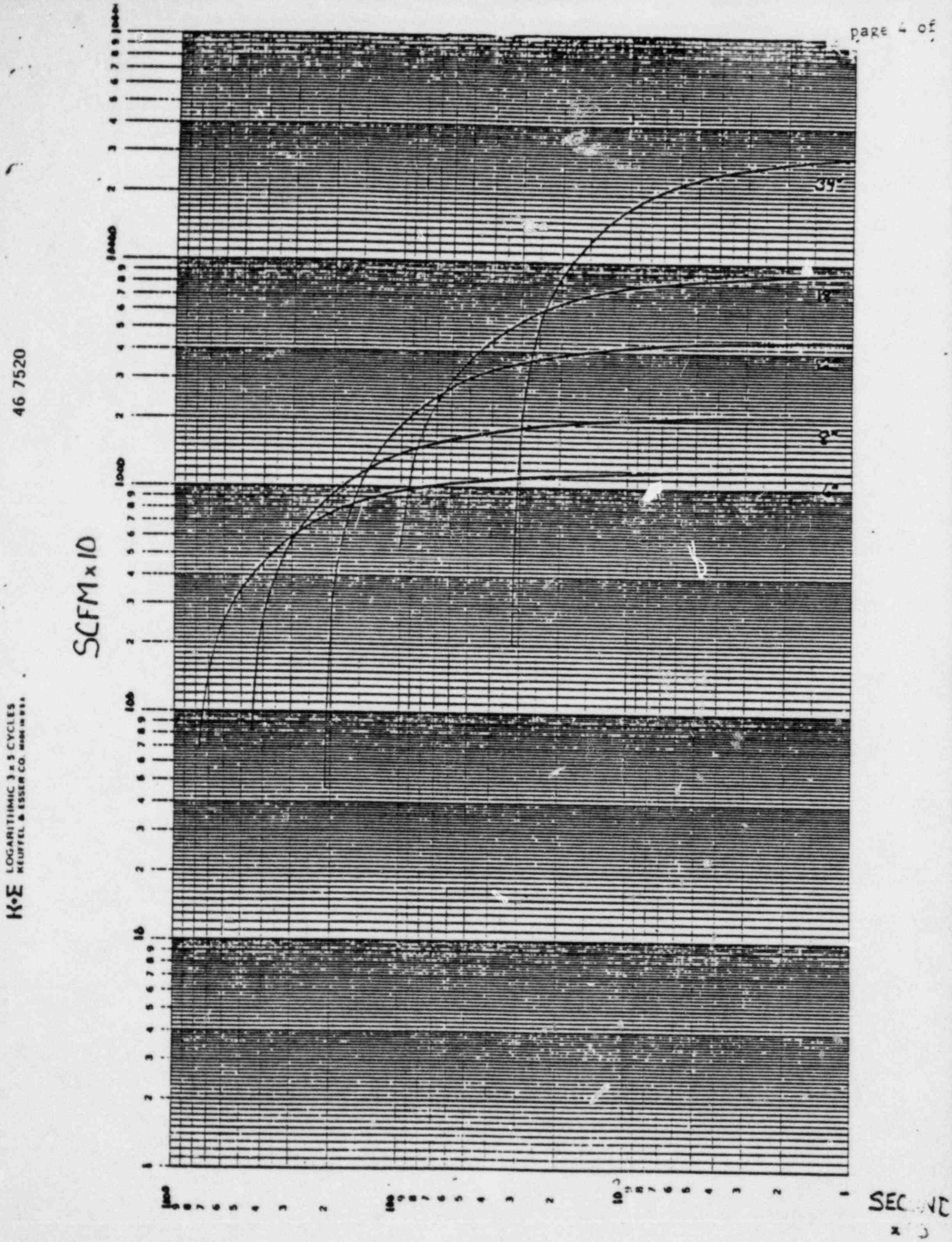
xc: Data Analysis Coordinator, Station Health Physicist

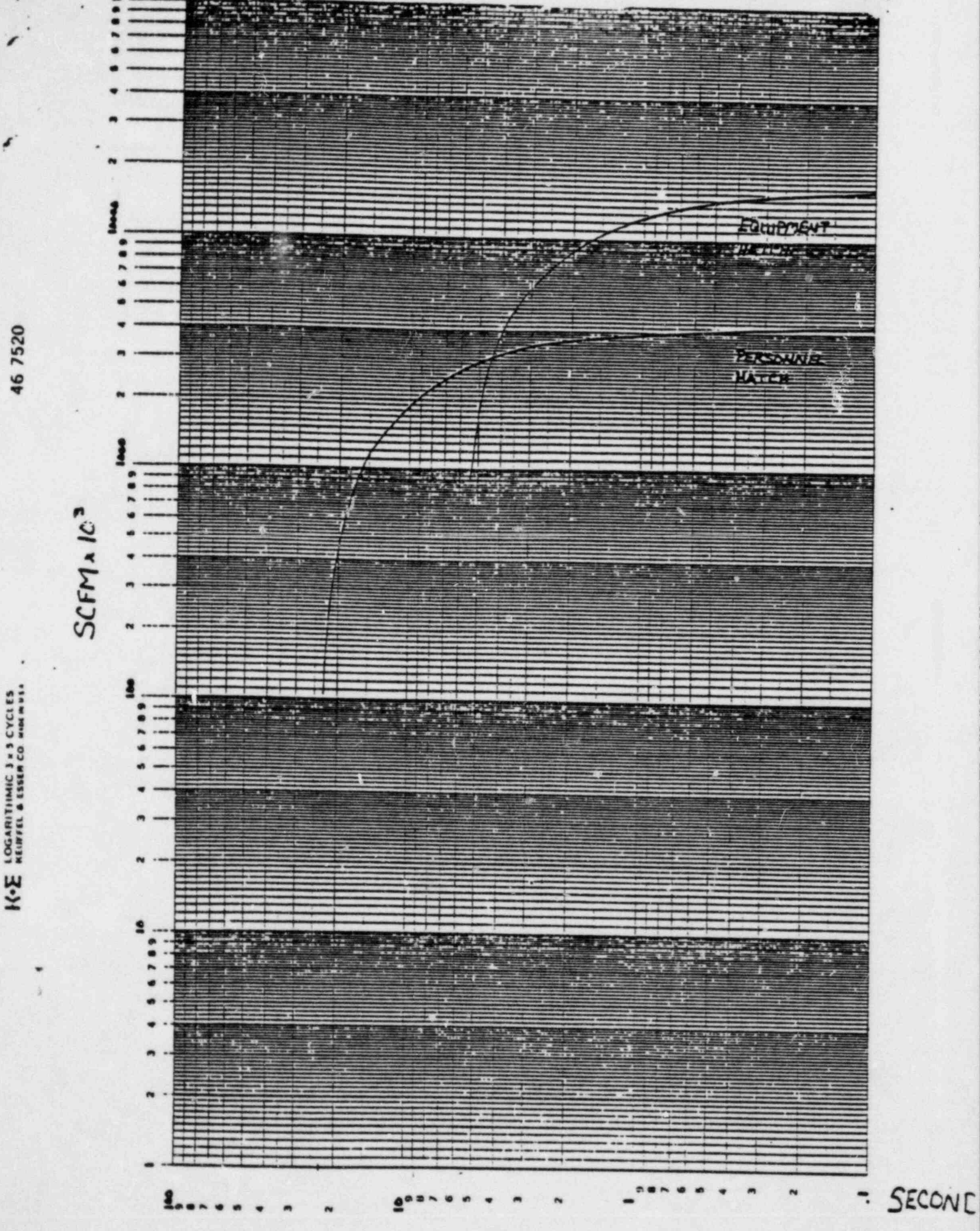

EQUIPMENT HATCH
PERSONNEL HATCH
24"
18"
12"
SCFM x 10^3
0
5
10
15
PSI
K·E SEMI-LOGARITHMIC 5 CYCLES x 70 DIVISIONS
KEUFFEL & ESSER CO.
46 6210



K·E SEMI-LOGARITHMIC 5 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO
46 6210
SCFM
10000
1000
100
10
1.
8"
6"
4"
2"
1"
0
5
10
15
PS


46 7520
K·E LOGARITHMIC 3 × 5 CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A.
SCFM
1
2
3
SECONDS
× 10^3


K•E LOGARITHMIC 3 x 5 CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A.
46 7520
SCFM x 10
34"
18"
8"
6"
SECONDS
x 10



46 7520
K+E LOGARITHMIC 3 x 3 CYCLES
KEUFFEL & ESSER CO.
SCFM x 10³
EQUIPMENT HATCH
PERSONNEL HATCH
SECONDS

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: HP/0/B/1009/16
Change(s) 0 to
0 Incorporated

(2) STATION: Catawba

(3) PROCEDURE TITLE: Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release

(4) PREPARED BY: Jennifer M. Cameron DATE: 1-19-84

(5) REVIEWED BY: R. D. Kenard DATE: 1-19-84

Cross-Disciplinary Review By: MEBold N/R: ______

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ______ (SRO) Date: ______

By: ______ Date: ______

(7) APPROVED BY: JW Cy Date: 1/23/84

(8) MISCELLANEOUS:

Reviewed/Approved By: ______ Date: ______

Reviewed/Approved By: ______ Date: ______

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
DISTRIBUTION OF POTASSIUM IODIDE TABLETS
IN THE EVENT OF A RADIOIODINE RELEASE

1.0 PURPOSE

This procedure provides information necessary to distribute Active Potassium Iodide (KI) tablets to in-plant personnel in the event of a release of radioiodine. Also, it outlines storage and supply information to assure sufficient quality and quantity of thyroid blocking material.

2.0 REFERENCES

2.1 NCRP Report No. 55; Protection of the Thyroid Gland in the Event of Releases of Radioiodine 1977

2.2 NCRP Report No. 651; Management of Persons Accidentally Contaminated With Radioiodine 1980

2.3 HP/0/B/1001/09, Operation/Calibration Procedure for the Body Burden Analyzer

2.4 HP/0/B/1009/10, Body Burden Analysis Following Suspected Uptakes of Mixed Fission or Activation Products

2.5 System Health Physics Manual

2.6 NUREG 0654

3.0 LIMITS AND PRECAUTIONS

3.1 KI must not be administered to a person who knows he (she) is allergic to iodide.

3.2 If a person has an allergic reaction or has severe side effects from taking KI tablets, they should stop taking KI tablets and consult a doctor or public health authority for instructions.

3.3 Personnel shall be advised not to deviate from the prescribed dosages and dosage rates.

3.4 Best results will be achieved when KI tablets are administered immediately (within 2 hours) after an exposure, although administration as late as 24 hours after an emergency will provide some protection.

3.5 Discolored or disfigured tablets, tablets that have reached the expiration date listed on the bottle, and bottles of KI with loose tops shall be discarded.

3.6 Hands of anyone touching the KI tablets must be free of radioactive contamination prior to taking the KI tablets.

4.0 PROCEDURE

4.1 Responsibilities For Distribution

4.1.1 The Station Health Physicist, in conjunction with available medical advice, shall control the distribution of KI tablets.

4.1.2 Persons suspected of having been in the affected area prior to the detection and during the release, persons present in the affected area and persons who will enter the area while a significant amount of radioiodine is present will be instructed by the Health Physics Supervision to immediately register in the KI distribution center (for example, the Technical Support Center).

4.1.2.1 A significant amount of radioiodine for short duration in-plant exposure is that amount taken into the body that would result in a quarterly permissible occupational dose or more. For example, exposure to 4.6×10^{-6} µCi/ml airborne iodine for one hour would result in such an exposure. This corresponds to 520 MPC-hrs which is the quarterly limit.

4.1.2.2 A significant amount of radioiodine for emergency workers in the field is 10 MPC (9×10^{-8} µCi/ml) I-131.

4.2 Registration of persons exposed to a significant amount of radioiodine.

4.2.1 When persons notified by Health Physics arrive at the distribution area, record appropriate data per Enclosure 5.1.

4.2.2 With the approval of the Station Health Physicist, the Health Physics representative shall give one (1) tablet to each person and instructions concerning the use of the tablet. Then issue to each person one bottle containing nine (9) KI tablets, and the package insert for the use of the tablets (refer to Enclosure 5.2 for an example of the General Manufacturers Guidelines).

4.2.2.1 Tablets are to be taken only as directed. One (1) tablet per day for the length of the emergency.

4.2.2.2 After the initial dose of KI, subsequent doses will be taken on a daily basis. Tablets should be taken as near a 24-hour schedule as possible.

NOTE: For best results, emphasis must be placed upon the proper use of these tablets.

4.2.3 Tablets removed from full bottle of KI should be stored in 10 ml plastic vials. The expiration date on the bottle from which the tablets were taken and the name of the Health Physics representative shall be recorded on the 10ml vials Tablets stored in 10 ml plastic vials should then be used for single tablet initial issuance of KI to affected persons.

4.2.4 As directed by the Field Monitoring Coordinator (FMC) or the S&C Coordinator, team members shall ingest one (1) tablet of Potassium Iodide.

4.2.4.1 The FMC and/or S&C Coordinator will provide the information for Enclosure 5.1 and will ensure that distribution of KI per Step 4.2.2 is accomplished by team members.

4.3 Thyroid Burden Analysis Following Radioiodine Exposure

4.3.1 All persons receiving KI tablets should receive a thyroid scan. If the number of people render this step impractical, the Count Room Supervisor will select a representative sample of persons listed on Enclosure 5.1 who received KI tablets.

NOTE: Subsequent action involving thyroid burden analysis should follow guidelines established by HP/0/B/1009/10.

4.3.2 Records of thyroid scan shall be maintained per procedure.

NOTE: Distribute KI before analyzing thyroid concentration. Thyroid scans immediately after an accident could lengthen KI distribution time and cause confusion among personnel.

4.4 Storage Requirements

4.4.1 There are three major storage requirements to be observed:

4.4.1.1 Store in a temperature range of 59° to 86°F.

4.4.1.2 Store in a low humidity area (avoid direct exposure to liquids).

4.4.1.3 Store in an area protected from exposure to light.

4.4.2 Upon receiving a shipment of KI tablets, boxes shall be opened as soon as possible and bottles examined to ensure that an air-tight seal has been maintained. Bottles must be returned to boxes, and boxes must be sealed shut, so as to avoid exposure to light.

4.4.3 To ensure a sufficient supply of tablets, a minimum of 1,000 bottles with 14 tablets per bottle should be maintained on site.

4.5 **Shelf Life and Changeout of KI Tablets**

4.5.1 Thyro-Block™ tablet bottles are labeled with an expiration date from the factory. As tablets reach the expiration dates, the tablets must be discarded.

NOTE: Replacement tablets should be ordered at least three (3) months prior to the date of expiration listed on the bottles of KI.

4.5.2 Upon receiving a shipment of KI tablets, supplies should be shifted so as to use older tablets before new tablets.

5.0 ENCLOSURES

5.1 Potassium Iodide Tablet Distribution Data Sheet

5.2 Manufacturers Guidelines for Thyro-Block™ Tablets and Solution

POTASSIUM IODIDE TABLET DISTRIBUTION DATA SHEET

HP BADGE NUMBER	NAME	DEPARTMENT	DATE & TIME OF SUSPECTED EXPOSURE	DATE & TIME OF INITIAL ISSUANCE

Patient Package Insert for

THYRO-BLOCK™

(POTASSIUM IODIDE)

(pronounced poe-TASS-[illegible])

(abbreviated: K [illegible])

TABLETS and SOLUTION, U.S.P.

TAKE POTASSIUM IODIDE ONLY WHEN PUBLIC HEALTH OFFICIALS TELL YOU. IN A RADIATION EMERGENCY, RADIOACTIVE IODINE COULD BE RELEASED INTO THE AIR. POTASSIUM IODIDE (A FORM OF IODINE) CAN HELP PROTECT YOU.

IF YOU ARE TOLD TO TAKE THIS MEDICINE, TAKE IT ONE TIME EVERY 24 HOURS. DO NOT TAKE IT MORE OFTEN. MORE WILL NOT HELP YOU AND MAY INCREASE THE RISK OF SIDE EFFECTS. *DO NOT TAKE THIS DRUG IF YOU KNOW YOU ARE ALLERGIC TO IODIDE.* (SEE SIDE EFFECTS BELOW.)

INDICATIONS

THYROID BLOCKING IN A RADIATION EMERGENCY ONLY.

DIRECTIONS FOR USE

Use only as directed by State or local public health authorities in the event of a radiation emergency.

DOSE

Tablets:	ADULTS AND CHILDREN [illegible] YEAR OF AGE OR OLDER: One [illegible] tablet once a day. Crush for small children. BABIES UNDER [illegible] YEAR OF AGE: One-half (1/2) tablet once a day. Crush first.
Solution:	ADULTS AND CHILDREN [illegible] YEAR OF AGE OR OLDER: Add 6 drops to one-half glass of liquid and drink each day. BABIES UNDER 1 YEAR OF AGE: Add 3 drops to a small amount of liquid once a day.

For all dosage forms: Take for 10 days unless directed otherwise by State or local public health authorities.

Store at controlled room temperature between [illegible] and [illegible]°C (59 to 86°F). Keep container tightly closed and protect from light. Do not use the solution if it appears brownish [illegible] of the bottle.

WARNING

Potassium iodide should not be used by people allergic to iodide. Keep out of the reach of children. In case of overdose or allergic reaction, contact a physician or the public health authority.

DESCRIPTION

Each THYRO-BLOCK™ TABLET contains [illegible] mg of potassium iodide.

Each drop of THYRO-BLOCK™ SOLUTION contains 21 mg of potassium iodide.

HOW POTASSIUM IODIDE WORKS

Certain forms of iodine help your thyroid gland work right. Most people get the iodine they need from foods, like iodized salt or fish. The thyroid can "store" or hold only a certain amount of iodine.

In a radiation emergency, radioactive iodine may be released in the air. This material may be breathed or swallowed. It may enter the thyroid gland and damage it. The damage would probably not show itself for years. Children are most likely to have thyroid damage.

If you take potassium iodide, it will fill up your thyroid gland. This reduces the chance that harmful radioactive iodine will enter the thyroid gland.

WHO SHOULD NOT TAKE POTASSIUM IODIDE

The only people who should not take potassium iodide are people who know they are allergic to iodide. You may take potassium iodide even if you are taking medicines for a thyroid problem (for example, a thyroid hormone or antithyroid drug). Pregnant and nursing women and babies and children may also take the drug.

HOW AND WHEN TO TAKE POTASSIUM IODIDE

Potassium Iodide should be taken as soon as possible after public health officials tell you. You should take one dose every 24 hours. More will not help you because the thyroid can "hold" only limited amounts of iodine. Larger doses will increase the risk of side effects. You will probably be told not to take the drug for more than 10 days.

SIDE EFFECTS

Usually, side effects of potassium iodide happen when people take higher doses for a long time. You should be careful not to take more than the recommended dose or take it for longer than you are told. Side effects are unlikely because of the low dose and the short time you will be taking the drug.

Possible side effects include skin rashes, swelling of the salivary glands, and "iodism" (metallic taste, burning mouth and throat, sore teeth and gums, symptoms of a head cold, and sometimes stomach upset and diarrhea).

A few people have an allergic reaction with more serious symptoms. These could be fever and joint pains, or swelling of parts of the face and body and at times severe shortness of breath requiring immediate medical attention.

Taking iodide may rarely cause overactivity of the thyroid gland, underactivity of the thyroid gland, or enlargement of the thyroid gland (goiter).

WHAT TO DO IF SIDE EFFECTS OCCUR

If the side effects are severe or if you have an allergic reaction, stop taking potassium iodide. Then, if possible, call a doctor or public health authority for instructions.

HOW SUPPLIED

THYRO-BLOCK™ TABLETS (Potassium Iodide, U.S.P.) bottles of 14 tablets (NDC 0037-0472-20). Each white, round, scored tablet contains 130 mg potassium iodide.

THYRO-BLOCK™ SOLUTION (Potassium Iodide Solution, U.S.P.) 30 ml (1 fl. oz.) light resistant measured drop dispensing units (NDC 0037-4287-25). Each drop contains 21 mg potassium iodide.

WALLACE LABORATORIES
Division of
CARTER-WALLACE, INC.
Cranbury, New Jersey 08512

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: HP/1/B/1009/17
Change(s) 0 to
0 Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: POST-ACCIDENT CONTAINMENT AIR SAMPLING SYSTEM

(4) PREPARED BY: Gregg C. Cordy DATE: 1/24/84

(5) REVIEWED BY: R.D. Kincaid DATE: 1-24-84

Cross-Disciplinary Review By: MEBolich N/R: ______

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ______ (SRO) Date: ______

By: ______ Date: ______

(7) APPROVED BY: JW Cox Date: 1/25/84

(8) MISCELLANEOUS:

Reviewed/Approved By: ______ Date: ______

Reviewed/Approved By: ______ Date: ______

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
POST-ACCIDENT CONTAINMENT AIR SAMPLING SYSTEM

1.0 PURPOSE

To describe a method for obtaining a containment air sample after a nuclear reactor accident using the Nuclear Post-Accident Containment Air Sampling System (PACS).

2.0 REFERENCES

2.1 HP/0/B/1009/06, Alternative Methods for Determining Dose Rate Within the Reactor Building

2.2 OP/1/A/6450/10, Containment Hydrogen Control Systems

2.3 RP/0/B/5000/12, Control of Assessment and Repair Teams

2.4 Duke Power Company Nuclear Station Post-Accident Containment Air Sampling System Manual

2.5 Post-Accident Containment Air Sampling System - Qualifications, File No.: CN-134.10

3.0 LIMITS AND PRECAUTIONS

3.1 Exposure from the samples have the potential to be very high; therefore, appropriate surveillance and control of personnel shall be provided by Health Physics when taking samples. Entry and exit route to sample panel and control panel area are to be determined by Health Physics surveys.

3.2 The Recirc Pump shall never be used at any pressure other than 0" of Hg.

3.3 Moving the Selector switch (#9) from one mode to another stops all current system operations. Depressing the Activate pushbutton (#10) starts operation of the newly selected mode.

3.3.1 Numbers within parentheses (ex. #9) are locations on Enclosure 5.5 and on the control panel.

3.3.2 (SP) to the left of the enclosure step number requires a person to go to the sample panel.

3.4 The Radiation Monitor (#3) on the control panel should provide background levels of radiation prior to, during, and after sampling, and an indication of contamination within the system or panel for progressive samples.

3.5 If the needle of the Radiation Monitor (#3) exceeds the upper end of the meter scale while the lower scale (mR/hr) is being used, immediately turn the selector knob to the higher scale (R/hr).

3.6 If the <u>Radiation Monitor (#3)</u> reading cannot be reduced below 10 R/hr do not return to the sample panel, but contact the OSC Health Physics Supervisor immediately for further instructions.

3.7 If problems with the <u>Radiation Monitor</u> (#3) are evident (e.g. no indication of radiation on the meter), notify the OSC Health Physics Supervisor and rely on Health Physics surveys to determine access to the sample panel.

3.8 If thiosulfate comes in contact with the skin during preparation, transferal or dilution, wash the affected area as soon as possible with soap and lukewarm water. Consult station nurse for further instructions.

3.9 Dispose of contaminated syringes, septums, rubber gloves, etc., in appropriate radioactive waste receptacles.

3.10 Individuals that have been trained on this procedure are the individuals qualified to use this procedure. Individuals shall be trained and tested every six (6) months and documented in Reference 2.5.

3.11 Due to the nature of this procedure, a Working Copy shall be used to ensure compliance.

4.0 <u>PROCEDURE</u>

4.1 Follow steps on the OSC Health Physics Supervisor PACS Checklist (Enclosure 5.1).

4.2 Follow steps on Post-Accident Containment Air Sampling Set-Up (Enclosure 5.2).

4.3 Follow steps on Taking Post-Accident Containment Air Samples (Enclosure 5.3) and complete Post-Accident Containment Air Sample Data Sheet (Enclosure 5.4) for each containment air sample request.

4.3.1 If applicable, determine containment dose rate per Reference 2.1.

4.4 Ensure the isotopic analysis of each containment air sample and its associated Enclosure 5.4 are submitted to the Station Health Physicist.

4.5 Follow steps on Post-Accident Containment Air Sampling Shut-Down (Enclosure 5.5).

4.6 File enclosures and associated calculations in the Health Physics Satellite Master File.

4.7 Connect an appropriate transfer container and drain the sump by turning the <u>Key Lock</u> switch (#48) to <u>Sump Pump</u>. Accompanying power light should illuminate.

5.0 <u>ENCLOSURES</u>

5.1 OSC Health Physics Supervisor PACS Checklist

5.2 Post-Accident Containment Air Sampling Set-Up

5.3 Taking Post-Accident Containment Air Samples

5.4 Sample of Post-Accident Containment Air Sample Data Sheet

5.5 Post-Accident Containment Air Sampling Shut-Down

5.6 Post-Accident Containment Air Sampling Control Panel (PACP) Diagram

5.7 Post-Accident Containment Air Sampling Sample Panel (PASP) Diagram

5.8 Location of PACP and PASP

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ENCLOSURE 5.1
OSC HEALTH PHYSICS SUPERVISOR PACS CHECKLIST

Date/Time ____________/__________ Unit __________

Check		Action
_____	5.1.1	After completion of Team Personnel Lists of Reference 2.3, consider the following for the PACS: - MSA SCBA's - Operable breathing air hookups - Throat mikes - Portable instruments (PIC-6A, Teletector) - High range dosimetry - Extremity dosimetry - To and from route to PACS - 1-EMF-2 Control Room readout - Flashlight - Radios - Control Points
_____	5.1.2	Request assistance in acquiring needed equipment from the Technical Support Center (TSC).
_____	5.1.3	Prepare Counting Room to receive sample. Consider: - RCZ setup - Shielding - Disposal of sample - MCA setup - Personnel - Dosimetry (high, extremity)
_____	5.1.4	Select one qualified individual based on PACS training and MSA training (refer to Reference 2.5, Health Physics file 134.10-4 or the OSC Health Physics Notebook). Select another individual to accompany the other. Consider: - Age - Accumulated exposure - Sex - Ability to carry 100 lbs. together - Respiratory printout
_____	5.1.5	If necessary, complete dose extension forms.
_____	5.1.6	Obtain a High Radiation Area key.
_____	5.1.7	Have equipment prepared for conditions at PACS. Consider: - Taping wheels on porta-pig - Bagging loose items

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HP/1/B/1009/17
ENCLOSURE 5.1
OSC HEALTH PHYSICS SUPERVISOR PACS CHECKLIST

Check		Action
______	5.1.8	Inform selected individuals of precautions, Safety and Health Physics concerns and then have them obtain the sample per Enclosure 5.2.

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ENCLOSURE 5.2
POST-ACCIDENT CONTAINMENT AIR SAMPLING SET-UP

Date/Time ____________/____________ Unit ____________

Check		Action
______	5.2.1	Inform the Shift Supervisor that gas sampling will be performed and that one Hydrogen Analyzer will need to be inoperable during sampling. Request that Operations complete the Setup Section for Post-Accident Containment Air Sampling of procedure OP/1/A/6450/10 (see Reference 2.2).
______	5.2.2	After notification that Operations has completed the PACS Setup Section, obtain the Post-Accident Containment Air Sampling Equipment located in the OSC Emergency Kit. The equipment should be the following:

Quantity	Item
1	- Post-Accident Control Panel (PACP) Key
2	- 500 ml Nalgene bottle labeled "2.42×10^{-3}M NaOH"
2	- vials of .3003 gm $Na_2S_2O_3 \cdot 5H_2O$
2	- 500 ml graduated bottle labeled "Iodine Sample"
2	- 100 ml gas bomb
2	- 60 ml Nalgene bottle - labeled "Iodine Sample"
1	- Stop watch

______	5.2.3	Prepare thiosulfate solution by adding one vial of $Na_2S_2O_3 \cdot 5H_2O$ to one bottle of NaOH. Shake vigorously until all of the crystals are dissolved. Relabel as "Thiosulfate".
______	5.2.4	Verify that the <u>Selector</u> switch (#9) is in the <u>Off</u> position.
______	5.2.5	Move the <u>System Purge</u> toggle switch (#20) to the <u>Normal</u> position.
______	5.2.6	Move the <u>Refill</u> toggle switch (#24) to the <u>Off</u> (down) position.
______	5.2.7	Turn <u>Key Lock</u> switch (#48) to <u>Power On</u>. Accompanying power light should illuminate.
______	5.2.8	Turn the <u>Radiation Monitor</u> (#3) <u>On</u> by moving the toggle switch (located below the meter) to the <u>Up</u> position.

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ENCLOSURE 5.2
POST-ACCIDENT CONTAINMENT AIR SAMPLING SET-UP

Check		Action
______	5.2.9	Turn the Radiation Monitor (#3) selector to BATT and verify that the needle is in the "red test region" on the right end of the scale. If reading is below the test region, rely on Health Physics surveys to determine access to the sample panel.
______	5.2.10	Select the appropriate rate so that the needle is on the meter scale by first turning the selector knob to higher scale (R/hr) and, if necessary, to the lower scale (mR/hr).
______(SP)	5.2.11	Pour thiosulfate solution into the thiosulfate tank, located on top of the sample panel. Leave the cap off of the thiosulfate tank after transferring the thiosulfate solution.
______(SP)	5.2.12	Open all four (4) service valves DI, VI, N_2 and TS by turning handles one-quarter turn counterclockwise. The DI, VI, and N_2 valves are located on the outside upper left side of the sample panel, and the TS valve is located on top of the sample panel.

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ENCLOSURE 5.3
TAKING POST-ACCIDENT CONTAINMENT AIR SAMPLES

Date/Time ____________/____________ Unit ____________

Check		Action
______	5.3.1	Turn Key Lock switch (#48) to On.
______	5.3.2	Turn Selector switch (#9) to System Purge.
______	5.3.3	Move System Purge toggle switch (#20) to Sample Purge.
______	5.3.4	Depress Activate pushbutton (#10).
______	5.3.5	Depress Evac pushbutton (#17) (Evac light should illuminate) and watch the vacuum gauge (#6) drop to -25" of Hg.
______	5.3.6	When the vacuum gauge (#6) reaches -25" of Hg, depress the Stop pushbutton (#19).
______	5.3.7	Press down the Gas Purge toggle switch (#16) and watch the vacuum gauge (#6) rise to +10" of Hg.
______	5.3.8	When the vacuum gauge (#6) reaches +10" of Hg, return toggle switch (#16) to center position and depress the Stop pushbutton (#19).
______	5.3.9	Depress the Evac pushbutton (#17) and watch the vacuum gauge (#6) drop to 0" of Hg.
______	5.3.10	When vacuum gauge (#6) reaches 0" of Hg, depress the Stop pushbutton (#19).
______	5.3.11	Depress Pump pushbutton (#18) and wait for thirty (30) seconds.
______	5.3.12	Depress Stop pushbutton (#19).
______	5.3.13	Move System Purge toggle switch (#20) to Normal.
______	5.3.14	Turn Selector switch (#9) to Solution Changeout.
______	5.3.15	Ensure gas bomb valves are open.
______(SP)	5.3.16	Attach an "Iodine Sample" bottle to the sample panel by inserting the plastic hose into the bottle located on the lower left side of the panel. Attach a gas bomb to the sample panel on the lower right side of panel.

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ENCLOSURE 5.3
TAKING POST-ACCIDENT CONTAINMENT AIR SAMPLES

Check		Action
______	5.3.17	Record the Radiation Monitor (#3) reading as a background reference: __________R/hr
______	5.3.18	Record sample line temperature reading (#4): ________ °C
______	5.3.19	Depress Activate pushbutton (#10).
______	5.3.20	Depress Flush pushbutton (#22) and hold five (5) seconds.
______	5.3.21	Depress Purge pushbutton (#23) and hold ten (10) seconds.
______	5.3.22	Depress Empty pushbutton (#21) and hold for thirty (30) seconds.
______	5.3.23	Move the Refill toggle switch (#24) to ON (up) position and wait two (2) minutes and then move the toggle switch back to the Off (down) position.
______	5.3.24	Turn Selector switch (#9) to Dilution Volume Evacuation.
______	5.3.25	Depress the Activate pushbutton (#10) and watch the vacuum gauge (#6) drop to -25" of Hg.
______	5.3.26	When the vacuum gauge (#6) reaches -25" of Hg, turn Selector switch (#9) to Sample Recirc.
______	5.3.27	Depress Activate pushbutton (#10) and wait for five (5) minutes.
______	5.3.28	Record sample inlet line pressure (psig) reading (#5): ____________ psig
______	5.3.29	Depress Sample pushbutton (#11) and wait for thirty (30) seconds.
______	5.3.30	Depress Trap pushbutton (#12) and wait for ten (10) seconds.
______	5.3.31	Enter time of sample trap: _______ (ex. 1355)
______	5.3.32	Turn Selector switch (#9) to Sample Dilution.
______	5.3.33	Depress Activate pushbutton (#10).
______	5.3.34	Depress Slow pushbutton (#13) and watch vacuum gauge (#6) rise to 0" of Hg.

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HP/1/B/1009/17
ENCLOSURE 5.3
TAKING POST-ACCIDENT CONTAINMENT AIR SAMPLES

Check		Action
______	5.3.35	When the vacuum gauge (#6) reaches 0" of Hg, depress the Stop pushbutton (#14).
______	5.3.36	Depress the Recirc pushbutton (#15) and wait for five (5) minutes.
______(SP)	5.3.37	Close the gas bomb outlet valve, wait five (5) seconds and close the inlet valve.
______	5.3.38	Depress the Stop pushbutton (#14).
______	5.3.39	Turn Selector switch (#9) to Solution Changeout.
______	5.3.40	Depress Activate pushbutton (#10).
______	5.3.41	Depress the TS Sample pushbutton (#25).
______	5.3.42	Depress and hold the Empty pushbutton (#21) for five (5) minutes. Thiosulfate should transfer into the TS sample bottle.
______	5.3.43	Depress Purge pushbutton (#23) and hold thirty (30) seconds.
______	5.3.44	Depress TS Sample Grab pushbutton (#26).
______	5.3.45	Turn Selector switch (#9) to System Purge.
______	5.3.46	Move System Purge toggle switch (#20) to Sample Purge.
______	5.3.47	Repeat steps 5.3.4 through 5.3.12 as needed until no noticeable decrease is observed on the Radiation Monitor (#3) from one purge to the next. Check blank in steps 5.3.4 through 5.3.12 each time the step is performed.
______	5.3.48	Record the Radiation Monitor (#3) reading.
______	5.3.49	Turn Key Lock switch (#48) to Off.
______(SP)	5.3.50	Tightly cap the "Iodine Sample" bottle and disconnect the gas bomb from the sample panel.

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ENCLOSURE 5.3
TAKING POST-ACCIDENT CONTAINMENT AIR SAMPLES

Check		Action
______	5.3.51	Determine the Thiosulfate Sample Volume (TSV) and record this value as TSV: ____________ ml
______	5.3.52	Using standard chemistry laboratory techniques and under a sample hood, transfer 50 ml of the "Iodine Sample" into the 60 ml Nalgene bottle. Contact Radwaste Chemistry for instructions on disposal of excess sample.
______	5.3.53	Place the 60 ml "Iodine Sample" bottle and the gas bomb into a shielded container.
______	5.3.54	Transfer the "Iodine Sample" and gas bomb to the Health Physics Counting Room for isotopic analysis.
______	5.3.55	Using a monitoring instrument (such as the R02A or PIC-6A) take a contact dose rate reading on the top of the gas bomb and on the side of the "Iodine Sample" bottle: ________ R/hr gas bomb, ________ R/hr "Iodine Sample"

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HP/1/B/1009/17
ENCLOSURE 5.4
SAMPLE OF POST-ACCIDENT CONTAINMENT AIR SAMPLE DATA SHEET

Date/Time: ______________/______________ Unit ____________________

Prepared By: ______________________________ Emergency - Drill
(Circle One)

First Radiation Monitor Reading from 5.3.17 ____________________R/hr

Sample Line Temperature from 5.3.18 ____________________°C

Sample Inlet Line Pressure from 5.3.28 ____________________psig

Sample Trap Time from 5.3.31 ____________________

Second Radiation Monitor Reading from 5.3.48 ____________________R/hr

Contact reading on gas bomb from 5.3.52 ____________________R/hr (Top)

Contact reading on "Iodine Sample" bottle from 5.3.52 ____________R/hr (Side)

Containment Sample Volume --

$$CSV = 1.3 \text{ ml} \quad \frac{293^{\circ}K}{(273^{\circ}C + \_\_\_\_\_ ^{\circ}C)^{\circ}K} \bullet \frac{(14.7 \text{ psig} + \_\_\_\_\_ \text{ psig})}{14.7 \text{ psig}}$$

= __________ ml at standard temperature and pressure

Section volume of CSV trapped in "Iodine Sample" bottle --

$$SV_I = \_\_\_\_\_\_\_\_\_\_ \text{ ml (CSV)} \bullet \frac{50 \text{ ml}}{\_\_\_\_\_ \text{ ml (TSV)}} = \_\_\_\_\_\_\_\_\_\_ \text{ ml}$$

where 50 ml sample size ÷ Thiosulfate Sample Volume from 5.3.54

Section volume of CSV trapped in gas bomb --

$$SV_G = \_\_\_\_\_\_\_\_\_\_ \text{ ml (CSV)} \bullet .01 = \_\_\_\_\_\_\_\_\_\_ \text{ ml}$$

where .01 = 100 ml gas bomb ÷ 10,000 ml volume of dilution

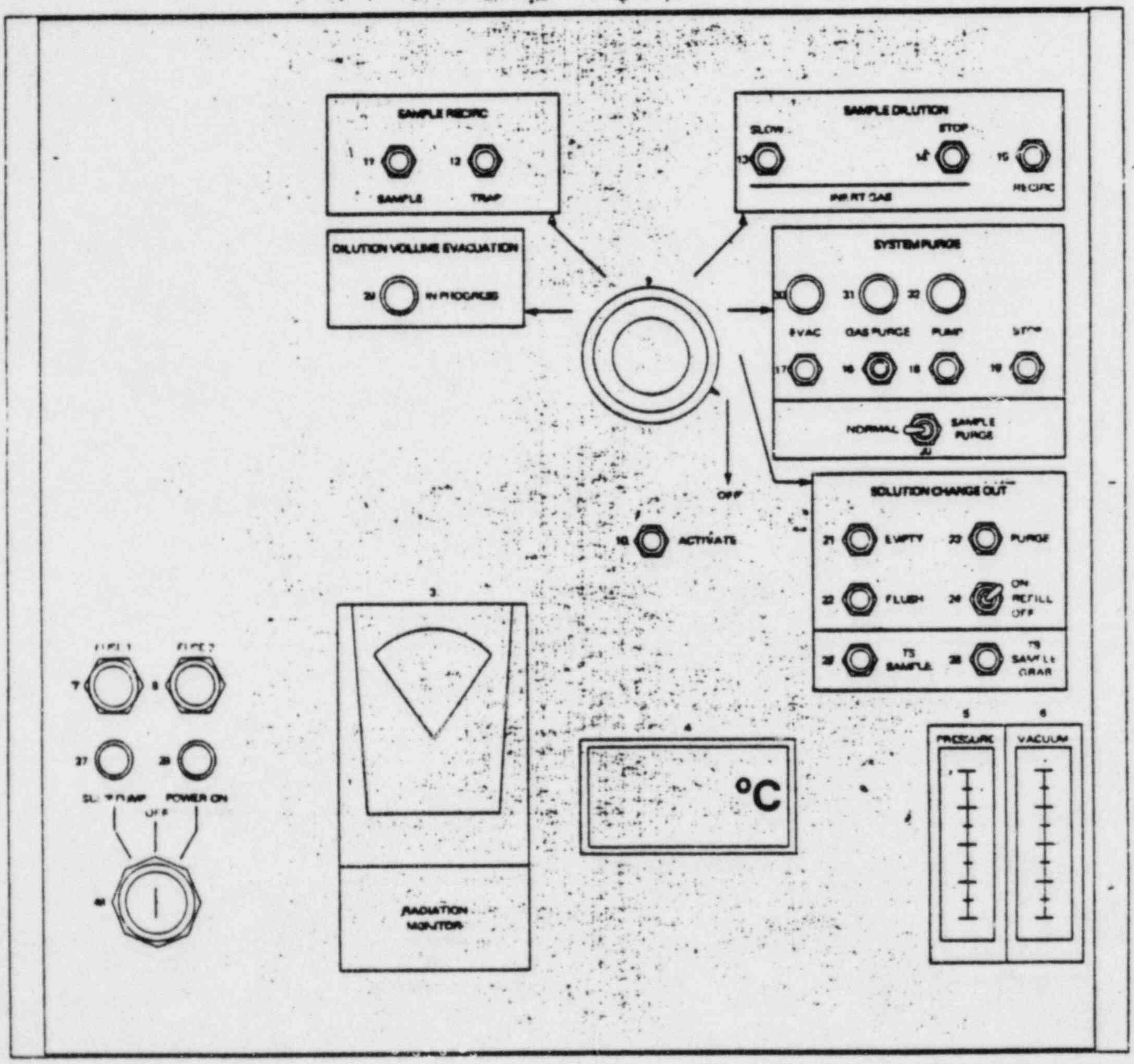
______________________________ ____________________
Station Health Physicist Date

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/1/B/1009/17
ENCLOSURE 5.5
POST-ACCIDENT CONTAINMENT AIR SAMPLING SHUTDOWN

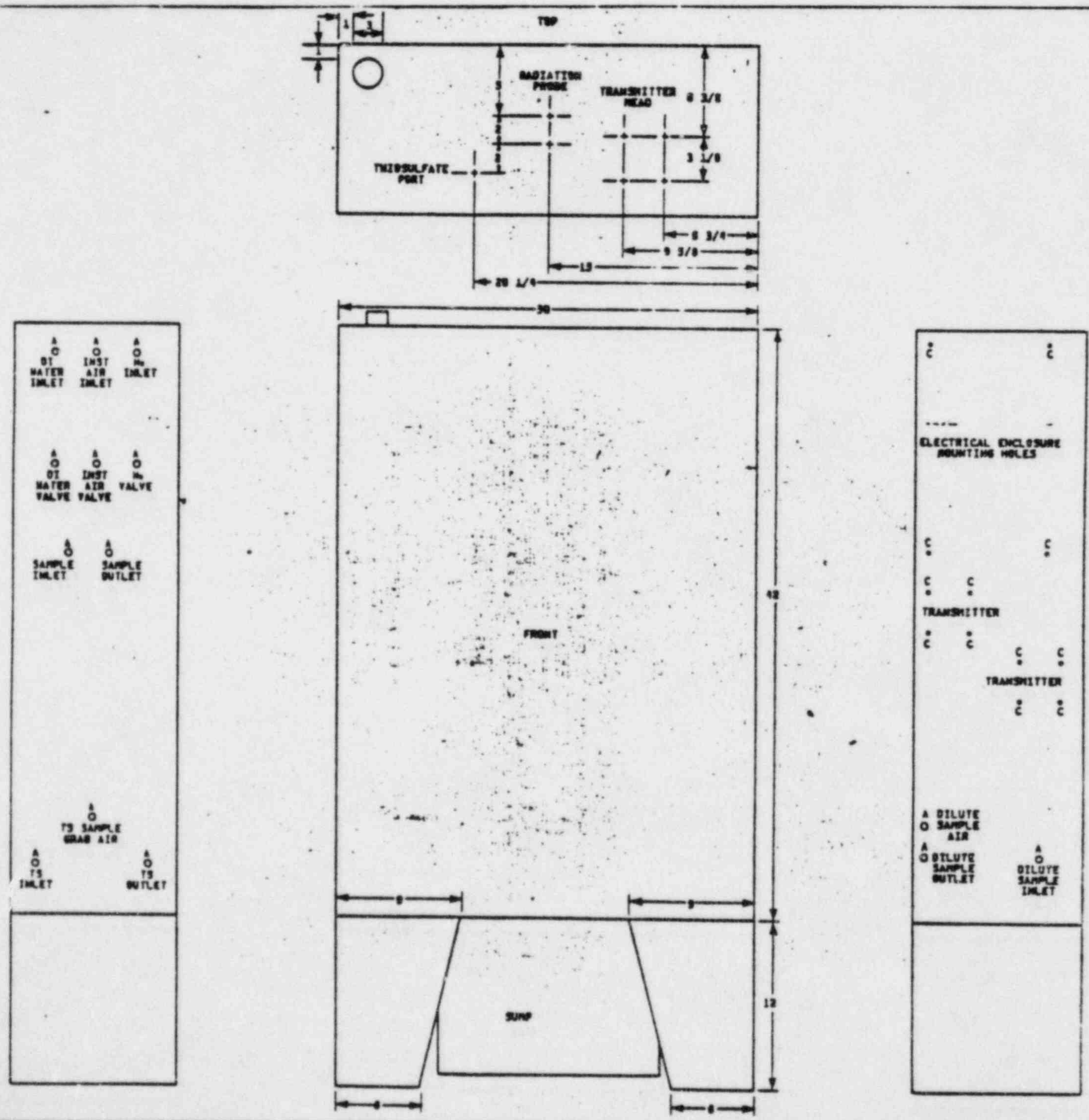
Date/Time ___________/___________ Unit ___________

Check		Action
_____	5.5.1	Turn <u>Selector</u> switch (#9) to <u>Off</u>.
_____	5.5.2	Turn Radiation Monitor (#3) <u>Off</u>.
_____(SP)	5.5.3	Replace the top to the TS tank.
_____(SP)	5.5.4	Close all four (4) service valves DI, VI, N_2 and TS by turning handles one-quarter turn clockwise.
_____	5.5.5	Request that Operations complete the Shutdown Section for Post-Accident Containment Air Sampling of procedure OP/1/A/6450/10 (see Reference 2.2).
_____	5.5.6	Notify Shift Supervisor of sampling completion and that the H_2 Analyzer used during sampling is not required for sampling.

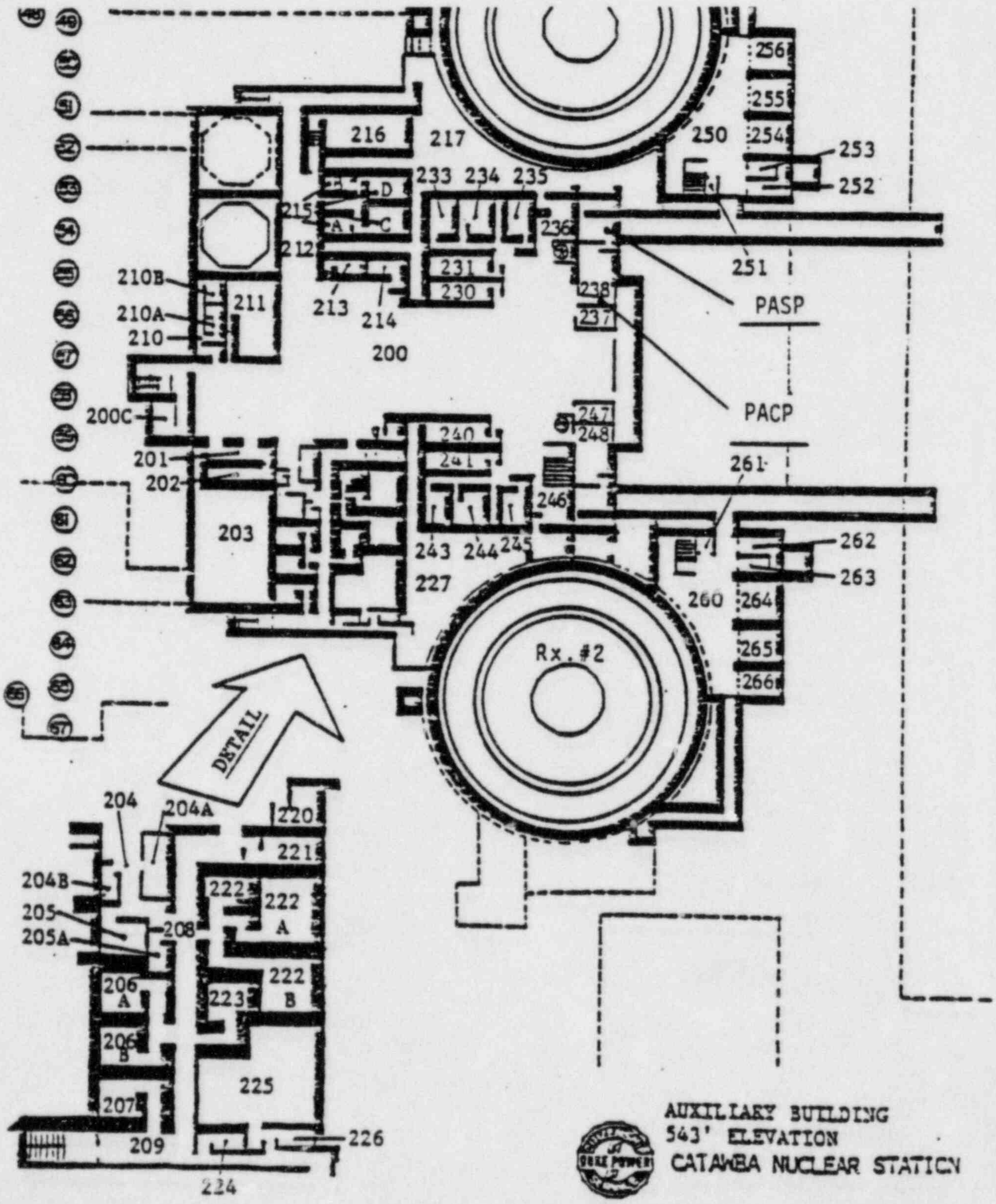
Duke Power Company
Catawba Nuclear Station
HP/1/B/1009/17
Enclosure 5.5
Post-Accident Containment Air Sampling Control Panel (PACP) Diagram



Duke Power Company
Catawba Nuclear Station
HP/1/B/1009/17
Enclosure 5.6
Post-Accident Containment Air Sampling Sample Panel (PASP) Diagram



DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/1/B/1009/17
Enclosure 5.7
Location of PACP and PASP



HP/0/B/1009/18
ENVIRONMENTAL MONITORING FOR EMERGENCY CONDITIONS
WITHIN THE TEN MILE RADIUS OF CATAWBA NUCLEAR STATION
(AUGUST 1983)

Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: HP/0/B/1009/19
Change(s) 0 to
0 Incorporated

(2) STATION: Catawba

(3) PROCEDURE TITLE: Emergency Radio System Operation, Maintenance, and Communication

(4) PREPARED BY: Phillip R. McLamon DATE: 9-23-83

(5) REVIEWED BY: Rod Kincaid DATE: 9-23-83

Cross-Disciplinary Review By: ______ N/R: R Kincaid

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ______ (SRO) Date: ______

By: ______ Date: ______

(7) APPROVED BY: H. S. Tuckman Date: 9/26/83

(8) MISCELLANEOUS:

Reviewed/Approved By: ______ Date: ______

Reviewed/Approved By: ______ Date: ______

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
EMERGENCY RADIO SYSTEM OPERATION, MAINTENANCE, AND COMMUNICATION

1.0 PURPOSE

To describe the Emergency Radio System activation, maintenance and use during an emergency event or drill.

2.0 REFERENCES

2.1 HP/0/B/1009/04 Environmental Monitoring for Emergency Conditions within the ten mile radius of Catawba Nuclear Station

2.2 DPC Form 06005, Radio Operators Manual

2.3 Crisis Management Plan, Implementing Plans, 5.3.6 Radiological Support Group, Revision 6

2.4 PT/0/B/4600/06 Emergency Exercises and Drills

2.5 HP/0/B/1000/06 Emergency Equipment Functional Check and Inventory

3.0 LIMITS AND PRECAUTIONS

3.1 The Emergency Radio Network is specifically limited to use in an emergency drill, event, or operability check.

3.2 The Technical Support Center (TSC) Base Station Remote Radio should be used to support operability checks of "Porta-Mobile" Field Monitoring Team Radios.

3.2.1 Emergency Radio System Base Stations and County/State Coded Squelch Radios are checked for operability by PT/0/B/4600/06 (Reference 2.4).

3.3 The following locations have radio capabilities for temporary emergency communications between:

3.3.1 Control Room and Allen Plant Steam Station (Evacuation Point) - Production and Transmission Frequency 47.98 MHz

3.3.2 Nuclear Production PAP (Security Zone #2) or Construction Personnel Access (Security Zone #22) and Security Base Station (located in Control Room) or TSC Security Representative - Dedicated Security Frequency

NOTE: Relay messages through Security radio closest to locations in Step 3.4.2.

3.4 Emergency radio system operates on FM low-band dedicated frequency of 48.50 MHz except where noted in Sample Enclosure 5.1.

3.5 Use telephone numbers listed in Sample Enclosure 5.1 as primary communication links between TSC/CMC and the following Evacuation Points:

3.5.1 Allen Steam Station

3.5.2 Transmission Line Maintenance Building

3.6 Use HP/0/B/1009/04 (Reference 2.1) as information guide for field monitoring locations, directions and sampling.

4.0 PROCEDURE

4.1 General Guidance for Emergency Radio Communications

4.1.1 Operate radios in accordance with Duke Power Company "Radio Operators Manual", (Reference 2.2).

4.1.1.1 Use call signs and identifiers listed in Sample Enclosure 5.1.

4.1.1.2 Use Sample Enclosure 5.3 (Examples of Emergency Radio Communications) as format guidance for communications.

4.1.2 Minimize the length of transmissions by using code numbers and/or words listed in Sample Enclosure 5.2 as practicable.

4.1.3 Minimize the number of transmissions by:

4.1.3.1 Speaking slowly and distinctly in a slightly louder than normal voice.

4.1.3.2 Transmitting numbers one digit at a time except when reporting even thousands or time (hundreds of hours) as practicable.

4.1.3.3 Using phonetic alphabet listed in Enclosure 5.2 when transmitting letters or when spelling words.

4.1.4 Precede transmissions with the message "this is a drill" during emergency drills.

4.2 Location of Emergency Radios

4.2.1 Obtain radios from storage locations listed in Sample Enclosure 5.1.

4.3 Emergency Radio System Activation

4.3.1 Base Station Remote Radios

4.3.1.1 Locate antenna lead and plug into modular (telephone-type) receptacle.

4.3.1.2 Select AC switch on Base Station and energize by plugging power cord into AC receptacle.

4.3.1.2.1 Select DC switch on Base Station and energize by connecting DC leads to twin battery pack if AC power is not available.

4.3.2 "Porta-Mobile"/Field Monitoring Team Radios

4.3.2.1 Turn power control switch to "ON" position.

4.3.2.2 Adjust squelch control knob clockwise until static is heard, then turn counterclockwise until static is just eliminated.

4.4 Emergency Radio System Operation

4.4.1 Base Station Remote Radios

4.4.1.1 Press key on microphone and hold to transmit messages; release key to receive transmissions.

4.4.1.2 Select "Intercom Mode" key for communication between the following Base Stations:

4.4.1.2.1 Transmission Line Maintenance Building Base Station Remote.

4.4.1.2.2 Technical Support Center (TSC) Base Station Remote.

4.4.1.2.3 Nearsite Crisis Management Center (CMC) Base Station Remote.

4.4.1.3 Signal County and/or State coded squelch radios to receive specific transmissions by keying the proper encoding numbers listed in Sample Enclosure 5.1.

4.4.1.4 Record sample results received from Field Monitoring Teams on Sample Enclosure 5.4.

4.4.1.5 Route Enclosure 5.4 (Sample Results Received By The Radio Operator From Field Monitoring Teams) to Station Emergency Preparedness Coordinator for disposition as soon as practicable after event/drill is completed.

4.4.2 "Porta-Mobile" FMT Radios

4.4.2.1 Press key on microphone and hold to transmit messages; release key to receive transmissions.

4.4.2.2 Hold microphone to the side of the mouth (at an angle) when transmitting messages.

4.5 **Inoperable Radios**

4.5.1 **Base Station Remotes**

4.5.1.1 Contact Station Emergency Preparedness Coordinator to report problems with Base Station radio operation.

4.5.2 "Porta-Mobile"/Field Monitoring Team Radios

4.5.2.1 Refer to HP/0/B/1000/06 (Reference 2.5) for problems with radios normally stored in Health Physics Emergency kits.

4.5.2.2 Use back-up "Porta-Mobile" radios in the event failures occur with primary "Porta-Mobile" radios.

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/19
SAMPLE ENCLOSURE 5.1
RADIO SPECIFIC DATA

BASE STATION REMOTE RADIOS

USER	STORED	OPERATED	CALL SIGN	IDENTIFIER
1. Technical Support Center	TSC	TSC	TBAL	Base One
2. Nearsite CMC (G.O.)	WC2314	WC1222	TBAL	Base Two

COUNTY/STATE CODED SQUELCH RADIOS

USER	ENCODING NUMBER	CALL SIGN	IDENTIFIER
1. Gaston County EOC	TBAL	TBAL	Gaston County
2. York County EOC	TBAL	TBAL	York County
3. Mecklenburg County EOC	TBAL	TBAL	Mecklenburg County
4. S.C. State FEOC	TBAL	TBAL	S.C. State
5. N.C. SERT	TBAL	TBAL	N.C. State

FIELD MONITORING TEAM RADIOS

USER	STORED	CALL SIGN	IDENTIFIER
1. Field Monitoring Team	Aux Bldg 517B	TBAL	Alpha Team
2. Field Monitoring Team	Aux Bldg 517B	TBAL	Bravo Team
3. Field Monitoring Team	Aux Bldg 517B	TBAL	Charlie Team
4. Field Monitoring Team	Aux Bldg 517B	TBAL	Delta Team
5. Helicopter Team	Aux Bldg 517B	TBAL	Echo Team

TEMPORARY EMERGENCY USE RADIOS

USER	TYPE RADIO	CALL SIGN	IDENTIFIER	FREQUENCY	TELEPHONE NUMBERS
1. Allen Steam Station	Base Station	TBAL	TBAL	47.98 MHz	MW 373-4646 Bell (704) 825-2022
2. Transmission Line Maint. Bldg.	Base Station	TBAL	TBAL	48.50 MHz	MW 373-7309 Bell 366-4777
3. Security (Constr. Personnel Access)	Handie-Talkie	N/A	Security Zone #22	TBAL	TBAL
4. Security (Nuc. Prod. PAP)	Handie-Talkie	N/A	Security Zone #2	TBAL	TBAL
5. Security (Control Room)	Base Station	TBAL	TBAL	TBAL	TBAL
6. Security (TSC Representative)	Handie-Talkie	N/A	TBAL	TBAL	TBAL

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/19
SAMPLE ENCLOSURE 5.1
RADIO SPECIFIC DATA

LEGEND:

EOC	-	Emergency Operations Center
FEOC	-	Forward Emergency Operations Center
SERT	-	State Emergency Response Team
CMC	-	Crisis Management Center
PAP	-	Personnel Access Portal
WC	-	Wachovia Center Offices
TBAL	-	To Be Added Later

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/19
SAMPLE ENCLOSURE 5.2
RADIO CODE SIGNALS

CODE NUMBERS

1- Reporting On
2- Reporting Off
3- Stand By
4- VIP or Outsider Present
5-
6-
7- Message Received and Understood or "Yes"
8- Repeat (Message not understood)
9- Call..........................By Phone
10- Read (Reread) Meter
11- Relay Message to ....
12- Fire (Give location)
13- Check for Trouble
14- Nothing for You
15- Give Your Location
16- Trouble Cleared
17- Cancel Call
18-
19-
20- Radio Test (How do you receive my signal?)
21- Request Assignment (Do you have anything for me?)
22-
23-
24- I Have an Emergency Situation. Please Give Location. How Long Will It Take for You to Get into the Clear?
25-
26-
27-
99- EMERGENCY ASSISTANCE NEEDED AT ....
(Give location)(Use only when serious threat to life or safety exists)

CODE WORDS

OVER	-	End of conversation and awaiting reply
OUT	-	End of transmission and no answer is expected
CLEAR	-	End of transmission and no answer is expected
NEGATIVE	-	No or incorrect
ROGER	-	Affirmative or Yes
STAND-BY	-	Wait for further information or instructions
SAY AGAIN	-	Repeat last transmission
WRONG	-	Message is being repeated back incorrectly
WAIT	-	Pause for a few seconds

PHONETIC ALAPHABET

A -	Alpha	N -	November
B -	Bravo	O -	Oscar
C -	Charlie	P -	Papa
D -	Delta	Q -	Quebec
E -	Echo	R -	Romeo
F -	Foxtrot	S -	Sierra
G -	Golf	T -	Tango
H -	Hotel	U -	Uniform
I -	India	V -	Victor
J -	Juliette	W -	Whiskey
K -	Kilo	X -	X-Ray
L -	Lima	Y -	Yankee
M -	Mike	Z -	Zulu

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/19
SAMPLE ENCLOSURE 5.3
EXAMPLES OF EMERGENCY RADIO COMMUNICATIONS

NOTE: The following call signs and identifiers are for example only. CNS TBAL

5.3.1 Example of Base Station Signing On:

BASE:	WQC 699 BASE 1 (BASE 2 for CMC) CODE 1 (Signing On)
BASE:	BASE 1 to KA82139 (Team Name - Alpha, Bravo, Charlie, Delta, Echo or Foxtrot)
MOBILE:	KA82139 ALPHA to BASE 1 CODE 7 (Go Ahead)
BASE:	STANDBY FOR FURTHER INSTRUCTIONS
MOBILE:	CODE 7 (Message Received) KA82139 ALPHA OUT
BASE:	WQC 699 BASE 1 OUT

5.3.2 Example of Field Monitoring Team Signing On:

MOBILE:	KA82139 ALPHA to BASE 1
BASE:	BASE 1 to ALPHA
MOBILE:	CODE 1 (Reporting On)
BASE:	CODE 7 (Message Received) WQC 699 BASE 1 OUT
MOBILE:	KA82139 ALPHA OUT

5.3.3 Example of Field Monitoring Team Reporting Data:

MOBILE:	KA82139 BRAVO to BASE 1
BASE:	BASE 1 to BRAVO
MOBILE:	LOCATION C-1, TIME 2015 HOURS DOSE RATE MEASUREMENT .02, mR/hr IODINE ACTIVITY 5.1 x 10 µCi/ml
BASE:	WQC 669 BASE 1 OUT
NOTE:	DATA is recorded by base station radio operator on Enclosure 5.5 of Procedure CP/0/B/4003/01.

5.3.4 Example of Base Station Operator Dispatching Field Monitoring Team to New Sampling Location:

BASE:	WQC 669 BASE 1 to KA82139 CHARLIE
MOBILE:	KA82139 CHARLIE TEAM to BASE 1 GO
BASE:	CHARLIE TEAM PROCEED TO LOCATION M-1 MEASURE AND REPORT DOSE RATE AND IODINE ACTIVITY
MOBILE:	LOCATION M-1, CODE 7, CHARLIE OUT
BASE:	WQC 669 BASE 1 OUT

5.3.5 Example of Field Monitoring Team Signing Off:

MOBILE: KA82139 DELTA TEAM to BASE 1
BASE: BASE 1 to DELTA TEAM
MOBILE: CODE 2 (Reporting Off)
BASE: CODE 7, WQ 669 BASE 1 OUT

NOTE: BASE 1 should sign off when all mobile teams have signed off:

EXAMPLE: WQ 669 BASE 1
CODE 2

5.3.6 Example of Communication Check:

BASE: WQC 699 BASE 1 (BASE 2 for CMC) CODE 1 (Signing On)
BASE: BASE 1 to KA82139 (Team Name - Alpha, Bravo, Charlie, Delta, Echo or Foxtrot)

MOBILE: KA82139 ALPHA to BASE 1 CODE 7 (Go Ahead)
BASE: HOW DO YOU RECEIVE MY SIGNAL?
MOBILE: LOUD AND CLEAR KA82139 ALPHA OUT
BASE: WQC 699 BASE 1 OUT

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/19
SAMPLE ENCLOSURE 5.4

SAMPLE RESULTS RECEIVED BY THE RADIO OPERATOR FROM FIELD MONITORING TEAMS

DATE ______________________ RADIO OPERATOR ____________________

TEAM	SAMPLE LOCATION	TIME SAMPLE TAKEN	DOSE RATE mR/hr	^{131}I ACTIVITY µCi/ml	DOSE RATE mrem/hr

Form SPD-1002-1

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: HP/0/B/1009/20
Change(s) 0 to
0 Incorporated

(2) STATION: Catawba

(3) PROCEDURE TITLE: Procedure For Estimating Food Chain Doses Under Post Accident Conditions

(4) PREPARED BY: Rodney D. Kinard DATE: 4-25-83

(5) REVIEWED BY: Gregg L. County DATE: 4/25/83

Cross-Disciplinary Review By: ______ N/R: ______

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ______ (SRO) Date: ______

By: ______ Date: ______

(7) APPROVED BY: H.S. Tucker Date: 4/25/83

(8) MISCELLANEOUS:

Reviewed/Approved By: ______ Date: ______

Reviewed/Approved By: ______ Date: ______

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
PROCEDURE FOR ESTIMATING FOOD CHAIN DOSES
UNDER POST ACCIDENT CONDITIONS

1.0 PURPOSE

Usually the determination of potential areas of concern in the ingestion pathway under post-accident conditions will be made by the Recovery Manager, the Offsite Radiological Coordinator or the Emergency Coordinator based initially upon station releases, prevailing meteorological and hydrological conditions, and confirmatory measurements of dose rates and air sample results by field monitoring teams.

This procedure describes the method to be used in order to rapidly estimate offsite doses through significant food chain dose pathways under post-accident conditions. It is to be used only at the request of the State(s) or under the direction of the Recovery Manager, the Offsite Radiological Coordinator or the Emergency Coordinator.

2.0 REFERENCE

U. S. NRC Reg. Guide 1.109

3.0 LIMITS AND PRECAUTIONS

3.1 Reg. Guide 1.109 is intended to guide the calculation of doses under long term steady state conditions. The body of this procedure contains notes covering cases in which the calculation of doses under accident conditions differs from the calculation of doses under routine conditions.

3.2 This procedure covers only the calculation of the food chain pathway doses most likely to be limiting under post-accident conditions. Other food chain doses must be calculated using the methods of the Duke Power Company Offsite Dose Calculation Manual or Reg. Guide 1.109. General Office Health Physics personnel shall be consulted when these other food chain doses are calculated.

3.3 The errors in the doses calculated through the use of this procedure are not necessarily conservative (on the high side).

3.4 The assumptions outlined in this procedure shall be carefully compared with existing post-accident conditions before this procedure is used.

3.5 This procedure calculates doses by relating concentration to the uptake by the individual and the associated dose factor (mrem/pCi).

3.6 It is expected that the samples will be collected by Field Monitoring teams under the direction of the Offsite Radiological Coordinator. These samples shall be analyzed at the Radiological Environmental Laboratory.

4.0 PROCEDURE

4.1 Vegetation → Cow or Goat Milk → Consumer Dose Pathway for Radioiodine

4.1.1 Assumptions:

Child (Infant) milk consumption: 900 ml/day (2 pints approx.)
Adult milk consumption: 850 ml/day (2 pints approx.)
Decay time between iodine deposition on vegetation and milk consumption: 2 days.

All (100%) of the milk animals' feed is fresh pasture vegetation; if this is known not to be the case, calculate the concentration eaten by the animal by multiplying the concentration in the pasture vegetation by the fraction of feed which is fresh pasture vegetation.

The contribution to dose of I-132 and I-134 is negligible because of the short half-lives and small dose factors for these radionuclides.

4.1.2 Doses can be calculated on the basis of radioiodine concentrations measured in or on either grass (or other vegetation consumed by milk animals) or milk. Doses calculated on the basis of milk radioiodine concentrations will be much more accurate than those calculated on the basis of vegetation radioiodine concentrations. However, the measurement of vegetation radioiodine concentrations permits the prediction of approximate doses due to milk consumption one or two days later.

Follow-up vegetation radioiodine analysis with milk radioiodine analysis for several days to ensure accurate dose assessments.

4.1.3 Calculation of doses through vegetation analysis:

4.1.3.1 Collect samples of vegetation eaten by milk animals and analyze on GeLi counter. Compute radioiodine concentrations in µCi/gram of undried vegetation.

NOTE: All calculations for vegetation samples are done for cows; however, if the dose from goat milk is desired, simply multiply the dose from cow milk ingestion by 1.2.

4.1.3.2 Calculate thyroid doses by use of the following equations:

$$D_{TCV} = 3200\ C_{I131v} + 180\ C_{I133v} + 1.1\ C_{I135v}$$

$$D_{TAV} = 420\ C_{I131v} + 20\ C_{I133v} + 0.1\ C_{I135v}$$

where: D_{TCV} = human child (infant) thyroid dose commitment in rems per day milk animal consumes contaminated vegetation.

D_{TAV} = Same as above for human adult.

C_{I131v} = Concentration of I131 in vegetation (µCi/g).

C_{I133v} = Concentration of I133 in vegetation (µCi/g).

C_{I135v} = Concentration of I135 in vegetation (µCi/g).

4.1.4 Calculation of doses through milk concentrations:

4.1.4.1 Collect samples of milk and analyze on GeLi counter. Compute radioiodine concentrations in µCi/ml.

4.1.4.2 Calculate thyroid doses by use of the following equations:

$$D_{TCM} = 13000\ C_{I131m} + 3000\ C_{I133m} + 590\ C_{I135m}$$

$$D_{TAM} = 1700\ C_{I131m} + 300\ C_{I133m} + 65\ C_{I135m}$$

where: D_{TCM} = human child (infant) thyroid dose commitment in rems per day of consumption of contaminated milk.

D_{TAM} = Same as above for human adult.

C_{I131m} = Concentration of I133 in milk (µCi/ml)

C_{I133m} = Concentration of I133 in milk (µCi/ml)

C_{I135m} = Concentration of I135 in milk (µCi/ml)

NOTE: Whole body doses due to radioiodine ingestion will always be much smaller than the thyroid dose.

4.2 Drinking Water → Consumer Pathway For Radioiodine

4.2.1 Assumptions:

Child (Infant) water consumption: 900 ml/day (2 pints approx.)
Adjust water consumption: 2000 ml/day (4 1/3 pints approx.)
Decay time in water distribution system: 1 day.

The contribution to dose of I-132 and I-134 is negligible because of the short half-lives and small dose factors of these radionuclides.

4.2.2 Calculation of doses through water concentrations:

4.2.2.1 Collect water samples and analyze on GeLi counter. Compute radioiodine concentrations in µCi/ml.

4.2.2.2 Calculate thyroid doses by use of the following equations:

$$D_{TCW} = 12000\ C_{I131w} + 1400\ C_{I133w} + 50\ C_{I135w}$$

$$D_{TAW} = 3700\ C_{I131w} + 320\ C_{I133w} + 12\ C_{I135w}$$

where: D_{TCW} = human child (infant) thyroid dose commitment in rems per day of consumption of contaminated water.

D_{TAW} = Same as above for human adult.

C_{I131w} = Concentration of I131 in water (µCi/ml)

C_{I133w} = Concentration of I133 in water (µCi/ml)

C_{I135w} = Concentration of I135 in water (µCi/ml)

NOTE: Whole body doses due to radioiodine ingestion will always be much smaller than the thyroid dose.

4.3 Water → Fish → Consumer Pathway For Radiocesium

4.3.1 Assumptions:

Child (teen) fish consumption: 44 g/day (1½ oz. approx.)
Adult fish consumption: 57 g/day (2 oz. approx.)
Bioaccumulation factor for cesium in fish: 2000.

The contribution to dose of Cs-138 is negligible because of its short half-life and small dose factor.

4.3.2 Doses can be calculated on the basis of radiocesium concentrations in either water or fish. Doses calculated on the basis of concentrations in fish will be more accurate than those calculated on the basis of concentration in water. However, the measurement of water radiocesium concentrations permits the prediction of doses due to future consumption of fish.

4.3.3 Calculation of Doses Through Water Analysis:

4.3.3.1 Collect water samples and analyze on GeLi counter. Compute radiocesium concentrations in µCi/ml.

4.3.3.2 Calculate whole body doses by use of the following equations:

$$D_{BCW} = 8000\ C_{Cs134w} + 2000\ C_{Cs136w} + 4600\ C_{Cs137w}$$

$$D_{BAW} = 14000\ C_{Cs134w} + 2200\ C_{Cs136w} + 8200\ C_{Cs137w}$$

where: D_{BCW} = human child (teen) whole body dose commitment in rems per day fish are exposed to contaminated water.

D_{BAW} = Same as above for human adult.

C_{Cs134w} = Concentration of Cs134 in water (µCi/ml)

C_{Cs136w} = Concentration of Cs136 in water (µCi/ml)

C_{Cs137w} = Concentration of Cs137 in water (µCi/ml)

4.3.4 Calculation of Doses Through Fish Concentrations:

4.3.4.1 Collect fish samples and analyze in GeLi counter. Compute radiocesium concentrations in µCi/gram (wet weight).

4.3.4.2 Calculate whole body doses by use of the following equations:

$$D_{BCF} = 4.0\ C_{Cs134F} + 1.0\ C_{Cs136F} + 2.3\ C_{Cs137F}$$

$$D_{BAF} = 6.9\ C_{Cs134F} + 1.1\ C_{Cs136F} + 4.1\ C_{Cs137F}$$

where: D_{BCF} = Human child (teen) whole body dose commitment in rems per day of consumption (at 44 g/day) of contaminated fish.

D_{BAF} = Human adjult infinity whole body dose commitment in rems per day of consumption (at 57 g/day) of contaminated fish.

C_{Cs134F} = Concentration of Cs134 in fish (μCi/g)

C_{Cs136F} = Concentration of Cs136 in fish (μCi/g)

C_{Cs137F} = Concentration of Cs137 in fish (μCi/g).

NOTE: In any one day, a person may easily consume 5 or even 10 times the assumed daily quantity of fish.

Liver doses due to radiocesium ingestion are about two times the whole body doses; therefore, the whole body doses are limiting.

5.0 ENCLOSURES

5.1 Food Chain Dose Calculations Worksheet

ENCLOSURE 5.1

FOOD CHAIN DOSE CALCULATIONS WORKSHEET

DATE: ____________________ PERFORMED BY: ______________________________

I. Dose to Thyroid From Radioiodine

A. Vegetation → Cow or Goat Milk → Consumer Dose Pathway

1. Vegetation Analysis: Date Sampled ________ Location __________

Age Group	Isotope (I-)	Concentration In Vegetation (µCi/g)		Multiplying Factor (rem/d)/(µCi/g)		Dose (rem/d)
Child (Infant)	131	____________	*	3200**	=	____________
	133	____________	*	180**	=	____________
	135	____________	*	1.1**	=	____________
				Total Dose	=	____________
Adult	131	____________	*	420**	=	____________
	133	____________	*	20**	=	____________
	135	____________	*	0.1**	=	____________
				Total Dose	=	____________

**All multiplying factors for vegetation are for cow milk, if the dose from goat milk is desired, multiply the dose from cow milk calculations by 1.2.

2. Milk Analysis: Date Sampled ________ Location ______________

Age Group	Isotope (I-)	Concentration In Milk (µCi/ml)		Multiplying Factor (rem/d)/(µCi/ml)		Dose (rem/d)
Child (Infant)	131	____________	*	13000	=	____________
	133	____________	*	3000	=	____________
	135	____________	*	590	=	____________
				Total Dose	=	____________
Adult	131	____________	*	1700	=	____________
	133	____________	*	300	=	____________
	135	____________	*	65	=	____________
				Total Dose	=	____________

B. Drinking Water → Consumer Dose Pathway:

Date Sampled ________________ Location ________ ______________

Age Group	Isotope (I-)	Concentration In Water (μCi/ml)		Multiplying Factor (rem/d)/(μCi/ml)		Dose (rem/d)
Child (Infant)	131	________	*	12000	=	________
	133	________	*	1400	=	________
	135	________	*	50	=	________
				Total Cost	=	________
Adult	131	________	*	3700	=	________
	133	________	*	320	=	________
	135	________	*	12	=	________
				Total Cost	=	________

II. Dose to Whole Body From Radiocesium:

A. Water → Fish → Consumer Dose Pathway

1. Water Analysis: Date Sampled ________ Location ______________

Age Group	Isotope (I-)	Concentration In Water (μCi/ml)		Multiplying Factor (rem/d)/(μCi/ml)		Dose (rem/d)
Child (Infant)	134	________	*	8000	=	________
	136	________	*	2000	=	________
	137	________	*	4600	=	________
				Total Cost	=	________
Adult	134	________	*	14000	=	________
	136	________	*	2200	=	________
	137	________	*	8200	=	________
				Total Cost	=	________

2. **Fish Analysis:** Date Sampled _______ Location ____________

Age Group	Isotope (Cs-)	Concentration In Fish (μCi/g)		Multiplying Factor (rem/d)/(μCi/g)		Dose (rem/d)
Child (Infant)	134	________	*	4.0	=	________
	136	________	*	1.0	=	________
	137	________	*	2.3	=	________
				Total Dose	=	________
Adult	134	________	*	6.9	=	________
	136	________	*	1.1	=	________
	137	________	*	4.1	=	________
				Total Dose	=	________

CP/0/A/8700/11

SAMPLING AT THE POST ACCIDENT LIQUID SAMPLE PANEL

(LATER)

Catawba Nuclear Station Directive 3.7.5 (AS)

Revision No. 1 Date 12-21-82

Approval [signature]

DUKE POWER COMPANY

CATAWBA NUCLEAR STATION

RESPONSE TO BOMB THREAT

1.0 PURPOSE

To provide guidance for the safe and orderly response to bomb threat emergency situations which may endanger the station or station personnel and provide for the subsequent investigation and reporting.

2.0 SPECIFIC RESPONSIBILITIES

2.1 Employee Receiving Threat Call

2.1.1 Respond to call as stipulated in Section 3.1 of this Directive.

2.2 Station Manager

2.2.1 Orders site evacuation depending upon review of circumstances prevailing and establishes assembly locations.

2.2.2 Notify: Appropriate Department/Company Management
Corporate Communications
NRC Region II (404) 221-5529

2.3 Chief of Security

2.3.1 Coordinates activities between the Security Force and site/company management.

2.3.2 When time and circumstances permit, order search of the area by Security Force members who are to be augmented by fire brigade personnel.

2.3.3 Notify local law enforcement agencies as appropriate:

York County Sheriff Dept.	327-2021
FBI - Columbia, SC	254-3011
SLED - Columbia, SC	758-6000
SCHP - Rock Hill, SC	366-7668

2.4 Security Captain

2.4.1 Directs Security Force activities according to situational demands.

2.5 Security Shift Supervisor

2.5.1 Receive, review and pass on data from search team leaders.

2.5.2 Receive threat call information from Construction foremen on backshifts and pass it on to the Operations Shift Supervisor.

2.5.3 Notify Security management as necessary on backshifts.

2.6 Security Force Personnel

2.6.1 Conduct search of assigned area and report findings to the Security Shift Supervisor.

2.6.2 Provide for personnel access control as directed by the Security Shift Supervisor.

2.7 Station Personnel

2.7.1 In the event of a partial or complete site evacuation, when time and circumstances permit, station personnel will remove all hand carried personal items from their assigned work area.

3.0 REFERENCES

3.1 Catawba Nuclear Station Contingency Plan

3.2 Catawba Nuclear Station Security Procedures

3.3 Catawba Nuclear Station Emergency Plan

4.0 ADDITIONAL INFORMATION

4.1 The safe and orderly response to bomb threat situations depends upon the coordination of activities among employees, station management and outside agencies. This coordination will result from the proper education and direction of those involved.

5.0 PROCEDURE

5.1 Receipt of threat

5.1.1 As soon as it is determined that the call is related to a bomb threat, turn on the tape recorder.

5.1.2 Listen to caller carefully for background sounds, speech defects, accent or repeated words or phrases. Keep caller on the phone as long as possible.

5.1.3 Find out as much information as possible about the explosive, such as: type, location, time device is set to go off; and motive for placing the bomb.

5.1.4 Advise the caller that the building is occupied and the detonation of a bomb could result in death or serious injury to many innocent people.

5.1.5 Immediately notify the Chief of Security, T. K. Anderson (2326), Security Captian, J. H. Roach (2452) or the Shift Supervisor (2337).

5.1.6 Complete the attached form, "Bomb Threat Calls".

5.1.7 Take the tape to the Security Shift Lieutenant.

5.2 Security Force Actions

5.2.1 The Security Force will be notified through Security supervision.

5.2.2 Based on the situation, the Security Shift Lieutenant will assign areas to be searched by Security Force Members.

5.2.3 All emergency evacuation routes will be searched by security prior to evacuation, if time and circumstances permit.

5.2.4 If no explosive/incendiary device is found by the Security Force Member, he will so report to the Security Shift Lieutenant.

The Security Shift Lieutenant and Station Management contact will be located in a mutually agreed upon place established at the time of the initial call for security assistance.

5.2.5 If an explosive/incendiary device is located, then the area shall be evacuated, if not already done so, and properly identified and protected against re-entry. The Security Force Member will notify the Security Shift Lieutenant. Upon notification, the Bomb Disposal Unit. 48th Ordinance Detachment, Fort Jackson, S.C. (803-751-5126 will be called.

The Security Force Member will not attempt to clear the explosive.

5.2.6 In the event that an explosive or incendiary device is actuated, the procedures as listed in the Station Contingency Plan and Emergency Plan will be followed.

If there are injuries, Station Directive 2.11.1, Personal Injury Procedure, will be followed.

5.2.7 After completion of the search and it has been determined that there is no bomb, all personnel will be directed to return to their normal work area by the Station Manager.

5.3 Site Evacuation

5.3.1 At the time the site evacuation is ordered, the assembly location will be established for each group/section by the person ordering the evacuation.

5.3.2 When the evacuation and assembly is complete, the section supervisor will notify the appropriate station management that all subordinates are accounted for.

5.3.3 The Security Shift Supervisor should be notified of any personnel unaccounted for.

5.3.4 All plant visitors will report to the receptionist area upon notification of site evacuation unless directed otherwise by site management.

5.4 Bomb Threat Investigation

5.4.1 As soon as practical, security management will initiate an investigation of the incident.

5.4.2 York County Sheriff, SLED, FBI assistance will be requested, as appropriate. The site Security Force will provide assistance as necessary to the LLEA with lead responsibility.

5.4.3 Security will provide documentation and reports as appropriate.

STATION DIRECTIVE 3.7.5
ATTACHMENT 1

CATAWBA NUCLEAR STATION
TELEPHONE PROCEDURES
BOMB THREAT CHECKLIST

INSTRUCTION Be calm, courteous and listen; do not interrupt the caller.
Date ____________________ and Time ____________________ of call.
Telephone line call received on ____________________.

QUESTIONS TO ASK:

1. When is bomb going to explode?
2. Where is it right now?
3. What does it look like?
4. What kind of bomb is it?
5. What will cause it to explode?
6. Did you place the bomb?
7. Why?
8. What is your address?
9. What is your name?

EXACT WORDING OF THE THREAT:

____

____

____

Explosive: _____ Incendiary: _____

____

____

____

____

____

Sex of caller __________ Age __________ Race __________ Length of call __________

CALLER'S VOICE:

_____ Calm
_____ Angry
_____ Excited
_____ Slow
_____ Rapid
_____ Soft
_____ Loud

_____ Laughing
_____ Crying
_____ Normal
_____ Distinct
_____ Slurred
_____ Nasal
_____ Stutter

_____ Lisp
_____ Raspy
_____ Deep
_____ Ragged
_____ Clearing Throat
_____ Deep Breathing
_____ Cracking Voice

_____ Disguised
_____ Accent
_____ Familiar

If voice is familiar, who did it sound like?

____

____

BACKGROUND SOUNDS:

_____ Street Noises
_____ Crockery
_____ Voices
_____ PA System
_____ Music

_____ House Noises
_____ Motor
_____ Office Machinery

_____ Factory Machinery
_____ Animal Noises
_____ Clear
_____ Static

_____ Local
_____ Long Distance
_____ Booth
Other ____________________

____

THREAT LANGUAGE:

_____ Well Spoken (Educated)
_____ Foul
_____ Irrational
_____ Incoherent
_____ Taped
_____ Message read by threat maker
Other ____________________

____

NOTIFIED:

Chief of Security _____ AM-PM; Superintendent of Administration _____ AM-PM; Operations Supervisor _____ AM-PM; Security Shift Supervisor _____ AM-PM; Other ____________________ ____________________ AM-PM.

SIGNATURE ____________________

CATAWBA NUCLEAR STATION DIRECTIVE 3.8.4 (TS)

REV. NO. 6 DATE 2-7-84

APPROVAL J. Hampton

DUKE POWER COMPANY

CATAWBA NUCLEAR STATION

ONSITE EMERGENCY ORGANIZATION

1.0 PURPOSE

To define the role of the Emergency Coordinator and other members of the Onsite Emergency Organization in implementing the station Emergency Plan and to provide for augmentation of the normal operating shift during an emergency situation.

2.0 REFERENCES

2.1 Catawba Nuclear Station Emergency Plan

2.2 Catawba Nuclear Station Operations Management Procedure 1-8, "Authority and Responsibility of Licensed Reactor Operators and Licensed Senior Reactor Operators"

2.3 Station Directive 2.8.1 (TS) "Reporting Requirements"

2.4 Catawba Nuclear Station Operations Management Procedure 2-15 "Notification of Proper Authority".

2.5 Station Directive 3.0.7 (TS), Site Assembly/Evacuation.

3.0 SPECIFIC RESPONSIBILITIES

3.1 Shift Supervisor - All emergencies are initially handled by the Shift Supervisor. The Shift Supervisor on duty will ensure that all immediate actions required by station emergency or abnormal procedures, applicable to the situation, are performed and that all actions necessary for the protection and safety of personnel and property are being taken.

3.2 Emergency Coordinator - The Shift Supervisor shall assume the function of the Emergency Coordinator until the arrival of the Station Manager or his designee at which time the functions of the Emergency Coordinator are transferred to the Station Manager or his designee.

The Shift Supervisor shall then continue to take actions necessary to ensure that the emergency situation is brought under control.

3.3 Recovery Manager - The responsibilities of the Emergency Coordinator will be assumed by the Recovery Manager at the Crisis Management

Center (CMC) as this organization is staffed and ready to assume its function. This assumption of the Emergency Coordinator functions by the Recovery Manager, will take place for the Site Area Emergency and General Emergency classifications.

The Emergency Coordinator shall continue to take actions necessary to ensure that the emergency situation is brought under control and shall coordinate activities between the station and the CMC.

4.0 DUTIES

4.1 Shift Supervisor/Emergency Coordinator - immediate duties include the following:

4.1.1 Determine from the initiating conditions what Emergency Class the Station is in.

4.1.2 Declare the Emergency as necessary and assume control as the Emergency Coordinator.

4.1.3 Assign someone from the shift to begin the notifications as per applicable procedure.

4.1.4 Take necessary on site remedial actions.

4.1.5 Initiate activitation of the Technical Support Center and Operations Support Center.

4.1.6 Providing protective action recommendations to authorities responsible for implementing offsite emergency measures.

NOTE: This authority and responsibility shall not be delegated to other elements of the station emergency organization.

4.2 Station Manager/Emergency Coordinator - relieves the Shift Supervisor of the Emergency Coordinator's duties and assumes the responsibility for implementing the station Emergency Plan including:

4.2.1 Staffing the Technical Support Center and Operations Support Center with those personnel deemed necessary to effectively assess the emergency condition.

4.2.2 Instituting those procedures necessary to allow the Control Room to gain immediate control of the emergency situation.

4.2.3 Notification and activation of Crisis Management Team, county and state organizations and the Nuclear Regulatory Commission.

4.2.4 Providing protective action recommendations to authorities responsible for implementing off-site emergency measures.

NOTE: This authority and responsibility shall not be delegated to other elements of the station emergency organization.

regarding solutions to operational problems. He shall provide technical expertise to other members of the TSC 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 condition. This individual shall be the second alternate to the Emergency Coordinator in the event the Station Manager is unavailable.

B. The Health Physics Section of the TSC

1. 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 TSC as required. He will provide for the calculation and distributin of offsite dose determinations for releases of radioactive materials to the atmosphere and make recommendations to the Station Manager through the Superintendent of Technical Services on Protective Actions necessary for limiting exposure to station personnel and members of the public. He shall also be responsible for directing decontamination activities. The Station Health Physicist shall also work closely with the appropriate members of the Crisis Management Center to assure that radiological hazards during any emergency situations 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.

2. Health Physics S&C Coordinator shall coordinate and direct the actions of in plant radiological monitoring teams and provide data on plant radiological status.

3. H. P. Support Coordinator shall direct the actions of the remainder of the Health Physics functions and maintain contact with the Health Physics personnel stationed at the Operations Support Center (OSC) to provide support for any emergency condition.

4. Data Analysis Coordinator shall provide for the calculation and distribution of Off-site Dose projections and field monitoring information assessable by Health Physics personnel and relay this to the Station Health Physicist.

F. 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 the members of the TSC 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 License and Projects Engineer shall ensure that all areas under his direction are staffed and prepared to manage technical support for any emergency condition.

G. TSC Logkeeper shall record events that occur from the time of activation of the TSC and shall be directed by the Emergency Coordinator. This individual will be an engineer from the station's Projects group.

H. Offsite Communicator shall make followup notifications to State and/or County EOC's. This individual shall be an engineer from the Station's Licensing and Projects Group.

4.3.3 Administrative Group:

A. The Superintendent of Administration when designated shall assume the duties of the Station Manager. He will provide techical expertise to the Station Manager and to the Shift Supervisor (via the Operating Engineer) regarding solutions to administrative problems associated with emergency conditions at the station. He shall provide technical expertise to other members of the TSC in the area of Contract Services, Security, Training and Safety, and Administrative Coordination. He shall ensure that all areas under his direction are staffed and prepared to manage administrative support for any emergency condition. This individual shall be the fourth alternate to the Emergency Coordinator in the event the Station Manager is unavailable.

B. 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 TSC as required. He is responsible for coordinating Security and Contract Services for the station. The Security Chief shall ensure that all areas under his direction are staffed and prepared to manage Security and Contract Services for any emergency condition.

C. The Administrative Coordinator shall assume the duties of the Superintendent of Administration when so designated. She will provide technical expertise to

C. 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 TSC as required. He is responsible for the implementation and evaluation of the maintenance management program and for the administration of the materials procurement program. The Planning Engineer shall insure that all areas under his direction are staffed and prepared to manage planning and materials support for any emergency condition.

D. 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 TSC 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.

4.4 Operations Support Center Staff

4.4.1 The Operations Support Center (OSC), location shown in Enclosure 5, shall be activated by the Emergency Coordinator in accordance with the applicable Emergency Procedure. The O.S.C. will be staffed and organized as per Enclosure (3) or as deemed necessary by the Shift Supervisor or Station Manager. Those personnel assigned to the O.S.C. shall be under the supervision of a Shift Supervisor or other Operations Group Supervisor designated by the Emergency Coordinator.

4.4.2 The Operations Support Center shall include as a minimum the following personnel:

A. Operations: Operators on shift who are not actually assigned to the control room and additional operations people on site or called out as required by the Shift Supervisor or Station Manager.

B. Health Physics: A Health Physics Supervisor and five technicians as deemed necessary by the Station Health Physicist. The Health Physics Supervisor shall work closely with the Shift Supervisor in charge and shall maintain contact with the HP Support and S & C Coordinators in the TSC.

C. Other station groups as necessary.

4.4.3 In the event that the Operations Support Center becomes environmentally uninhabitable due to radiological or other conditions, the OSC shall move to the rear of the Control Room or to other facilities as applicable.

5.3 Phase II of the Technical Support Center

5.3.1 Phase II of the Technical Support Center organization shall be staffed and organized as indicated below or as deemed necessary by the Station Manager.

A. Operating Engineer
B. Assistant Operating Engineer
C. The Station Chemist
D. The Reactor Engineer
E. Performance Technician(s)
F. The Licensing & Projects Engineer
G. The Mechanical Maintenance Engineer
H. The Chief of Security
I. The Training and Safety Coordinator

5.3.2 Personnel assigned to Phase II of TSC shall be capable of supplementing the on-shift Emergency Response within 45 to 75 minutes of notification

5.3.3 In the event that the Technical Support Center becomes environmentally uninhabitable due to radiological or other conditions, Phase II of the T.S.C. shall move to the Administration Building or to other facilities as applicable, when directed by the Station Manager.

5.4 Other TSC Personnel

5.4.1 Full activation of the TSC is as shown in Enclosure (1). Other personnel not specified as part of the Phase I and II staff but still necessary for TSC are as indicated below:

A. The Administrative Coordinator
B. The Planning Engineer
C. Clerks as needed, determined by Group Superintendents
D. TSC Logkeeper
E. Radio Operator

5.4.2 This group shall be activated as soon as practicable.

5.5 OSC Notification

5.5.1 Operations personnel will be notified by the Operation's Duty Engineer or someone designated either by station phone or home phone as required.

5.5.2 Health Physics personnel will be notified by the Station Health Physicist or alternate either by station phone or home phone as required.

6.0 EMERGENCY ORGANIZATION SUPPORT

6.1 Clerical assistance for the Station Manager and the four station superintendents will be provided by one of their normally assigned

A. This position reports to the Emergency Coordinator or his designee for matters pertaining to personnel disposition, meals and status of the evacuation.

B. All evacuated supervisory personnel will in turn report to the Evacuation Coordinator.

6.5.2 The Emergency Coordinator shall notify the Evacuation Coordinator of the need for a Site Evacuation. See Enclosure (6).

7.0 TRAINING & DRILLS

7.1 Initial Training

7.1.1 Training will be provided for Onsite Emergency Organizations personnel listed in Enclosure 1 of this directive as per Station Directive 2.5.2 (TS).

7.1.2 Operations personnel, Security personnel and Fire Brigade members will receive training as a part of their regular shift training or as scheduled by the Training Coordinator.

7.1.3 New personnel brought into the Emergency Organization will be given initial training on a yearly basis.

7.2 Annual Training

7.2.1 All Emergency Organization personnel will receive annual overview retraining as per part O of the Emergency Plan.

7.3 Special Training

7.3.1 Training will be given to the following groups on an annual basis, the following areas will be covered:

A. Offsite and onsite monitoring to H.P.

B. Information transmission to offsite agencies to Offsite Communicators and Operations

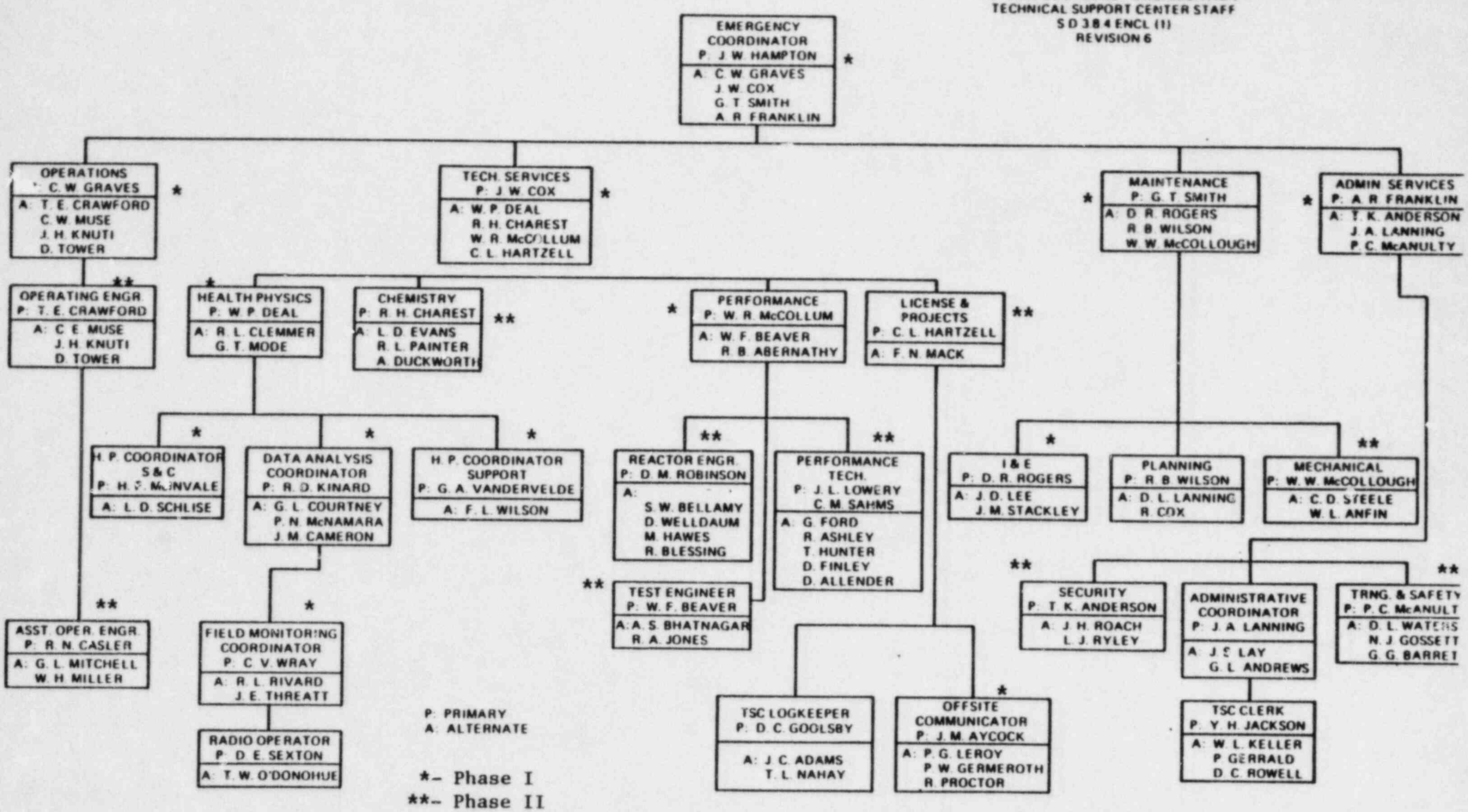
C. Dose calculations to H.P. and Operations

D. Data transmission/retrieval to Performance Technicians

E. Protective action recommendations and emergency classification to Emergency Coordinators, Station Health Physicist & Emergency Preparedness Coordinator.

F. Repair and recovery training to Maintenance Section Engineers, Coordinators, Supervisors and Technical Specialists.

ONSITE EMERGENCY ORGANIZATION
TECHNICAL SUPPORT CENTER STAFF
S D 3.8.4 ENCL (1)
REVISION 6



ONSITE EMERGENCY ORGANIZATION
TELEPHONE ACTIVATION

All telephone number will be AREA CODE 803 unless otherwise noted.

Emergency Coordinator/Station Manager

P:	J. W. Hampton	O:	2300
		H:	[redacted]
A:	C. W. Graves	O:	2304
		H:	[redacted]
A:	J. W. Cox	O:	2303
		H:	[redacted]
A:	G. T. Smith	O:	2302
		H:	[redacted]
A:	A. R. Franklin	O:	2305
		H:	[redacted]

Superintendent of Operations

P:	C. W. Graves	O:	2304
		H:	[redacted]
A:	T. E. Crawford	O:	2384
		H:	[redacted]
A:	C. E. Muse	O:	2385
		H:	[redacted]
A:	J. H. Knuti	O:	2426
		H:	[redacted]
A:	D. Tower	O:	2427
		H:	[redacted]

Superintendent of Technical Service

P:	J. W. Cox	O:	2303
		H:	[redacted]
A:	W. P. Deal	O:	2599
		H:	[redacted]
A:	R. H. Charest	O:	2531
		H:	[redacted]
A:	W. R. McCollum	O:	2396
		H:	[redacted]
A:	C. L. Hartzell	O:	2785
		H:	[redacted]

Superintendent of Adminsitration

P:	A. R. Franklin	O:	2305
		H:	[redacted]
A:	T. K. Anderson	O:	2326
		H:	[redacted]
A:	J. A. Lanning	O:	2310
		H:	[redacted]
A:	P. McAnulty	O:	2319
		H:	[redacted]

Superintendent of Maintenance

P:	G. T. Smith	O:	2302
		H:	[redacted]
A:	D. R. Rogers	O:	2359
		H:	[redacted]
A:	R. B. Wilson	O:	2394
		H:	[redacted]
A:	W. W. McCollough	O:	2390
		H:	[redacted]

NOTE P: Primary A: Alternate O: Office H: Home

ONSITE EMERGENCY ORGANIZATION
TELEPHONE ACTIVATION

All telephone number will be <u>AREA CODE 803</u> unless otherwise noted.

Operating Engineer

P:	T. E. Crawford	O:	2384
		H:	[redacted]
A:	C. E. Muse	O:	2385
		H:	[redacted]
A:	J. H. Knuti	O:	2426
		H:	[redacted]
A:	D. Tower	O:	2427
		H:	[redacted]

Asst. Operating Engineer

P:	R. N. Casler	O:	2418
		H:	[redacted]
A:	G. Mitchell	O:	2290
		H:	[redacted]
A:	W. H. Miller	O:	2430
		H:	[redacted]

Health Physics

P:	W. P. Deal	O:	2599
		H:	[redacted]
A:	R. L. Clemmer	O:	2575
		H:	[redacted]
A:	G. T. Mode	O:	2557
		H:	[redacted]

Data Analysis Coordinator

P:	R. D. Kinard	O:	2587
		H:	[redacted]
A:	G. L. Courtney	O:	2595
		H:	[redacted]
A:	P. N. McNamara	O:	2586
		H:	[redacted]
A:	J. M. Cameron	O:	2851
		H:	[redacted]

Chemistry

P:	R. H. Charest	O:	2531
		H:	[redacted]
A:	L. D. Evans	O:	2533
		H:	[redacted]
A:	B. Painter	O:	2532
		H:	[redacted]
A:	A. [illegible]kworth	O:	2473
		H:	[redacted]

Performance Engineer

P:	W. R. McCollum	O:	2369
		H:	[redacted]
A:	W. F. Beaver	O:	2370
		H:	[redacted]
A:	R. Abernathy	O:	2412
		H:	[redacted]

Field Monitoring Coordinator

P:	C. V. Wray	O:	2598
		H:	[redacted]
A:	R. L. Rivard	O:	2561
		H:	[redacted]
A:	J. E. Threatt	O:	2588
		H:	[redacted]

H. P. Support Coodinator

P:	G. A. Vandervelde	O:	2597
		H:	[redacted]
A:	F. L. Wilson	O:	2558
		H:	[redacted]

Licensing & Projects Engineer

P:	C. L. Hartzell	O:	2785
		H:	[redacted]
A:	F. N. Mack	O:	2781
		H:	[redacted]

Performance Technician

P:	M. Sahms	O:	2278
		H:	[redacted]
P:	J. Lowery	O:	2447
		H:	[redacted]
A:	G. Ford	O:	2371
		H:	[redacted]
A:	R. Ashley	O:	2414
		H:	[redacted]
A:	T. Hunter	O:	2415
		H:	[redacted]
A:	D. Allender	O:	2371
		H:	[redacted]

ONSITE EMERGENCY ORGANIZATION
TELEPHONE ACTIVATION

All telephone number will be AREA CODE 803 unless otherwise noted.

Reactor Engineer

P:	D. M. Robinson	O:	2386
		H:	[redacted]
A:	S. M. Bellamy	O:	2278
		H:	[redacted]
A:	M. Hawes	O:	2413
		H:	[redacted]

Radio Operator

P:	D. E. Sexton	O:	2581
		H:	[redacted]
A:	T. W. O'Donohue	O:	2579
		H:	[redacted]
A:	D. Wellbaum	O:	2396
		H:	[redacted]
A:	R. Blessing	O:	2299
		H:	[redacted]

Planning Engineer

P:	R. Wilson	O:	2394
		H:	[redacted]
A:	D. Lanning	O:	2717
		H:	[redacted]
A:	R. Cox	O:	2708
		H:	[redacted]

I&E Engineer

P:	D. R. Rogers	O:	2359
		H:	[redacted]
A:	J. Lee	O:	2621
		H:	[redacted]
A:	J. Stackley	O:	2624
		H:	[redacted]

Mechanical Engineer

P:	W. W. McCollough	O:	2390
		H:	[redacted]
A:	C. D. Steele	O:	2439
		H:	[redacted]
A:	W. L. Anfin	O:	2702
		H:	[redacted]

Chief of Security

P:	T. K. Anderson	O:	2326
		H:	[redacted]
A:	J. Roach	O:	2452
		H:	[redacted]
A:	L. Ryley	O:	2644
		H:	[redacted]

Administrative Coordinator

P:	J. Lanning	O:	2310
		H:	[redacted]
A:	J. Lay	O:	2321
		H:	[redacted]
A:	G. Andrews	O:	2309
		H:	[redacted]

Training & Safety

P:	P. McAnulty	O:	2319
		H:	[redacted]
A:	D. Waters	O:	2740
		H:	[redacted]
A:	J. Gossett	O:	2734
		H:	[redacted]
A:	G. Barrett	O:	2322
		H:	[redacted]

NOTE P: Primary A: Alternate O: Office H: Home

4

All telephone numbers will be <u>AREA CODE 803</u> unless otherwise noted.

<u>TSC Logkeeper</u>

P:	D. C. Goolsby	O:	2793
		H:	[redacted]
A:	J. Adams	O:	2791
		H:	[redacted]
A:	T. Nahay	O:	2790
		H:	[redacted]

<u>Offsite Communicator</u>

P:	J. M. Aycock	O:	2795
		H:	[redacted]
P:	P. G. LeRoy	O:	2783
		H:	[redacted]
A:	P. W. Germeroth	O:	2789
		H:	[redacted]
A:	R. Proctor	O:	2794
		H:	[redacted]

<u>Test Engineer</u>

P:	W. F. Beaver	O:	2370
		H:	[redacted]
A:	A. S. Bhatnagar	O:	2376
		H:	[redacted]
A:	R. A. Jones	O:	2432
		H:	[redacted]

<u>TSC Clerks</u>

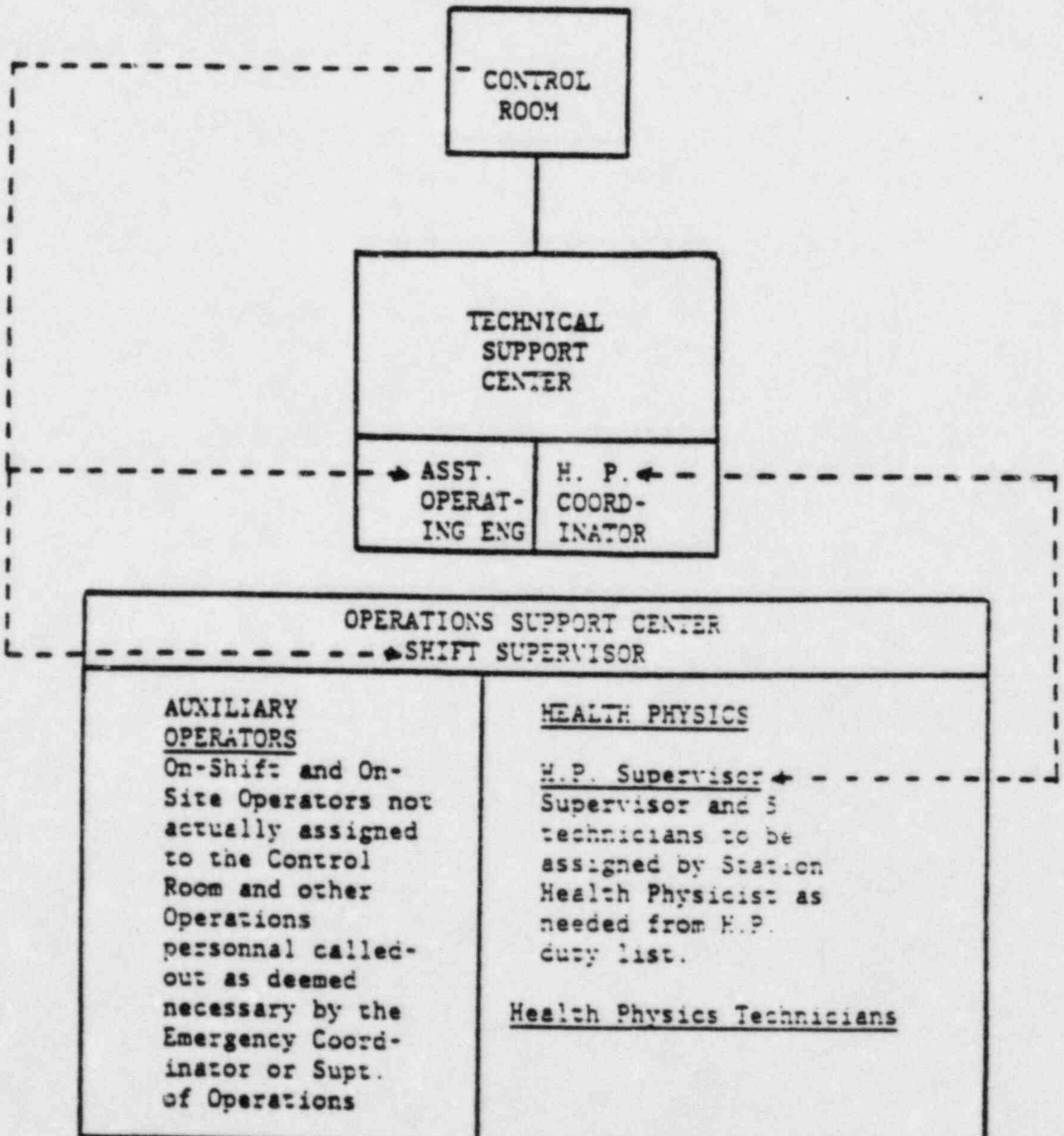
P:	Y. Jackson	O:	2301
		H:	[redacted]
A:	W. Keller	O:	2308
		H:	[redacted]
A:	P. Gerrald	O:	2600
		H:	[redacted]
A:	D. Rowell	O:	2306
		H:	[redacted]

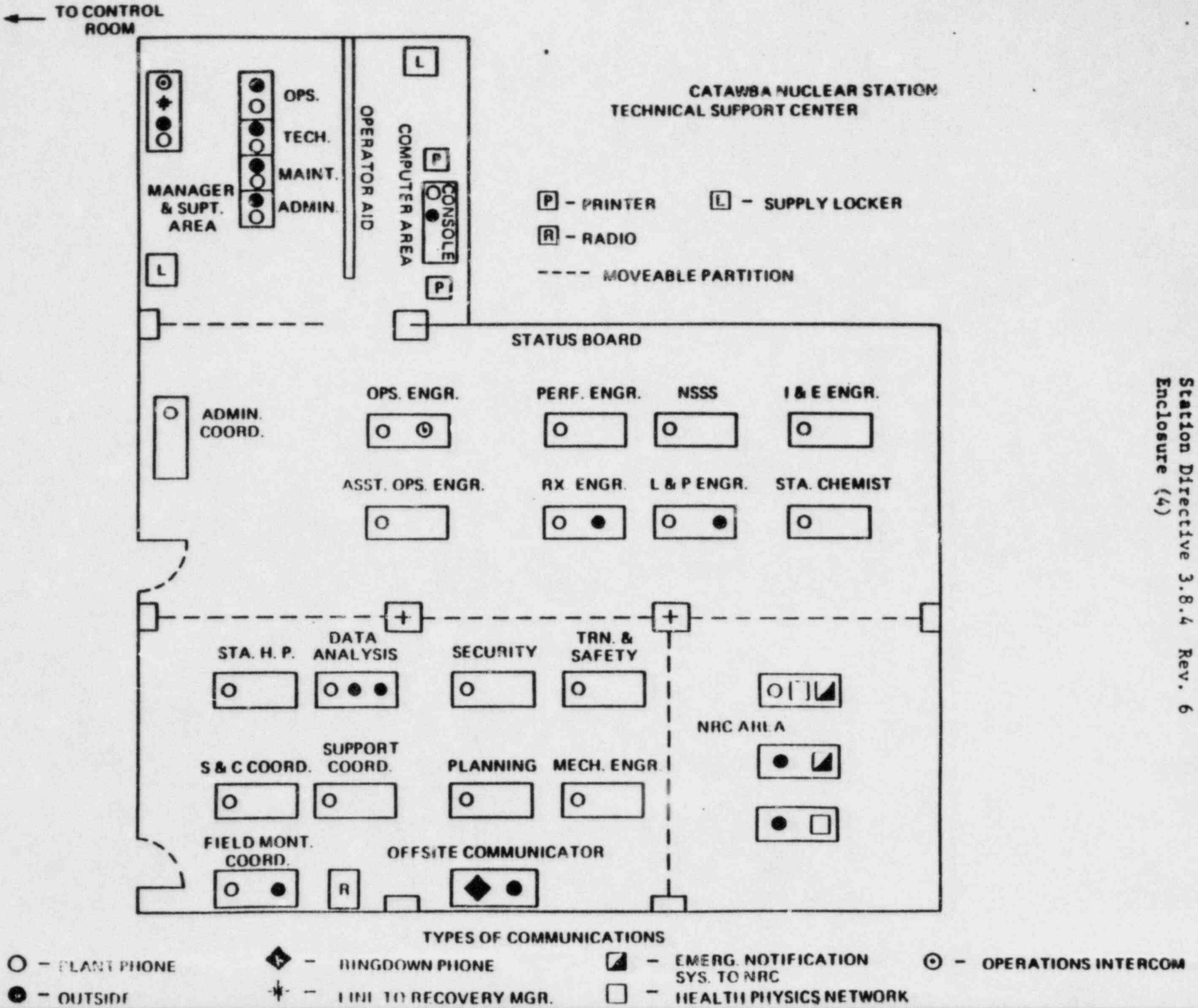
<u>H.P. Coordinator S&C</u>

P:	H. F. McInvale	O:	2584
		H:	[redacted]
A:	L. D. Schlise	O:	2573
		H:	[redacted]

ONSITE EMERGENCY ORGANIZATION

OPERATIONS SUPPORT CENTER




CATAWBA NUCLEAR STATION
TECHNICAL SUPPORT CENTER
TO CONTROL ROOM
MANAGER & SUPT. AREA
OPS.
TECH.
MAINT.
ADMIN.
OPERATOR AID
COMPUTER AREA
CONSOLE
P - PRINTER
L - SUPPLY LOCKER
R - RADIO
MOVEABLE PARTITION
STATUS BOARD
ADMIN. COORD.
OPS. ENGR.
PERF. ENGR.
NSSS
I & E ENGR.
ASST. OPS. ENGR.
RX. ENGR.
L & P ENGR.
STA. CHEMIST
STA. H. P.
DATA ANALYSIS
SECURITY
TRN. & SAFETY
NRC AREA
S & C COORD.
SUPPORT COORD.
PLANNING
MECH. ENGR.
FIELD MONT. COORD.
OFFSITE COMMUNICATOR
TYPES OF COMMUNICATIONS
PLANT PHONE
OUTSIDE
RINGDOWN PHONE
LINE TO RECOVERY MGR.
EMERG. NOTIFICATION SYS. TO NRC
HEALTH PHYSICS NETWORK
OPERATIONS INTERCOM

ONSITE EMERGENCY ORGANIZATION

EVACUATION COORDINATOR

Primary:	C.L.Jensen	Office: 2436
		Beeper: 808
		Home: [redacted]
Alternates:	R. McElwee	Office: 2706
		Beeper:
		Home: [redacted]
	B.J.Moseley	Office: 2504
		Beeper: 225
		Home: [redacted]
	E.L.Feeser	Office: 2505
		Beeper: 224
		Home: [redacted]

Catawba Nuclear Station Directive 2.0.1 (TS)

Revision No. 1 Date 1-21-81

Approval J.W. Hampton

DUKE POWER COMPANY

CATAWBA NUCLEAR STATION

NEWS RELEASES

1.0 OBJECTIVE

To convey to the public accurate and factual information on its operations the Company frequently issues official releases of such information to the news media.

2.0 APPLICABILITY

It is the responsibility of the Corporate Communications Department to prepare and issue all of the Company's official news releases after receiving complete and accurate information from the Department(s) involved.

The Steam Production Department will provide the necessary information to Corporate Communications for all news release items involving the operations of the Company's present nuclear generating facilities. News releases may involve matters such as equipment or unit outages, serious personnel accidents, damage to equipment during natural (or other) disasters, etc.

3.0 PROCEDURE

3.1 The Operations Support Section Duty Engineer in the General Office should be notified by the Station Manager or the Licensing Engineer so that issuance of a news release may be considered when any of the following conditions exist:

A. A shutdown, scheduled or unscheduled, of a unit.

B. Any shutdown of a day or more of a nuclear unit resulting from failure of or damage to safety related equipment.

C. Any damage to any safety related equipment, if the time to repair the equipment is likely to exceed Technical Specifications for time allowed for maintenance.

D. Any inadvertent release of radioactive material and all releases of radioactive material in excess of allowable Technical Specifications.

E. Any significant radiological event offsite occurring during fuel or waste transport or other nuclear related activities.

F. Violations of EPA or state water and air permits with significant effect on public health or that might result in enforcement action against the company.

G. Any injury requiring the use of emergency vehicles, involving radiation exposure above allowable limits or requiring hospitalization.

H. Any "unusual event" that requires notification of state and/or county emergency centers.

I. Any other incident considered to be of general public interest.

3.2 The Operations Support Section Duty Engineer in the General Office can be reached at phone number 5504 or the General Office exchange. At night and on weekends, a recording will tell you how to reach the Duty Engineer.

3.3 It will be the responsibility of the Operations Support Section Duty Engineer to notify Corporate Communications so that a decision on a news release may be made.

3.4 Corporate Communications shall be responsible for distributing the news release to the appropriate agencies and telecopying a copy to the Station Manager.

3.5 Station personnel should refer all inquiries from the news media to personnel in Corporate Communications, unless specifically authorized to release information. If an inquiry is made, the Station Manager or the Licensing Engineer should notify the Operations Support Section Duty Engineer so that he can inform Corporate Communications that an inquiry has been referred to them.

3.6 All news reporters should be handled in a friendly and courteous manner.

3.7 Corporate Communications has a 24-hour, 7-day phone line (704-527-5970). Normally, the Operations Support Section Duty Engineer will be contacting Corporate Communications concerning news releases. However, if for some reason the Operations Support Section Duty Engineer cannot be reached, the Station Manager or the Licensing Engineer should contact Corporate Communications on that number. Do not refer news media to that number since it is for Duke use only.

3.8 If for some reason Corporate Communications cannot be contacted, the Station Manager or the the Licensing Engineer may authorize a news release using the News Relase Form (Attachment 1).

NEWS RELEASE FORM

ATTACHMENT 1

At ________ on ________ a ____
(Time) (Fire, Radiation, Contamination, Nuclear Accident, ect.)

occured at the Catawba Nuclear Station near Clover, South Carolina.

The ____ accident was:
(Fire, Radiation, Contamination, Nuclear, etc.)

(Pick One)

(1) confined solely to the plant site and did not involve the nuclear reactor;

(2) confined solely to the plant site and did involve the nuclear reactor;

(3) confined solely to the plant site and exclusion area and does not offer any radiation problem to local area residents;

(4) not only involved the plant site and exclusion area but has spread some contamination into the local area at ________________________.
(Exact Location)

In this case, County, State and Federal Authorities have been notified by Duke Power Company and proper measures are being carried out to insure the health and safety of all persons involved.

There is no danger beyond the areas noted above.

(Extent of Injuries)

As a result of this accident, ____________ persons who work at Catawba
(number)

Station have been ________________. They are presently being treated
(injured, etc.)

at ____.
(Hospital/Clinic)

Addition information will be released as soon as it is available.

____
Signature
Title

CATAWBA NUCLEAR STATION DIRECTIVE 3.0.7 (TS)

REVISION NO. 2 DATE 2-7-84

APPROVAL [signature]

DUKE POWER COMPANY

CATAWBA NUCLEAR STATION

SITE ASSEMBLY/EVACUATION

1.0 PURPOSE

1.1 To account for station personnel, contractor personnel, other Duke Power Company employees and visitors onsite in an emergency situation.

1.2 To ensure personnel safety by evacuation to a predesignated location offsite when the situation warrants.

1.3 To provide for the control of evacuated employees until the emergency situation is returned to normal or until other disposition is made.

1.4 To provide training and drills on assembly and evacuation to plant personnel and others with unescorted access to station.

2.0 SPECIFIC RESPONSIBILITIES

2.1 All station employees, contractor personnel, visitor and other Duke Power Company employees onsite are required to comply with the actuation of a Site Assembly or Evacuation and are responsible for knowing the location of their assembly point (indicated on back of their security badge), who they are to contact upon assembly and to where they are to evacuate.

2.2 The Shift Supervisor/Emergency Coordinator is responsible for implementing the Site Assembly or Evacuation depending upon the situation.

2.3 Station sections are responsible for accounting for their onsite personnel to the Security Shift Clerk or Sergeant at extension 2393. See section 4.1.2.2 A through N. Personnel shall notify their Supervisor, who in turn report to Coordinator and higher levels as applicable.

2.4 During evening and night shift or on weekends or holidays, personnel without their supervisor onsite will report to the Security Shift Clerk or Sergeant at extension 2393.

2.5 Construction personnel are responsible for reporting to their supervisor, who will report on to the Construction Project Manager.

2.6 QA personnel are responsible for reporting to the Senior QA Engineer.

2.7 Vendor and contractor personnel are responsible for reporting to their supervisor.

2.8 Station Sections, and other organizations as listed in 4.1.2.2 A through N, after assembling shall report to the Security Shift Clerk or Sergeant at extension 2393. All personnel shall be accounted for within 30 minutes of the announcement.

2.9 If personnel are directed to proceed to either or both of the Evacuation Relocation Sites, the Evacuation Coordinator at that site will be responsible for:

2.9.1 Obtaining the keys to Site Alpha from Security, if necessary.

2.9.2 Maintaining communication with the Shift Supervisor/Emergency Coordinator.

2.9.3 Accounting for station personnel and others as they arrive at the site and reporting to Shift Supervisor/Emergency Coordinator the status of the evacuated employees.

2.9.4 Disseminating status reports to evacuated personnel.

2.9.5 Interfacing with the management of the relocation site.

2.10 The Security Shift Lt., Clerk or Sergeant shall receive the reports of personnel accountability, noting all personnel who are unaccounted for on Enclosure 1 and report to the Chief of Security or to the Emergency Coordinator in the Control Room or the TSC.

2.11 The Shift Supervisor/Emergency Coordinator is responsible for securing from the Site Assembly or Evacuation when the situation has returned to a normal status.

2.12 Health Physics will monitor personnel exiting from PAP and Construction Exits, during a Site Evacuation, and will have personnel available at the Evacuation Relocation Site per Reference 3.5.

2.13 Health Physics will monitor assembly locations and exit points to assure radiation protection of these personnel assembled.

3.0 <u>REFERENCES</u>

3.1 Catawba Nuclear Station Emergency Plan

3.2 Catawba Nuclear Station Directive 3.8.4

3.3 System Health Physics Manual

3.4 RP/0/A/5000/10, Conducting a Site Assembly/Evacuation

3.5 HP/0/B/1009/05, Personnel Monitoring for Emergency Conditions

Group	Primary Assembly Point	Secondary Assembly Point
A. Operations		
1) Staff & other personnel not on shift	Operations Office Area SB 594*	Conf. Rm. #3 Admin. Bldg.
2) On shift personnel	Control Room or OSC	N/A
3) Training groups	Classroom in High Rise**	Classroom Admin. Bldg.**
B. Administrative Service		
1) Administrative Personnel, Clerical, DDP and Training Service	Document Control or DDP Room	Training Service Office Admin. Bldg.*
2) Safety/Medical	Safety Office*	Training Service Office Admin. Bldg.
3) Security	Security Assembly Rm.*	Conf. Rm. #4 Admin. Bldg.
NOTE: Security personnel on assignment remain "ON POST".		
4) K-MAC & Vendor	K-MAC Office High Rise*	Conf. Rm. #4 Admin. Bldg.
5) Personnel in training	Classroom**	Classroom**
C. Technical Services		
1) Licensing & Projects	L&P Office*	Body Burden Room
2) Performance	Performance Office*	Body Burden Room
3) Power Chemistry	CT Lab	Body Burden Room
Environmental Chemistry	Water Treatment Bldg.	Body Burden Room
Staff & Radwaste	Chemistry Office*	Body Burden Room
4) Health Physics	HP Office 608 El.*	Body Burden Room
D. Maintenance		
1) Mechanical	Mechanical Shop Area*	Interface Room Admin. Bldg.

4.1.2.3 Upon initiation of a Site Assembly, Security shall prevent entry into or exit from the Protected Area through the PAP except for the following essential personnel:

A. Emergency Organization personnel specified in Catawba Nuclear Station Directive 3.8.4

B. Operation Shift Personnel

C. Catawba Nuclear Station Fire Brigade personnel

D. Catawba Nuclear Station Field Monitoring team personnel

E. Crisis Management Team personnel with proper identification

F. NRC personnel

G. Security personnel

H. Others as directed by the Emergency Coordinator.

4.1.3 Accounting for Personnel

4.1.3.1 Unaccounted for personnel will be reported to the Shift Supervisor/Emergency Coordinator, by Security after the first 30 minute accounting period. Efforts to locate the missing person(s) will begin approximately 45 minutes after the assembly is initiated.

4.1.3.2 If necessary, the Security Fire Brigade members will institute Search and Rescue operations to locate and retrieve unaccounted for personnel. Other station groups will be called upon to assist, as necessary, the station Safety group shall coordinate the search.

4.1.3.3 The status of unaccounted for personnel will be maintained in the Central Alarm Station. (See Enclosure 1)

4.1.4 Maintenance of Accountability

4.1.4.1 If the requirement for an assembly no longer exists, permission to return to normal duties will be given by the Emergency Coordiantor.

4.1.4.2 Plant conditions may require evacuation of the station. Instructions will be given by the Emergency Coordinator.

4.2.2.1.1 The Shift Supervisor/Emergency Coordinator or delegate shall call the listed phone number or radio to inform them of the planned evacuation. If there is no response to the call, the keys to the warehouse are kept by Catawba Nuclear Station Security and can be obtained to open the warehouse by Catawba Nuclear Station personnel.

4.2.2.1.2 Phone Numbers:

373-7309
(803) 366-4777

4.2.2.1.3 Radio via Dispatcher's frequency.

4.2.2.2 Site "Bravo" - Duke Power Company Allen Steam Station on Southpoint Road (Enclosure 3)

4.2.2.2.1 The Shift Supervisor/Emergency Coordinator or delegate shall call the listed phone number or radio to inform them of the planned evacuation. Since Allen Steam Station is operable at all times, no backup access is required.

4.2.2.2.2 Phone Numbers:

373-4646
(704)825-2022

4.2.2.2.3 Radio via Dispatcher's Frequency

4.2.3 Implementation

4.2.3.1 Site Evacuations are activated only after station personnel have been accounted for through a Site Assembly.

4.2.3.2 The Shift Supervisor/Emergency Coordinator shall determine which Evacuation-Relocation Site to evacuate to based on current meteorological conditions and the nature of the emergency.

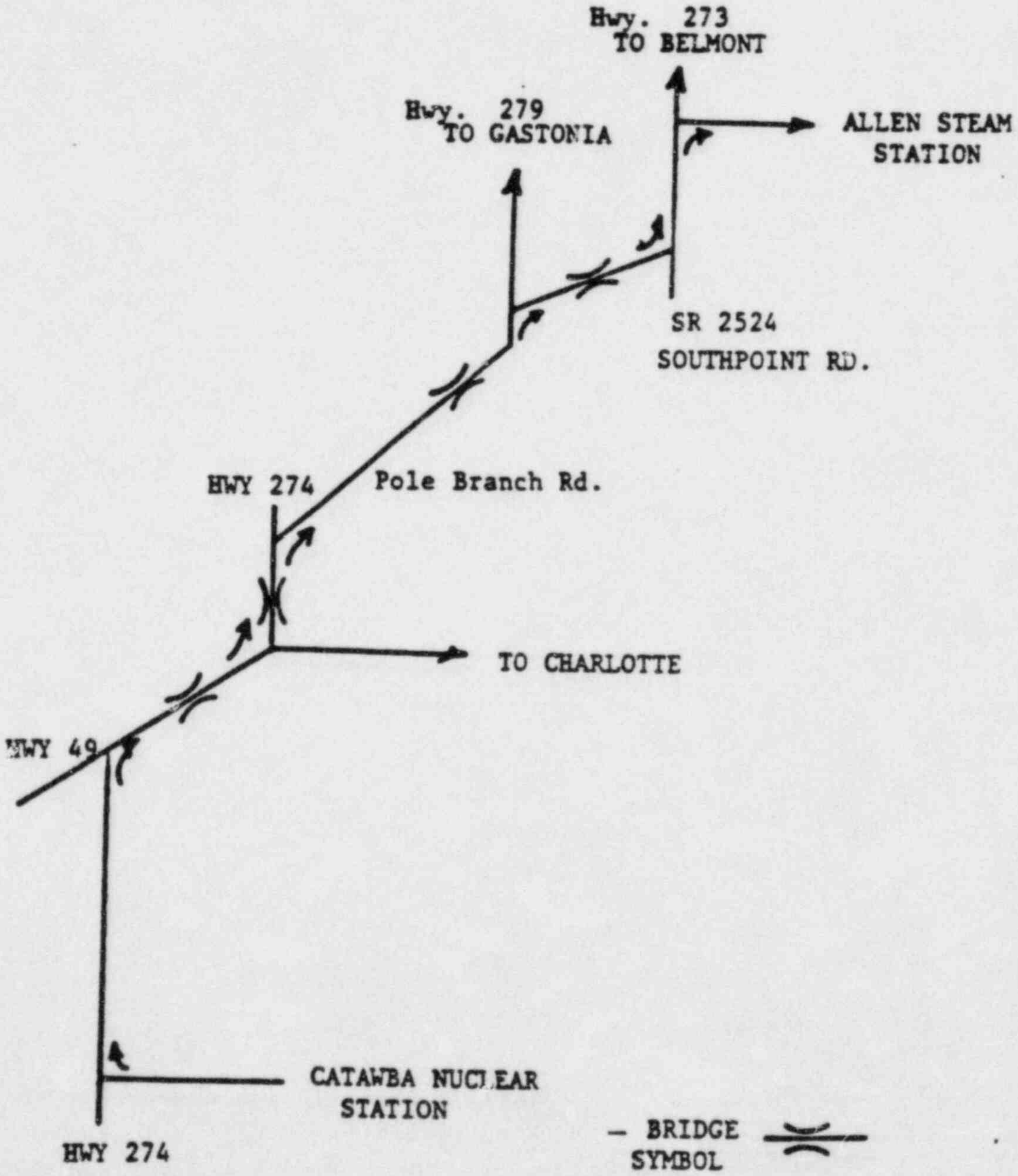
4.2.3.3 The Shift Supervisor/Emergency Coordinator or delegate shall sound the Site Evacuation alarm followed by an announcement on the plant page system per RP/0/A/5000/10, Conducting A Site Assembly/Evacuation.

UNACCOUNTED FOR PERSONNEL

NAME	GROUP	SUPERVISOR	LAST KNOWN LOCATION	STATUS

CATAWBA NUCLEAR STATION
STATION DIRECTIVE 3.0.7 (TS)
ENCLOSURE 3

EVACUATION/RELOCATION SITE "BRAVO"
DUKE POWER CO. ALLEN STEAM STATION
SOUTHPOINT ROAD (SR2524) GASTON COUNTY



Form 34731 (10-81)
(Formerly SPD-1002-1)

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: PT/0/B/4600/06
Change(s)_____to
_____Incorporated

(2) STATION: CATAWBA

(3) PROCEDURE TITLE: Emergency Exercises and Drills

(4) PREPARED BY: Mike Bolch DATE: 3-23-83

(5) REVIEWED BY: [illegible] DATE: [illegible]

Cross-Disciplinary Review By: C.N.P. Deal N/R: 4-15-83

(6) TEMPORARY APPROVAL (IF NECESSARY):

By:_____________________(SRO) Date:_____________

By:_____________________ Date:_____________

(7) APPROVED BY: H. S. Tuckman Date: 4/15/83

(8) MISCELLANEOUS:

Reviewed/Approved By:_____________________ Date:_____________

Reviewed/Approved By:_____________________ Date:_____________

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
EMERGENCY EXERCISES AND DRILLS

1.0 PURPOSE

This procedure provides for periodic exercises/drills to be conducted to evaluate major portions of the emergency response capability, and to develop and maintain key skills. Corrective actions and recommendations identified as a result of an exercise or drill will be corrected, and records maintained in accordance with this procedure.

2.0 REFERENCES

2.1 Catawba Nuclear Station Emergency Plan

2.2 Crisis Management Plan

3.0 TIME REQUIRED

Varied

4.0 PREREQUISITE TESTS

N/A

5.0 TEST EQUIPMENT

N/A

6.0 LIMITS AND PRECAUTIONS

6.1 Exercise scenario's should be varied from year to year to test emergency team response to many of the initiating conditions listed in procedure RP/0/A/5000/01, Classification of Emergency.

6.2 Exercises should be scheduled to start between 6:00 PM and midnight and another between midnight and 6:00 AM once every six years.

6.3 Drills should be conducted more frequently than exercises and shall be supervised and evaluated by a drill instructor.

7.0 REQUIRED STATION STATUS

N/A

8.0 PREREQUISITE SYSTEM CONDITIONS

N/A

9.0 TEST METHOD

N/A

10.0 DATA REQUIRED

Enclosure 13.1 Exercise/Drill Format and Critique Findings

Enclosure 13.2 Exercise/Drill, Controller/Evaluator Report

11.0 ACCEPTANCE CRITERIA

11.1 Completion of required exercise or drill and the subsequent critique.

12.0 PROCEDURE

12.1 Exercises

12.1.1 A full-scale exercise is an event that tests the integrated capability and a major portion of the basic elements existing within emergency preparedness plans and organizations. A full-scale exercise shall include mobilization of state and local personnel and resources adequate to verify the capability to respond to an accident scenario requiring response. A full-scale exercise will be supervised and evaluated by a qualified exercise director. A full-scale exercise will be held no less than once every 5 years.

12.1.2 A small-scale exercise is an event which tests the adequacy of communication links, establishes that response agencies at the utility and local level understand the emergency action levels, and tests at least one other component (e.g. medical or offsite monitoring) of the emergency plan. A small-scale exercise will be conducted each year that a full-scale exercise is not held at the station. A small-scale exercise will be supervised and evaluated by a qualified exercise director.

12.1.3 An exercise will simulate an emergency that results in offsite protective actions and requires response by offsite agencies.

12.1.4 An exercise scenario shall provide for a critique of the exercise by all concerned personnel and organizations.

12.2 Drills

12.2.1 A drill is a supervised instruction period aimed at testing, developing and maintaining skills in a particular operation. A drill is often a component of an exercise. A drill will be supervised and evaluated by a qualified drill instructor.

12.2.2 Drills will be conducted at the frequencies indicated below:

(a) Communication drills with state and local government located within the 10 mile Emergency Planning Zone shall be conducted monthly.

(b) Communication drills with Federal Emergency Response Organizations and states within the 50 mile Ingestion Pathway shall be conducted quarterly.

(c) Communication drills with state and local emergency operations centers and field assessment teams shall be conducted annually.

NOTE: Sample message information for the above communication drills shall test the ability to understand the content of messages.

(d) Fire drills shall be conducted in accordance with Station Directive 2.12.2 and documented by the Safety Department.

(e) Medical emergency drills involving a simulated contaminated individual shall be conducted annually. This drill will involve participation by the Piedmont Medical Center and Ambulance Service and Charlotte Memorial Hospital. A communication check to REAC/TS in Oakridge, Tennessee as the provider of backup medical support shall be conducted during this drill.

(f) A radiological monitoring drill involving onsite and offsite radiological monitoring teams will be conducted annually. The monitoring teams will actually collect and analyze air samples, as appropriate. Soil and water samples will not be taken as this is done on a weekly basis at the station. The exercise controllers will provide them simulated analysis results indicative of contamination or plume location.

(g) Health Physics drills shall be conducted semi-annually which involve response to, and analysis of, simulated elevated airborne and liquid samples and direct radiation measurements in the environment.

(h) Health Physics drills shall be conducted annually which involve analysis of inplant liquid samples with actual radiation levels, including use of the post-accident sampling system.

(i) Site assembly drills shall be conducted semi-annually. These drills shall provide for the capability to account for all individuals onsite at the time of the emergency and to ascertain the names of missing individuals within 30 minutes of the announcement of the emergency condition. The capability to account for onsite individuals continuously after the initial accountability shall be included.

(j) Site evacuation drills shall be conducted annually. These drills will demonstrate the ability of the station personnel to leave the station and arrive at the Evacuation-Relocation Site, to account for evacuated personnel, to use supplies kept at the site and to control the disposition of personnel until the emergency situation is returned to normal. The evacuation will be simulated except for a small group of non-essential employees who will actually proceed to the Evacuation Relocation Site.

12.3 Scheduling/Documentation

12.3.1 Exercises shall be scheduled by the Nuclear Production Emergency Response Coordinator

12.3.2 All documentation of emergency exercises shall be maintained by the Emergency Response Coordinator. Corrective actions and recommendations will be compiled from the "Critique Action Item List" by the Emergency Response Coordinator.

12.3.3 Drills shall be scheduled by the station Emergency Preparedness Coordinator and included in the Emergency Plan Bi-Monthly Activity Schedule.

12.3.4 Documentation of drills shall be maintained by the Emergency Preparedness Coordinator. Corrective actions and recommendations will be compiled on Exercise/Drill Format and Critique Findings, Enclosure 13.1, by the Emergency Preparedness Coordinator.

13.0 ENCLOSURES

13.1 Exercise/Drill Format and Critique Findings

13.2 Exercise/Drill, Controller/Evaluator Report

CATAWBA NUCLEAR STATION
EXERCISE/DRILL FORMAT AND CRITIQUE FINDINGS
PT/0/B/4600/06
ENCLOSURE 13.1

1.0 Classification of Exercise/Drill. (Check appropriate box) ✓

- ☐ - Emergency Exercise, 12.1
- ☐ - Communication Drill (state and local government within 10 mile EPZ), 12.2.2, a. (monthly)
- ☐ - Communication Drill (Emergency response organizations and state within 50 mile I.P.Z.), 12.2.2, b. (quarterly)
- ☐ - Communication Drill (State and local Emergency Operations Centers and Field Assessment Teams), 12.2.2, c. (annually)
- ☐ - Medical Emergency Drill, 12.2.2, e. (annually)
- ☐ - Radiological Monitoring Drill, 12.2.2, f. (annually)
- ☐ - Health Physics Drill, 12.2.2, g. (semi-annually)
- ☐ - Health Physics Drill, 12.2.2, h. (annually)
- ☐ - Site Assembly Drill, 12.2.2, i. (semi-annually)
- ☐ - Site Evacuation Dril, 12.2.2, j. (annually)

2.0 Drill Instructor/Exercise Director: ______________________________
(Name)

Critique Director: ______________________________
(Name)

3.0 Date/Time Exercise/Drill to be conducted: ____________ / ____________
(Date) (Time)

4.0 Exercise/Drill Objectives: ______________________________

____

____

____

____

____

____

____

5.0 Plant system/area(s) affected: ______________________

6.0 Work groups to be involved: ______________________

7.0 Time sequence of postulated events: ______________________

8.0 Assigned Observers (Controllers/Evaluators) and their stations: ______

9.0 Critique to be conducted at ________/________ ______________
(Date) (Time) (Location)

10.0 Personnel to attend critique:

11.0 Critique Findings, Recommendations, Required Action(s), Etc.: ________

12.0 Corrective Actions taken: (List actions taken to ensure all findings in 11.0 are identified and corrected: ________

NOTE: Include all Exercise/Drill or other information provided as an attachment.

____
(Drill Instructor/Exercise Director)
(Signature)

____
(Critique Director)
(Signature)

cc: File No. ______
Station Manager
Group Superintendents

CATAWBA NUCLEAR STATION
EXERCISE/DRILL CONTROLLER/EVALUATOR REPORT
PT/0/B/4600/06
ENCLOSURE 13.2

1.0 Drill Classification: ______________________________

____

____

2.0 Summary of Exercise/Drill: ______________________________

____

____

____

3.0 Exercise/Drill initiated: ____________ / ____________
(Date) (Time)

4.0 Observation/Comments/Recommendations: ______________________________

____

____

____

____

____

5.0 Exercise/Drill completed at: ____________ / ____________
(Date) (Time)

____
Controller/Evaluator
(Signature)

cc: File No. ____________________
Assigned Controller/Evaluator(s)

DUKE POWER COMPANY
P.O. BOX 33189
CHARLOTTE, N.C. 28242

HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

TELEPHONE
(704) 373-4531

PHF
CBJ
7/14/83

USNRC REGION II ATLANTA, GEORGIA

July 6, 1983
83 JUL 11 A9: 38

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Ms. E. G. Adensam, Chief
Licensing Branch No. 4

Re: Catawba Nuclear Station
Docket Nos. 50-413 and 50-414/K

Dear Mr. Denton:

Duke Power Company is submitting herewith Revision 3 to the Emergency Plan for the Catawba Nuclear Station. In accordance with 10 CFR 50.54(q), three copies (one copy to the Regional Administrator) are being submitted.

It is requested that privacy information such as home telephone numbers and home addresses be deleted from the Emergency Plan prior to its being placed in the Public Document Rooms. This request is being made pursuant to Darrell G. Eisenhut's letter of July 9, 1981 (Generic Letter 81-27).

Very truly yours,

H.B. Tucker

Hal B. Tucker

ROS/php

Attachment

cc: (w/attachment)
Mr. James P. O'Reilly, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

(w/o attachment)
NRC Resident Inspector
Catawba Nuclear Station

159 PP

8307250625
PDR ADOCK 05000413
F

OFFICIAL COPY

83 70

cc: (w/o attachment)
Mr. Robert Guild, Esq.
Attorney-at-Law
P. O. Box 12097
Charleston, South Carolina 29412

Palmetto Alliance
2135½ Devine Street
Columbia, South Carolina 29205

Mr. Jesse L. Riley
Carolina Environmental Study Group
854 Henley Place
Charlotte, North Carolina 28207

Mr. Henry A. Presler, Chairman
Charlotte-Mecklenburg Environmental Coalition
943 Henley Place
Charlotte, North Carolina 28207

DUKE POWER COMPANY

CATAWBA NUCLEAR STATION

EMERGENCY PLAN

APPROVED:

J. W. Hampton

J. W. Hampton, Manager
Catawba Nuclear Station

Dated - August 1980
Revision 3 - June 1983

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
EMERGENCY PLAN

Table of Contents

Table of Contents

			Page #

LIST OF FIGURES

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 and 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 fooostuffs. 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.

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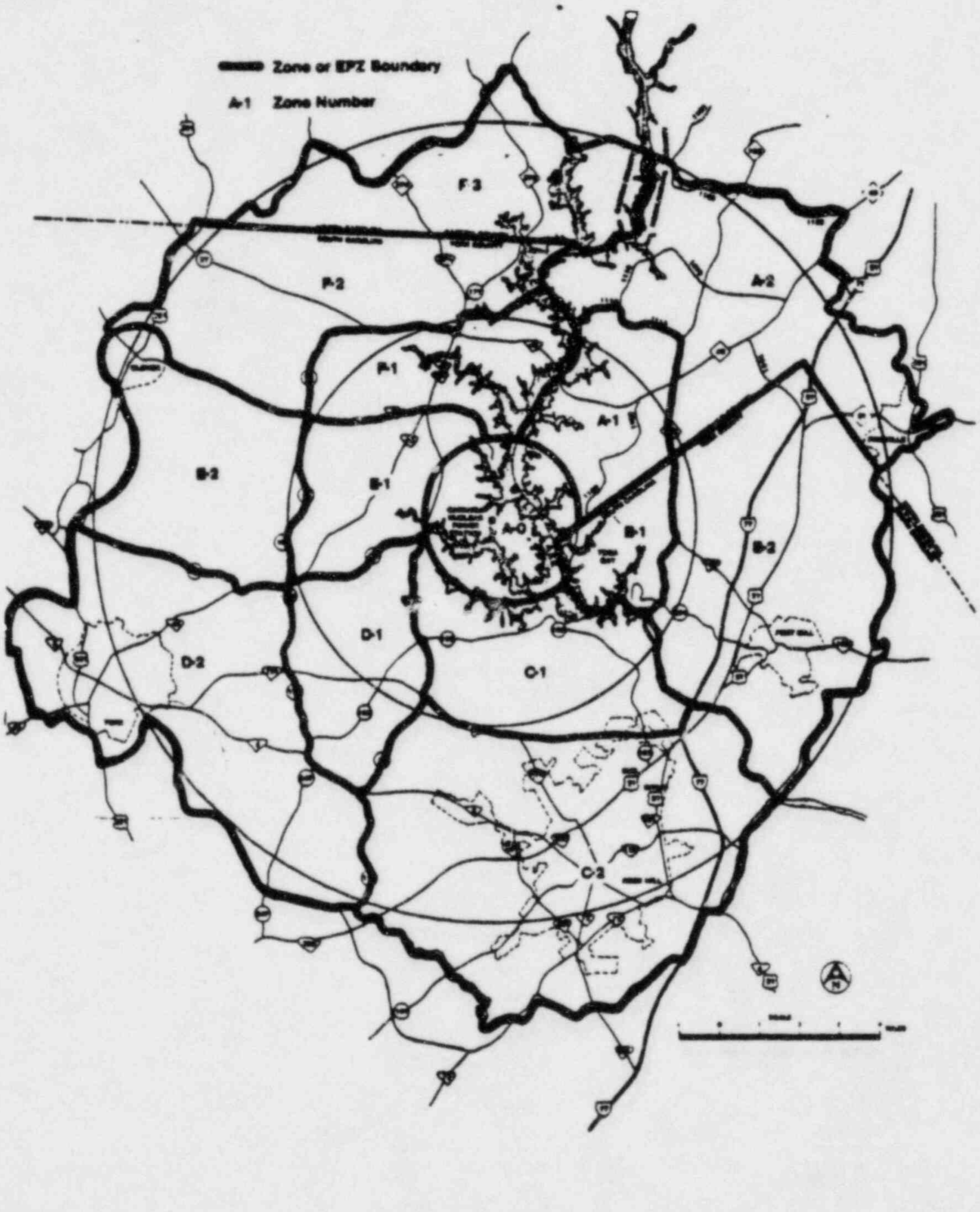
CATAWBA NUCLEAR STATION
FIGURE i-1

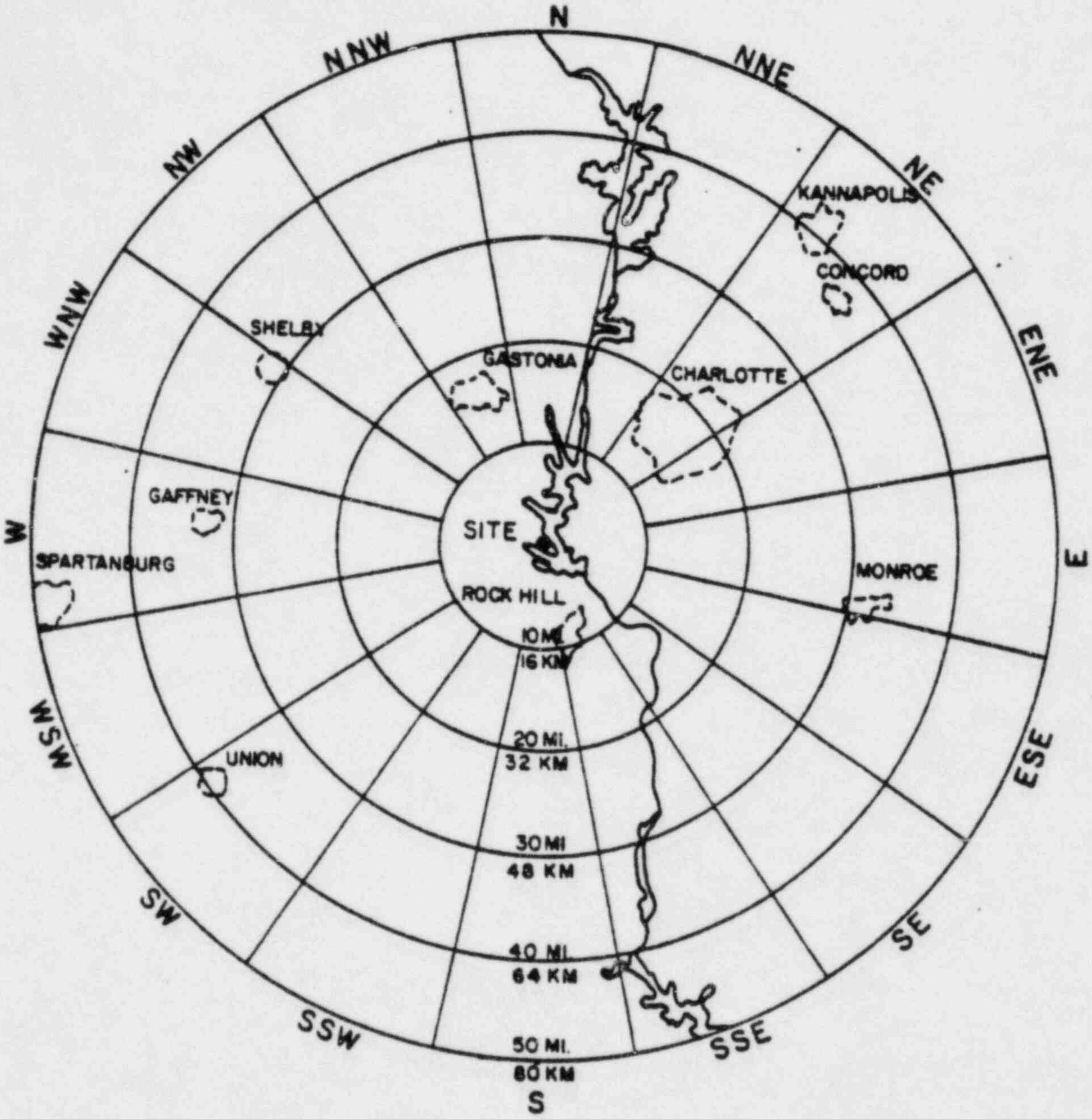
10 MILE EPZ



Rev. 3
June 1983

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
FIGURE 1-2

50 MILE EPZ



Rev. 3
June 1983

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 urless 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 Manger 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.

<u>The Superintendent of Technical Services</u> 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.

<u>The Superintendent of Maintenance</u> when desigrated 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.

<u>The Superintendent of Administration</u> 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, Adminstrative 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.

<u>The Operating Engineer</u> 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 equiment 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 adminstration 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 Mangement, 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 (Raliegh, 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.

Major Functional Area (Location)	Major Tasks	Position, Title or Expertise	On Shift	Capability for Additions 45 min	75 min
Plant Operations and Assessment of Operational Aspects		Shift Supervisor (SRO)	1	--	--
		Asst. Shift Superv.sor (SRO)	1	--	--
		Control Room Operators (RO)	2	--	--
		Auxiliary Operators	2	--	--
		Shift Technical Advisor	1(1)	--	--
Emergency Direction and Control (Emergency (2) Coordinator)	Off-Site Communications	Shift Supervisor or Designated Facility Manager			
Notification/Communication(3)	Notify licensee, State, Local and Federal personnel & maintain communication	Operations Person	1	1	2
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	1(1)	--	1
		Waste Operator			1
		Electrical Maintenance/	1(1)	1	1(5)
		Instrument and Control (I&E) Technician	--	1	--

FIGURE B-1
(CONT.)
Rev. 2
Jan. 1983

CATAWBA NUCLEAR STATION
MINIMUM STAFFING REQUIREMENTS FOR EMERGENCIES

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

FIGURE B-1
(CONT.)
Rev. 2
Jan. 1983

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.

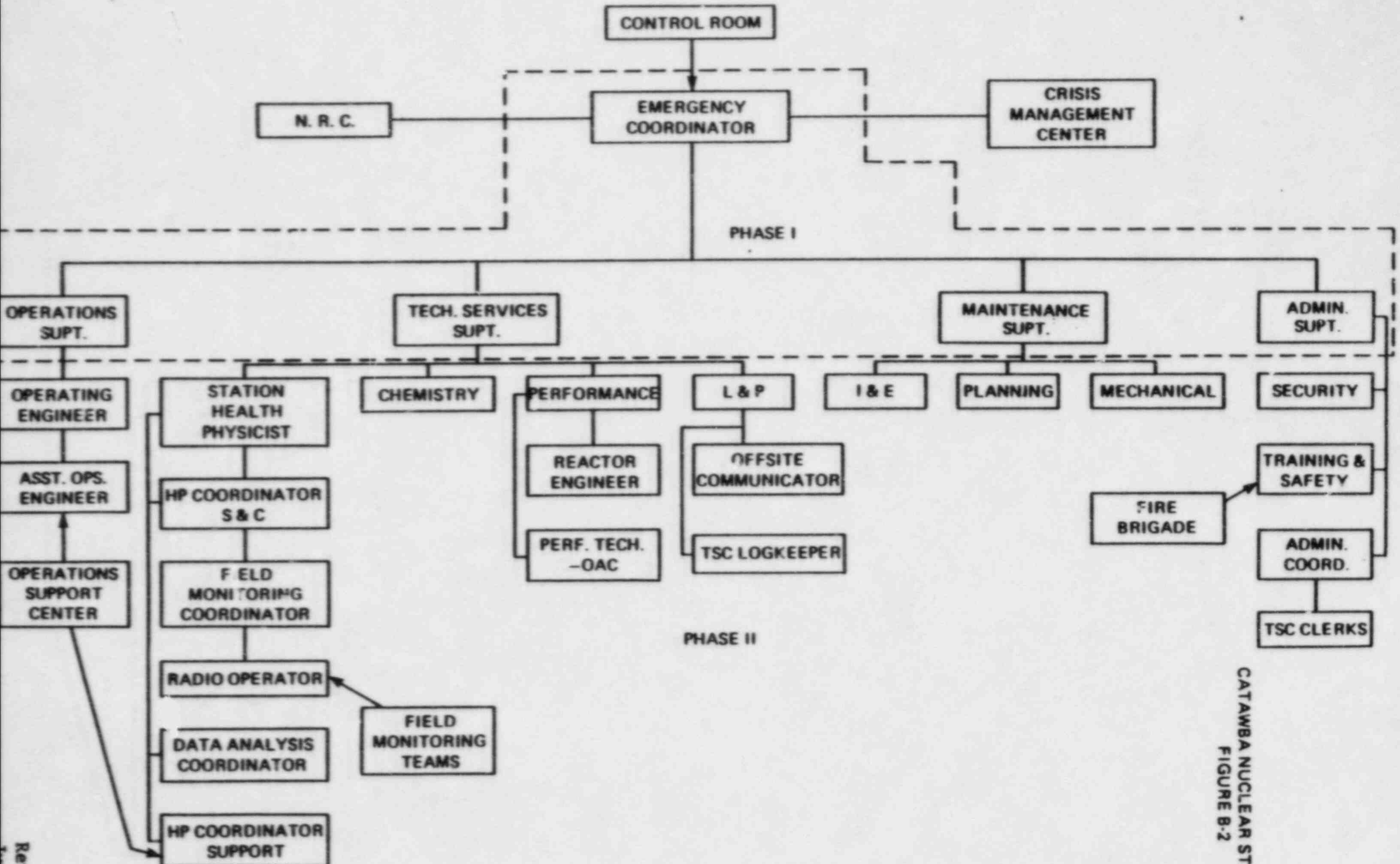
(3) May be performed by engineering aide to Shift Supervisor.

(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.

FIGURE B-1
(CONT.)
Rev. 2
Jan. 1983

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/ D.2 Emergency Classification - Initiating Conditions, Emergency 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 is 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

Class	Licensee Actions	State and/or Local Offsite Authority Actions
[illegible] have occurred which indicate a [illegible] 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 [illegible]	[illegible] 2. Augment on-shift resources as needed. 3. Assess and respond. 4. Escalate to a more severe class, if appropriate. [illegible] Close out with verbal summary to offsite authorities; followed by written summary within 24 hours.	[illegible] 3. Stand by until verbal closeout.
[illegible] 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 [illegible]		

Rev. [illegible]

Figure 5-1
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/Documentation
1. Emergency Core Cooling Initiated (ECCS) and discharge to vessel	Safety injection signal verification by redundant instrumentation	Inadvertent operation of ECCS during Power Operation, Loss of Reactor Coolant from small ruptured pipe.	EP/1/A/5000/01 [illegible]
2. Radiological effluent Technical Specification limits exceeded	Limits 25, 35, 36, 37, 49 and [illegible] Radiological Tech Specs exceeded	Waste Gas Decay Tank Rupture Liquid Waste Storage Tank Rupture	Tech Specs [illegible] Environmental Tech Specs HP/0/B/1009/[illegible] HP/0/B/1009/[illegible]
3. Fuel damage indication (EMF 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. 3.4.8 Dose Equivalent Iodine $> 1.0 \mu Ci/gram$ [illegible] gross activity. NOTE: These calculations available from counting facility on request. b. Increase in I-131 concentration by 7 $\mu Ci/ml$ over a 30 minute period, or I-131 concentration is in the range of 70 $\mu Ci/ml$ to 350 $\mu Ci/ml$ verified by increasing EMF readings and laboratory [illegible] and laboratory analysis.	Loss of Coolant Accident	EP/1/A/5000/[illegible] AP/1/A/5500/[illegible]
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/[illegible] EP/1/A/5000/[illegible] EP/1/A/5000/[illegible] EP/1/A/5000/1A

FIGURE [illegible]
[illegible] NOTIFICATION [illegible] UNUSUAL EVENT
ACCIDENT CONDITIONS/EME[illegible]CY PROCEDURES

[illegible] or Unusual [illegible] Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section [illegible]	[illegible]
[illegible] leak rate [illegible] Specifications [illegible]	Any pressure boundary leakage [illegible] S/G leakage [illegible] S/G [illegible] primary [illegible] leakage [illegible] from [illegible] pressure relief [illegible] valve [illegible]		
[illegible] applicable pressure. (Primary System [NC] or Main Steam [SM]).	[illegible] of valve failure.	Accident Depressurization of Reactor Coolant System	[illegible]
[illegible] of offsite power [illegible]	Undervoltage [illegible] on [illegible] load sequencer [illegible]	Loss of offsite power to station auxiliaries	[illegible] AP/[illegible]
[illegible] shutdown by Technical Specifications (3/4.6.1).	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.		[illegible]
9. Loss of engineered safety feature or fire protection system function requiring shutdown by Technical Specifications (e.g. [illegible])	ESF actuation system found inoperable or Fire Suppression Water System found inoperable per Tech. Spec.	Loss of external electrical load. Loss of offsite power to station auxiliaries.	EP/1/A/5000/[illegible] Tech. Spec. 3/4.5, 3/4.7.10, 3/4.7.11

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
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/5500/09
d. Near site or onsite toxic or flammable gas release	d. As observed.		RP/0/A/5500/06
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

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/0/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

CATAWBA NUCLEAR ..ATION
Figure D.2.A
Respor.e to Emergercies

Class	Licensee Actions	State and/or Local Offsite Authority Actions
LERT lass Description vents are in process or have ccurred which involve an ctual or potential substantial egradation of the level of afety of the plant. Any eleases expected to be imited to small fractions of he EPA Protective Action uideline exposure levels. urpose urpose of offsite alert is o (1) assure that emergency ersonnel are readily available o respond if situation becomes ore serious or to perform onfirmatory radiation monitoring f required, and (2) provide ffsite authorities current tatus information.	1. Promptly inform State and/or loca' authorities of alert status and reason for alert as soon as discovered. 2. 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. 3. Assess and respond. 4. Dispatch on-site monitoring teams and associated communications. 5. Provide periodic plant status updates to offsite authorities (at least every 15 minutes). 6. Provide periodic meteorological assessments to offsite authorities and, if any releases are occurring, dose estimates for actual releases. 7. Escalate to a more severe class, if appropriate. OR 8. Close out or recommend reduction in emergency class by verbal summary to offsite authorities followed by written summary within 8 hours of closout or class reduction.	1. Provide fire or security assistance if raquested. 2. Augment resources and bring primary response centers and EBS to standby status. 3. Alert to standby status key emergency personnel including monitoring teams and associated communications. 4. Provide confirmatory offsite radiation monitoring and ingestion pathway dose projections if actual releases sustantially exceed technical specification limits. 5. Escalate to a more severe class, if appropriate. 6. Maintain alert status until verbal closeout or reduction of emergency class.

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 μCi/ml in 30 minutes <u>or</u> 350 to 750 μCi/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 <u>and</u> reactor trip <u>and</u> pressurizer low level alarm <u>and</u> pressurizer low pressure safety injection signal <u>and</u> 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 <u>and</u> reactor trip <u>and</u> pressurizer low level alarm <u>and</u> pressurizer low pressure safety injection signal <u>and</u> 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: ALERT
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 Tavg, 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 Tavg, 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

FIGURE D-2
CLASS: ALERT
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 Rotor	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

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 High Range $\geq 1 \times 10^{4}$ cpm EMF-36 Low Range $\geq 2 \times 10^{6}$ cpm 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 phenomona 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: ALER.
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

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

Class

SITE AREA EMERGENCY

Class Description

Events are in process or have occurred which involve actual or likely major failures of plant functions needed for protectection of the public. Any releases not expected to exceed EPA Protective Action Guideline exposure levels except near site boundary.

Purpose

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 beocmes more serious, (4) provide consultation with offsite authorities, and (5) provide updates for the public through offsite authorities.

Licensee Actions

1. Promptly inform State and/or local offsite authorities of site area emergency status and reason for emergency as soon as discovered.
2. Augment resources by activating on-site Technical Support Center, on-site operational support center and near-site Emergency Operations Facility (EOF).
3. Assess and respond.
4. Dispatch on-site and offsite monitoring teams and associated communications.
5. Dedicate an individual for plant status updates to offsite authorities and periodic pressure briefings (perhaps joint with offsite authorities).
6. Make senior technical and management staff onsite available for consultation with NRC and State on a periodic basis
7. Provide meteorological and dose estimates to offsite authorities for actual releases via a dedicated individual or automated data transmission.
8. Provide release and dose projections based on available plant condition information and forseeable contingencies.
9. Escalate to general emergency class, if appropriate.

   or
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.

State and/or Local Offsite Authority Actions

1. Provide any assistance requested.
2. If sheltering near the site is desirable, activate public notification system within at least two miles of the plant.
3. Provide public within at least about 10 miles periodic updates on emergency status.
4. Augment resources by activating primary response centers.
5. Dispatch key emergency personnel including monitoring teams and associated communications.
6. Alert to standby status other emergency personnel (e.g., those needed for evacuation) and dispatch personnel to near-site duty stations.
7. Provide offsite monitoring results to licensee, DOE and others and jointly assess them.
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. Recommend placing milk animals within 2 miles on stored feed and assess need to extend distance.
10. Provide press briefings, perhaps with licensee.
11. Escalate to general emergency class, if appropriate.
12. Maintain site area emergency status until closeout or reduction of emergency class.

Rev. 2
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FIGURE D-3
CLASS: SITE AREA F GENCY
ACCIDENT CONDITIONS/EMERG 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).	Inadequate Core Cooling 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) Mechanical Clad Failure > 25% failed fuel indicated by > 1750 μCi/ml I-131. Severe Fuel Overtemperature 1% to 10% failed fuel indicated by 1300 to 13,000 μCi/ml I-131. Fuel Melt .5% to 5% failed fuel indicated by 1180 to 11,800 μCi/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 Tavg, 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 Tavg 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

	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 attemps 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 <u>and</u> observation of major damage to spent fuel assemblies <u>or</u> 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 ½ hour <u>or</u> greater than 500 mr/hr Whole Body for two minutes (or five times these levels to the thyroid) at the site boundary <u>for adverse meteorology</u>. (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, $\geq 3 \times 10^5$ cpm High range $\geq 7 \times 10^1$ 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

Site Area Emergency Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
	NOTE 1: These values are worst case calculations and may not reflect more favorable weather conditions. NOTE 2: 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.)		
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

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

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

Class

GENERAL EMERGENCY

Class Description

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.

Purpose

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.

Licensee Actions

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).
2. Augment resources by activating on-site Technical Support Center, on-site Operational Support Center and near-site Crisis Management Center (CMC).
3. Assess and respond.
4. Dispatch on-site and offsite monitoring teams and associated communications.
5. Dedicate an individual for plant status updates to offsite authorities and periodic press briefings (perhaps joint with offsite authorities).
6. Make senior technical and management staff onsite available for consultation with NRC and State on a periodic basis.
7. Provide meteorological and dose estimates to offsite authorities for actual release via a dedicated individual or automated data transmission.
8. Provide release and dose projections based on available plant condition information on foreseeable contingencies.
9. Close out or recommend reduction of emergency class by briefing of offsite authorities at EOF and by phone followed by written summary within 8 hours of closeout or class reduction.

State and/or Local Offsite Authority Actions

1. Provide any assistance requested.
2. Activate immediate public notification of emergency status and provide public periodic updates.
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. Augment resources by activating primary response centers.
5. Dispatch key emergency personnel including monitoring teams and associated communications.
6. Dispatch other emergency personnel to duty stations within 5 mile radius and alert all others to standby status.
7. Provide offsite monitoring results to licensee, DOE and others and jointly assess them
8. Continuously assess information from licensee and offsite monitoring with regard to changes to protective actions already initiated for public and mobilizing evaucation resources.
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 closout or reduction of emergency class.

Rev. 2
Jan. 1983

FIGURE D-4
CLASS: GENERAL EME..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
1. Effluent monitors detect levels corresponding to 1 rem/hr Whole Body or 5 rem/hr Thyroid at the Site boundary under <u>actual meteorological conditions</u>.	As observed by Control Room personnel.	Waste Gas Decay Tank Rupture Liquid Waste Storage Tank Rupture Loss of Coolant Accident	HP/0/B/1009/13 HP/0/B/1009/14 EP/1/A/5000/1C
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.			

General Emergency Initiating Conditions	Emergency Action Level (EAL)	Catawba Nuclear Station Final Safety Analysis Report Section 15.0	Emergency Procedure/Document
2. Loss of 2 of 3 fission product barriers <u>with</u> a potential loss of 3rd barrier, (e.g., loss of core geometry and primary coolant boundary and high potential for loss of containment). NOTE: Consider 2 mile precautionary evacuation. If more than gap activity released, (120 µCi/ml Noble Gases and Iodines) extended this to 5 miles downwind.	1. Loss of coolant accident as identified in Site Area Emergency, Item 1 <u>and</u> incomplete containment isolation. 2. Loss of coolant accident as identified in Site Area Emergency, Item 1, <u>and</u> Containment Monitor alarms (EMF-53A and/or B) greater than 10^4 R/hr and containment pressure greater than 14.8 psig for at least 2 minutes.	Loss of Coolant Accident Steam Generator Tube Rupture	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
3. Loss of physical control of the facility <u>NOTE</u>: Consider 2 mile precautionary evacuation.	Physical attack of the facility has resulted in occupation of the Control Room and auxiliary shutdown facility.		Station Security Plan AP/1/A/5500/17 OP/0/B/6100/13
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).	As determined by the Shift Supervisor Emergency Coordinator and verified by EAL's defined in Implementing Procedures utilized up to this point.		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

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-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
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 cnotainment.	Pressurizer low pressure reactor trip and pressurizer low pressure safety injection signal and RHR flow indicators show "0" flow after greater than 2 hours (NDP-5190, 5191, 5180, 5181) and RCS T° is rising, containment air handling system failure to function.	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 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-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
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.			
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.			
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.			
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/0/A/5500/07 RP/0/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/0/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/0/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/0/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/0/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/0/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/0/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/0/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/0/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/0/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/0/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/0/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:

Test or Maintenance	Period
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

CATAWBA NUCLEAR STATION
FIGURE E-1

Instructions:

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/m^3 (whole body)

__________ R/hr/Ci/m^3 (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)

Form 34888 (6-82)

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 C isis 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 injestion pathway are conducted quarterly, communications with state/local EOC's and field assessment teams are conducted annually. Catawba Nuclear Station Procedure PT/0/B/4600/05, Coordination of Communication defines the above communication checks.

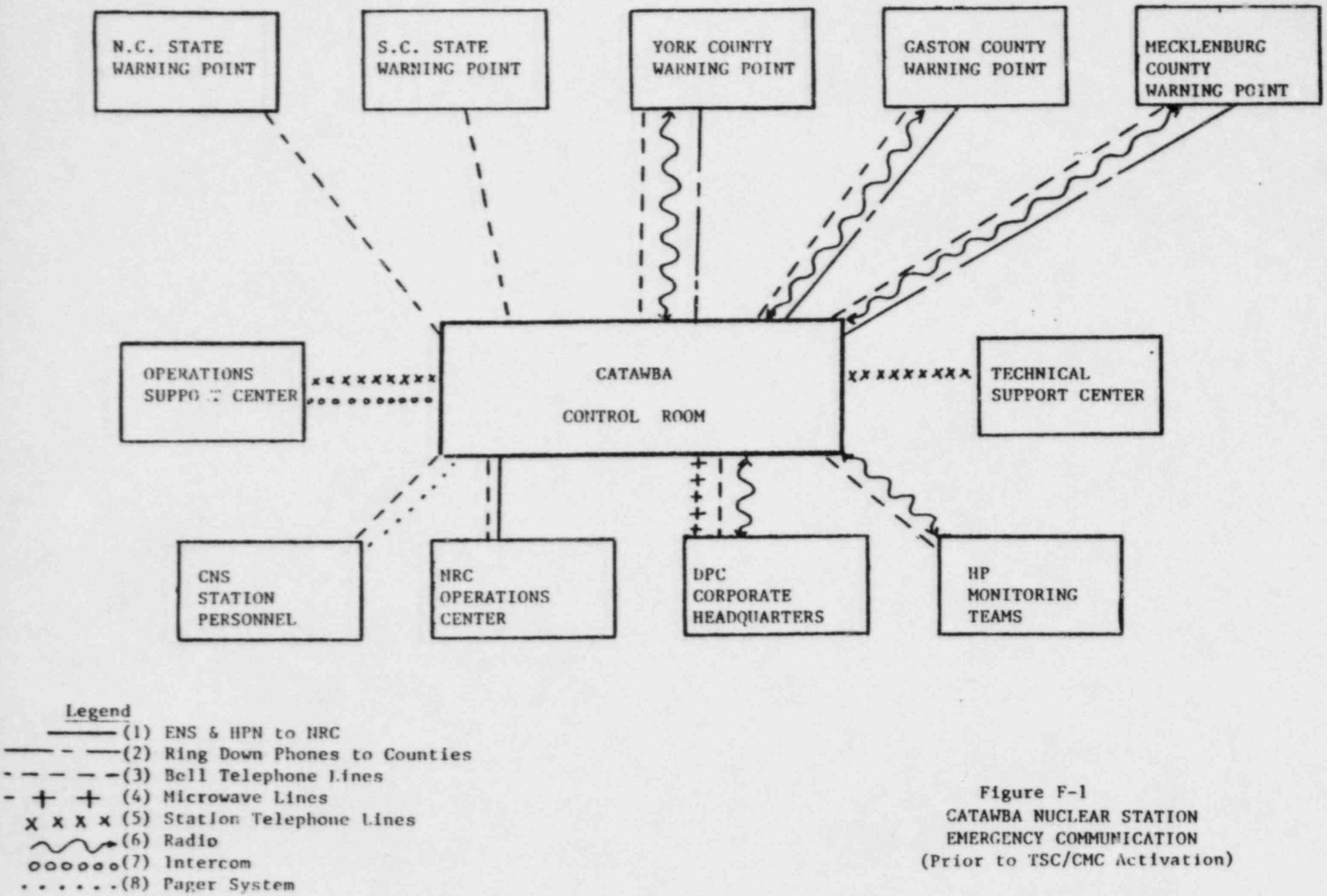
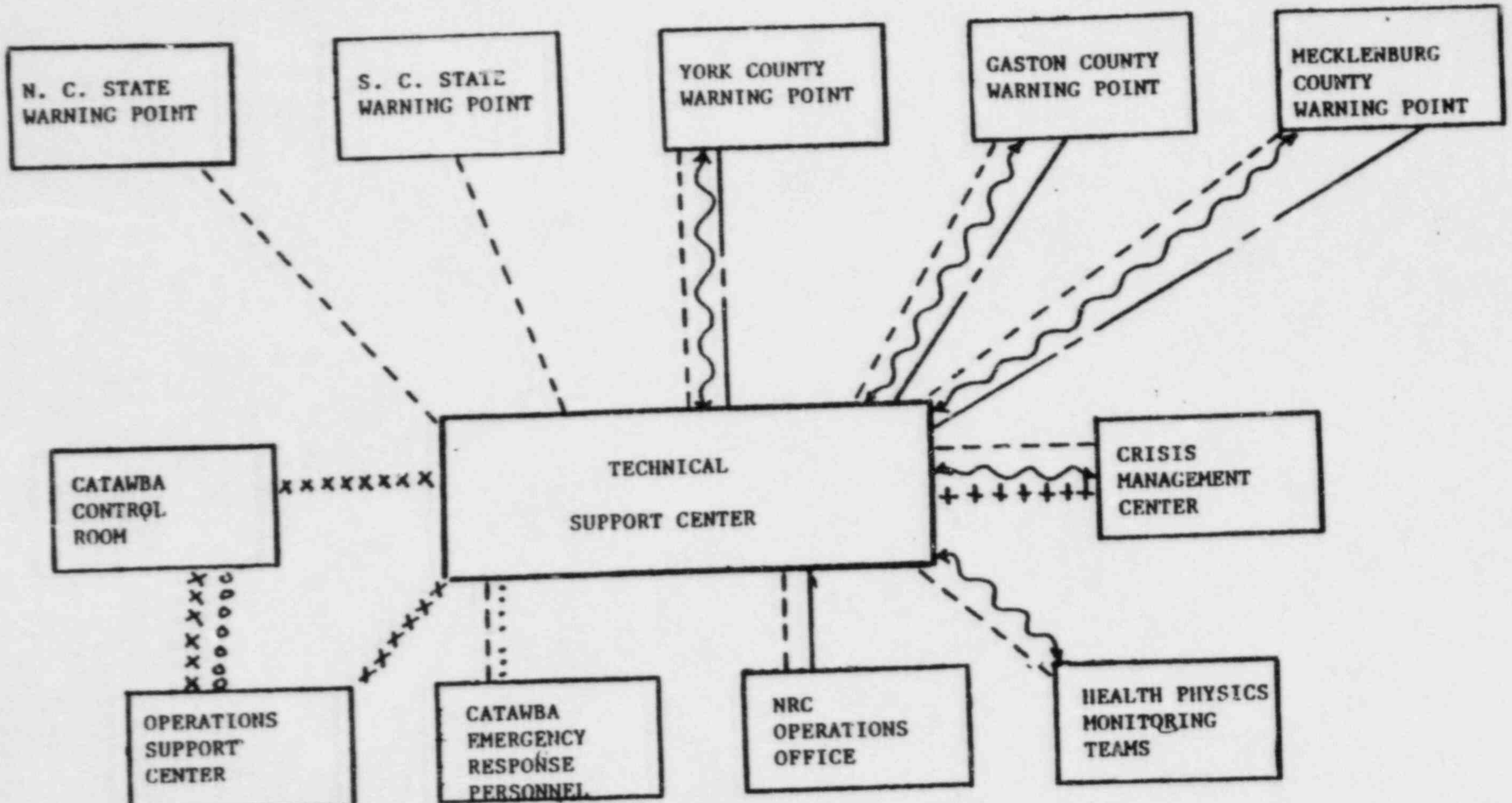


Figure F-1
CATAWBA NUCLEAR STATION
EMERGENCY COMMUNICATION
(Prior to TSC/CMC Activation)



Legend

(1) ENS & HPN to NRC
(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-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-1

CATAWBA NUCLEAR STATION BROCHURE

Catawba Nuclear Station Emergency Plan

Important information. Read and save this booklet.

We Want You To Be Prepared

This brochure is an emergency plan for people who live within 10 miles of Catawba Nuclear Station. We expect the plant to operate safely. You will probably only use the emergency plan for a drill. But we want you to be prepared — to know what the sirens mean and what you should do if you hear them.

The plan was made by state and local government officials and Duke Power Company. It will be updated each year. When you get your new copy, throw this booklet away.

We hope you will take time to read the booklet carefully and study the map at the back. If your family is familiar with the plan, you will be prepared for an emergency. Keep the booklet in a place where you can find it. If you have questions, call your county office:

York County Emergency Management	(803) 328-6171 ext. 225, 226
Charlotte-Mecklenburg County Emergency Management	(704) 374-2412
Gaston County Emergency Management	(704) 866-3303

Special Help For The Handicapped

The emergency agencies listed above can notify and evacuate handicapped people during an emergency. If you are handicapped, call your emergency agency today to tell them about your special needs. Use the phone number for your county listed above.

Dear Neighbor:

Duke Power has been producing electricity safely with nuclear power for 10 years. During the next year, the Catawba Nuclear Station will begin producing electricity. As part-owner and operator of the station, we want you to know about the emergency plan for our area.

We want to make sure we have the best possible plan. Once a year, practice drills will be held to make sure the plan works. State and local agencies work with Duke Power on these drills.

It is very unlikely there would ever be a serious emergency at Catawba. But it is important for you to know how the station works and what you should do during an emergency. This booklet tells you.

If there is an emergency, listen only to emergency officials and your local radio or television station. They will give you the right information. Most important, do not evacuate unless you are ordered to do so.

We are committed to safely generating electricity to serve your needs. If you have questions about the Catawba station, we want you to call us at (803) 324-5015.

Sincerely,

J. W. Hampton

Jim Hampton
Station Manager

How It Works

The Catawba Nuclear Station will use steam to generate electricity. Steam pushes against the blades of a turbine to turn them. As the turbine spins, it turns a generator. The generator produces electricity for our homes, schools, businesses and industries.

Since Catawba is a nuclear station, it uses uranium as its fuel. Uranium atoms can be split apart. This process is called nuclear fission. When the atoms split, heat and fission products are released. The heat is used to make steam. Some of the fission products are radioactive. The plant is designed to keep this radiation inside.

There are three separate systems of water at Catawba. (Shown on the diagram by different colors.) Water in one system never touches water in another system.

The first system is the primary water system (shown in green). It circulates around the nuclear fuel, called the core (1).

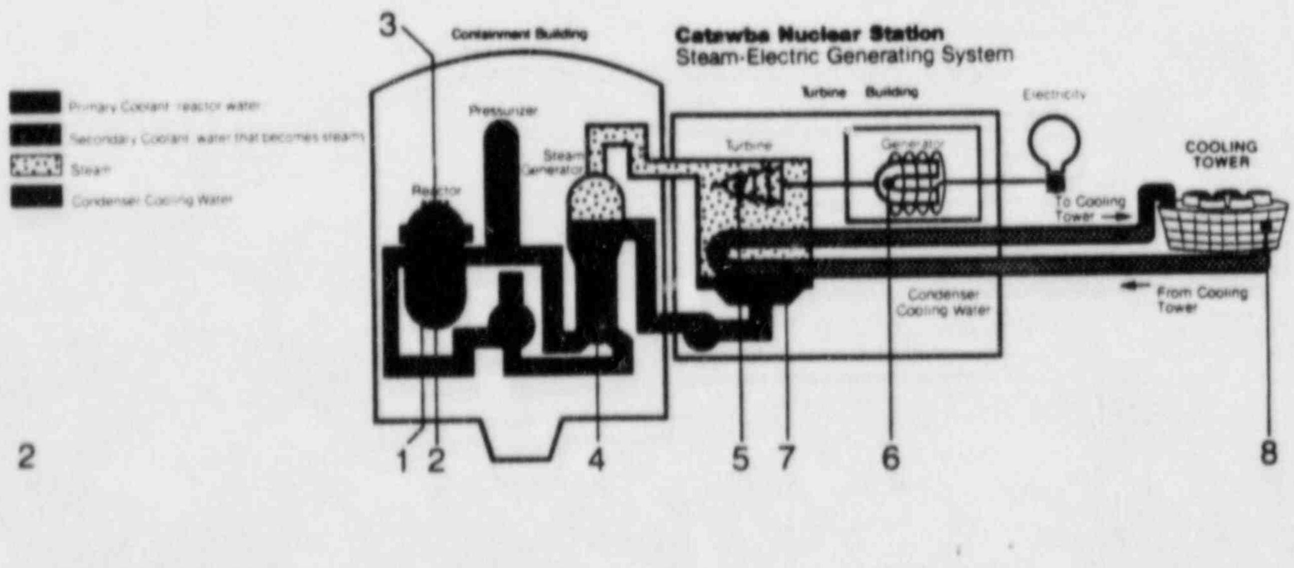
As it flows through the reactor (2), it heats to about 600°F. Because this water is under very high pressure, it does not boil. The amount of heat produced in the reactor is controlled by control rods (3). The reactor shuts down when the control rods are lowered.

The heated primary water next flows through u-shaped tubes in the steam generator (4). There it gives off its heat to water (dark blue) in the secondary water system. It is then pumped back to the reactor to be heated again.

Water in the secondary system is changed to steam (light blue) in the steam generator. The steam spins a turbine (5) connected to an electric generator (6) and produces electricity. As the steam leaves the turbine, it falls on pipes (7) carrying cooling water in the third system (yellow). This water comes from the cooling towers (8).

As the steam hits the outside of the pipes, it is changed back to water. It is then pumped to the steam generator to be heated to steam again.

The steam heats the water inside the pipes. Before it can be used again, it must be cooled in the cooling towers.



Catawba Nuclear Station

Two Units (1,145,000 kilowatts each)

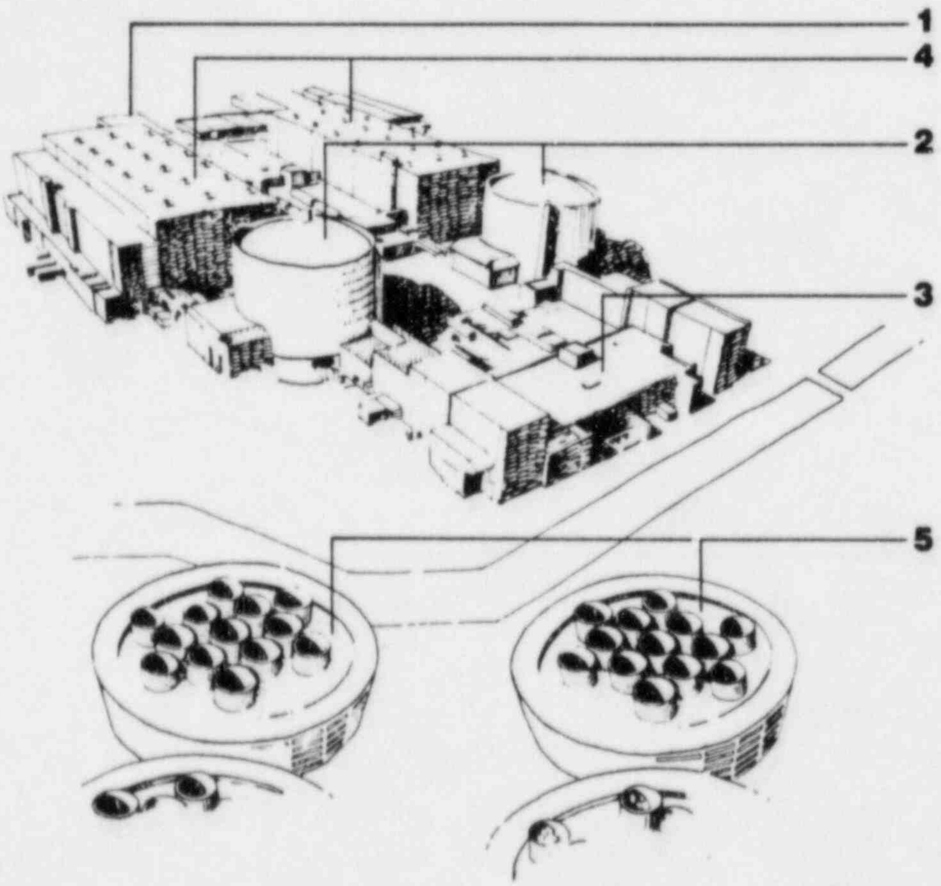
1 **Administration Building** contains security and plant offices.

2 **Containment Building** (or reactor building) is made of steel and reinforced concrete. It houses the reactor vessel, pressurizer, reactor coolant pumps, steam generators and other equipment. This building is designed to keep radiation inside.

3 **Auxiliary Building** houses the control room, equipment and laboratories for operation of the plant.

4 **Turbine Building** contains the turbines, the generator and the condenser system.

5 **Cooling Towers** cool the condenser cooling water to be used again. There are three cooling towers for each unit. Each tower can cool 200,000 gallons of water each minute.



Radiation . . . A Fact of Life

Radiation is energy. Radar, radio waves, ultraviolet (sun) rays and X-rays are common forms of radiation.

Radiation is all around us. It is in the air we breathe, in the food we eat and in our homes. It is even in our bodies. These sources of radiation are lumped together and called background radiation.

In addition to natural background radiation, there is also man-made radiation. It comes from such things as medical and dental X-rays and treatments. Very small amounts of radiation come from the generation of nuclear power.

There are three types of radiation: alpha particles, beta particles and gamma rays. Alpha particles are the least penetrating. They can be stopped by a sheet of paper. Beta particles can be stopped by a thin sheet of metal. Gamma rays are the most penetrating. They can be almost completely stopped by three feet of concrete.

Radiation is measured in units called millirems. The average person receives about 180 millirems of radiation a year. Each year we get more radiation from natural sources than we get from an operating nuclear plant. The chart on the opposite page shows how much radiation we get from different things. You can see nuclear power adds very little to how much radiation we get.

How radiation would harm you depends on:

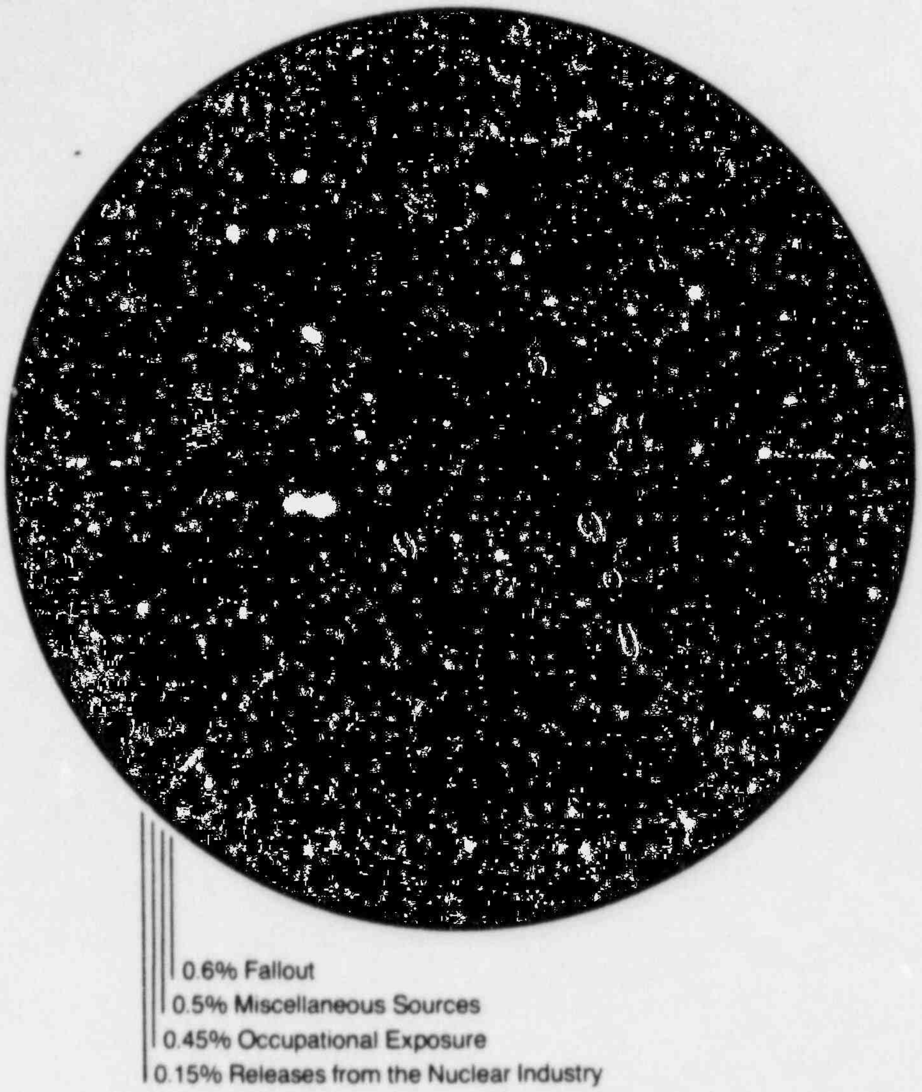
- The type of radiation to which you are exposed;
- The amount of radioactive material you breathe or take into your body;
- The length of time you are exposed;
- The amount of your body exposed and which part.

If radiation were released from the Catawba Nuclear Station, there are things you could do to help keep it out of your body.

- If you are told to stay indoors, close all windows and doors. Turn off fans and air conditioners.
- Hold a damp cloth over your nose and mouth.

Unborn babies and very young children are more likely than other people to be harmed by radiation. Because of this, early precautions might be ordered for women who are, or could be, pregnant and very young children.

Most evidence shows radiation doses of up to several thousand millirems do not cause health effects. To be extra careful, protective actions would be ordered at much lower levels. This would allow you and your family more time to take shelter or, if necessary, to evacuate.



Sources and amounts of natural background radiation *(Measured in Millirem per Year)*

Cosmic Rays	45
Air	5
The Earth	15
Food	25
Building Materials:	
Living in a brick house	45
Living in a stone house	50
Living in a wood house	35

Sources and amounts of man-made radiation *(Measured in Millirem)*

Dental X-Rays:	
Bitewing Series	40
Panoramic	500–1000
Coast-to-Coast Airline Flight	5
Color Television	1 per year
Living next to a Nuclear Plant	Less than 1 per year

Nuclear Terms

Chain Reaction — The point in the fission process at which the production of neutrons in the reactor core is self-sustaining.

Cold Shutdown — The temperature of the water in the primary system is reduced below boiling point and the pressure is reduced to atmospheric pressure.

Control Rods — Rods made of a material that absorbs neutrons. When inserted into the nuclear fuel, the rods stop the fission process, shutting down the reactor.

Core — The central part of a nuclear reactor that contains the nuclear fuel.

Emergency Core Cooling System — A back-up emergency system designed to pump thousands of gallons of water to the reactor core and cool the fuel.

Fission — The nuclear process in which a heavy atom, such as uranium, splits into fragments.

Fuel Assemblies — A collection of rods that contain the nuclear fuel pellets which produce heat to make steam used to generate electricity.

Fuel Pellets — Thimble-sized uranium oxide pellets used in nuclear power generation. Each pellet contains about the same amount of energy as that produced from burning one ton of coal. A modern reactor core may contain up to 10 million pellets.

Fuel Rods — Hollow tubes 13 feet long that contain stacks of uranium oxide fuel pellets. These rods are bundled together to form fuel assemblies.

Half-life — The time required for a radioactive substance to lose one-half its radioactivity. Half-life can vary from minutes to years, depending on the substance.

Maximum Permissible Dose (MPD) — The legal limit to the amount of radiation a member of the public may be exposed to from a nuclear power plant. The Nuclear Regulatory Commission has established a maximum permissible dose of 500 millirems of radiation per year for the general public. For plant workers, the maximum has been established at 5,000 millirems per year.

Millirem — The unit used to measure radiation dosage. It is 1/1000th of a REM. REM stands for Roentgen Equivalent Man, a measure of radiation that indicates potential impact on human cells.

Radioactivity — The property possessed by some elements that give off energy in the form of waves or particles. Radiation may be alpha, beta or gamma.

Reactor Trip — The situation in which control rods are quickly inserted into the fuel core of the reactor, stopping the fission process.

Emergency Classifications

One of the four classifications below would be used to describe a nuclear plant emergency. You should know these terms. Duke Power would contact federal, state and local authorities in each of the following situations.

1 An **Unusual Event** is the least serious of the four warning classifications. It means there is a problem at the station that is being handled by plant workers. Because of strict federal regulations, a number of problems are reported as unusual events even though they pose no danger to the public. They would be reported to the Nuclear Regulatory Commission and to state and local officials.

2 An **Alert** is an event that could affect plant safety. Although there is still no danger to the public, county and state officials begin getting emergency operation centers ready in case the situation gets worse.

3 A **Site Area Emergency** is an event that could possibly affect the public. The sirens are sounded to alert the public to listen to the emergency broadcast stations for information and instructions.

4 A **General Emergency** is the most serious of the four classifications. In this situation, state and federal authorities would take action to protect the public and station workers. Emergency broadcast stations would continue to give information and instructions. If necessary, some areas could be evacuated.

Locating Your Zone

Look at the map which folds out at the end of this booklet. You will see the 10-mile area around Catawba Nuclear Station is divided into zones. Find the zone where you live or work. Write it on the inside back cover of this booklet. This way you will know if you live or work in the area affected by an emergency. For example, residents in zones A-1 and A-2 might be told to stay indoors. Others might not be affected.

Next turn to the "Evacuation Zones" chart on page 13. Find the shelter or reception center for your zone. This is where you should go if an evacuation were ordered.

How Would I Be Told About An Emergency?

If there were an emergency at the Catawba Nuclear Station, Duke Power would immediately tell state and county emergency organizations. These groups have plans to deal with any emergency at Catawba. They would tell you if any action is needed.

To warn you of an emergency, sirens in the 10-mile area around the station would go off.

A steady, three-minute signal would sound. Turn on your radio or television immediately. Tune to one of the emergency broadcast stations. These stations would give you information and tell you what you should do.

The emergency broadcast stations for the area around Catawba are:

AM RADIO

Belmont, NC	WCGC	1270
Charlotte, NC	WAME	1480
	WAYS	610
	WBT	1110
	WGIV	1600
	WHVN	1310
	WIST	1240
	WQCC	1540
	WSOC	930
Concord, NC	WEGO	1410
Dallas, NC	WAAK	960
Gastonia, NC	WGAS	1420
	WGNC	1450
	WLTC	1370
Kannapolis, NC	WGIL	870
	WKRB	1460
Kings Mountain, NC	WKMT	1220
Lincolnton, NC	WLON	1050
Monroe, NC	WIXE	1190
	WMAP	1060
Mooresville, NC	WHIP	1350
Rock Hill, SC	WRHI	1340
	WTYC	1150
York, SC	WBZK	980

FM RADIO

Charlotte, NC	WBCY	107.9
	WEZC	104.7
	WFAE	90.9
	WROQ	95.1
	WSOC	103.7
Concord, NC	WPEG	97.9
Davidson, NC	WDAV	89.9
Gastonia, NC	WZXI	101.9
Kannapolis, NC	WKRB	99.7
Rock Hill, SC	WNSC	88.9

TV

Charlotte, NC	WBTV	Ch. 3
	WCCB	Ch. 18
	WPCQ	Ch. 36
	WSOC	Ch. 9
	WTVI	Ch. 42
Concord, NC	WUNG	Ch. 58
Rock Hill, SC	WNSC	Ch. 30

In case of an emergency, fire, police and rescue units would also patrol the affected areas and sound their sirens.

If I Hear The Siren, What Should I Do?

First, tune to one of the emergency broadcast stations. Listen for instructions for your zone. You might be told to stay indoors or to evacuate. You might hear that your zone is not affected. Follow the instructions. **Do not evacuate unless an order is given.**

Use the telephone only for emergencies.

Even if there were an accident at Catawba Nuclear Station, it is not likely everyone within the 10-mile area would be affected. The areas affected would depend on such things as wind speed and wind direction. It would also depend on how serious the accident is. Remember, **do not evacuate unless an order is given!**

You Might Be Told To Stay Indoors

If you are told to stay indoors:

1. Do not evacuate unless an order is given.
2. Stay indoors until you are told it is safe to go out.
3. Close all windows and doors. Turn off fans and air conditioners.
4. Listen to your local radio or television station for more instructions.

If You Are Ordered To Evacuate

If you are ordered to leave the area:

1 Do not try to take all of your things with you. You could be away from home from a few hours to a few days.

2 Turn off appliances and faucets. Lock all windows and doors.

3 Hold something like a damp handkerchief over your nose and mouth. This would help keep radiation from entering your body.

4 Provide food, water and shelter for your pets and livestock. Pets are not allowed at the reception centers and shelters.

5 Get into your car or other vehicle. Close all windows and vents. Drive to your shelter or reception center.

South Carolina residents — go first to the reception center for your area, shown on the map. From there you could be sent to a shelter. Or you may choose to stay with friends or relatives living at least 15 miles from the plant.

North Carolina residents — go first to the shelter for your area, shown on the map. You may then stay at the shelter. Or you may choose to stay with friends or relatives living at least 15 miles from the plant.

A place in the shelter or reception center will be provided for you in the state in which you live. If you go to the wrong place, you will be sent to the right one.

Exit Routes During An Evacuation

Look at the map and "Evacuation Zone" chart in this booklet to find your exit route. Exit routes would also be announced on radio and television. Police would help direct traffic during an evacuation. Use car pools if possible, to limit traffic. DRIVE SAFELY. Once outside the 10-mile area you would be directed to the shelter or reception center for your zone.

There would be no need to rush. You are more likely to get hurt by rushing, than by the release of radiation. REMEMBER: IF THERE WERE AN EMERGENCY AT THE CATAWBA NUCLEAR STATION, YOU WOULD BE GIVEN PLENTY OF TIME TO TAKE NECESSARY ACTION.

Things You May Want To Take In An Evacuation

The shelters would have food and beds for you. You might want to bring these things from home:

1 Two changes of clothing;
2 Two blankets or a sleeping bag for each person;
3 Important personal papers;
4 Toilet articles (soap, toothbrush and toothpaste);
5 Medical supplies (first aid kit, medicine and prescriptions);
6 Special baby formulas or food.

What If My Children Are In School?

If an evacuation were ordered, children at schools within the emergency zone would be moved to the reception center or shelter for their school. Adults will stay with the children until parents pick them up. If your children ever spend time anywhere alone, you should tell them what to do in an emergency.

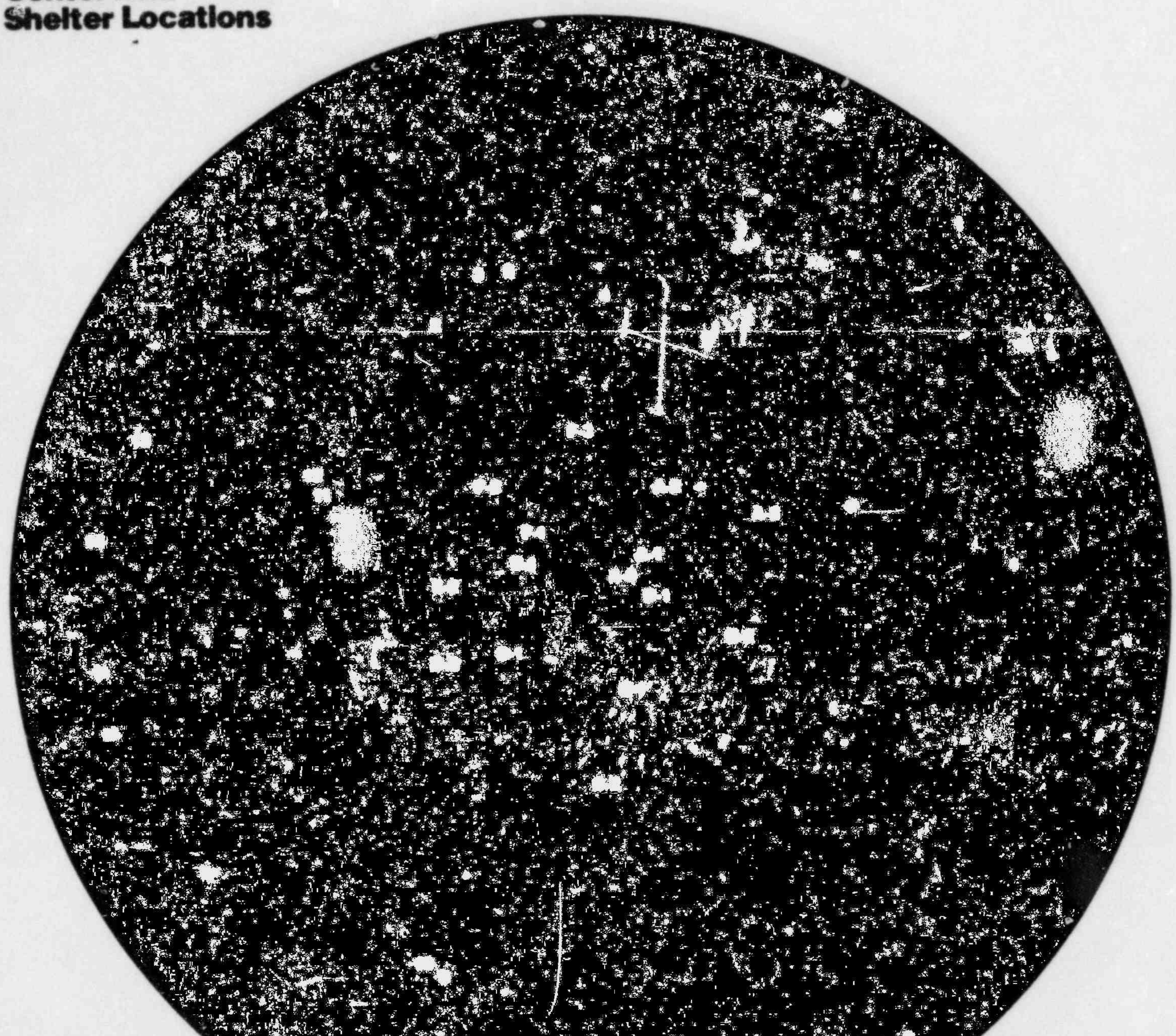
What If I Don't Have Transportation?

If you or members of your family cannot drive or do not have any transportation, call the emergency agency in your area at the number listed on the inside front cover. You would be picked up.

Catawba Nuclear Station Protective Action Zones

County	Zone	Primary Evacuation Routes	Reception Center/Shelter
Mecklenburg	**A-0** (N.C.) **A-1** **A-2** Steele Creek, Shopton **A-3** Pineville	1. NC 49 or US 521 or NC 160 to I-77 North. I-77 North to I-85 North to NC 49 East to the shelter 2. Or, NC 49 East to the shelter 3. Or, NC 51 East to NC 16 North to I-85 North to NC 49 to the shelter	UNCC 1
Gaston	**F-3**	1. NC 274 North to Garrison Blvd. West to Ashley Jr. High 2. Or, NC 279 North to Hancock Elementary School 3. Or, NC 273 North to North Belmont Elementary School	Ashley Jr. High 2 Hancock Elementary 3 North Belmont Elementary 4 Warlick School 5 (overflow)
York	**B-1** Tega Cay **B-2** Fort Mill	1. SC 160 to US 521 South to SC 9 West to Rec. Center 2. Or, SC 5 to US 521 South to SC 9 West to Rec. Center 3. Or, SC 5 to US 21 South to SC 9 East to Rec. Center	Univ. of SC at Lancaster 6
York	**C-1** Lakewood **C-2** Rock Hill, Newport, Red River, Ebeneezer	1. I-77 South or SC 901 South or SC 72 South or SC 5 South to US 21 to SC 9 to the Rec. Center	Lewisville High School 7 Lewisville Middle School 8 (Additional Reception Centers are available in Chester County and will be opened on an as needed basis)
York	**D-1** **D-2** York	1. US 321 South to Lowrys to East on SC 909 to the Rec. Center 2. Or, SC 322 to US 321 to 909 East to the Rec. Center	Zion Presbyterian Church 9 Lowry Baptist Church 10 (Additional Reception Centers are available in Chester County and will be opened on an as needed basis)
York	**A-0** (S.C.) **E-1** **E-2** Clover **F-1** **F-2**	1. SC 55 West to Bethany Elementary School 2. Or, SC 55 West to SC 161 North to Bethany Presbyterian Church 3. Or, SC 49 to NC 274 to NC 177 to NC 279 to I-85 South to I-85 Welcome Center 4. Or, SC/NC 49 to NC 274 to I-85 South to I-85 Welcome Center 5. Or, US 321 North to I-85 South to I-85 Welcome Center 6. Or, SC 5 West to US 29 South in Blacksburg to Blacksburg First Baptist Church	Bethany Elementary School 11 Bethany Presbyterian Church 12 I-85 Welcome Center (Cherokee County) 13 Blacksburg First Baptist Church 14

Regional Reception Center And Shelter Locations



My zone is:

Protective Action
Zones and Map

Duke Power Company

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/0/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/0/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/0/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/0/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.

FIGURE H-1
CATAWBA NUCLEAR STATION
TECHNICAL SUPPORT CENTER COMMUNICATIONS

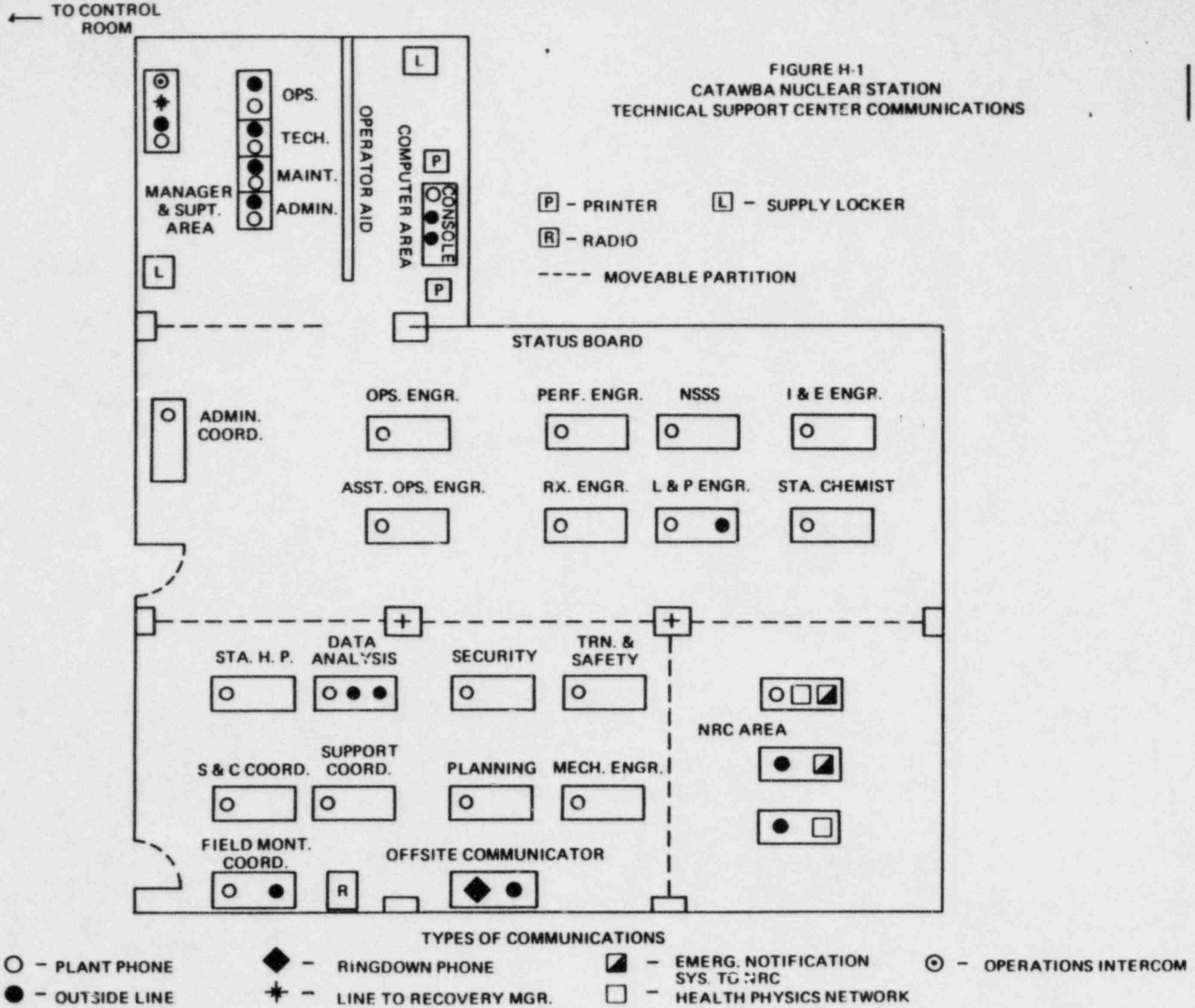


FIGURE H-2
CATAWBA NUCLEAR STATION
OPERATIONS SUPPORT CENTER

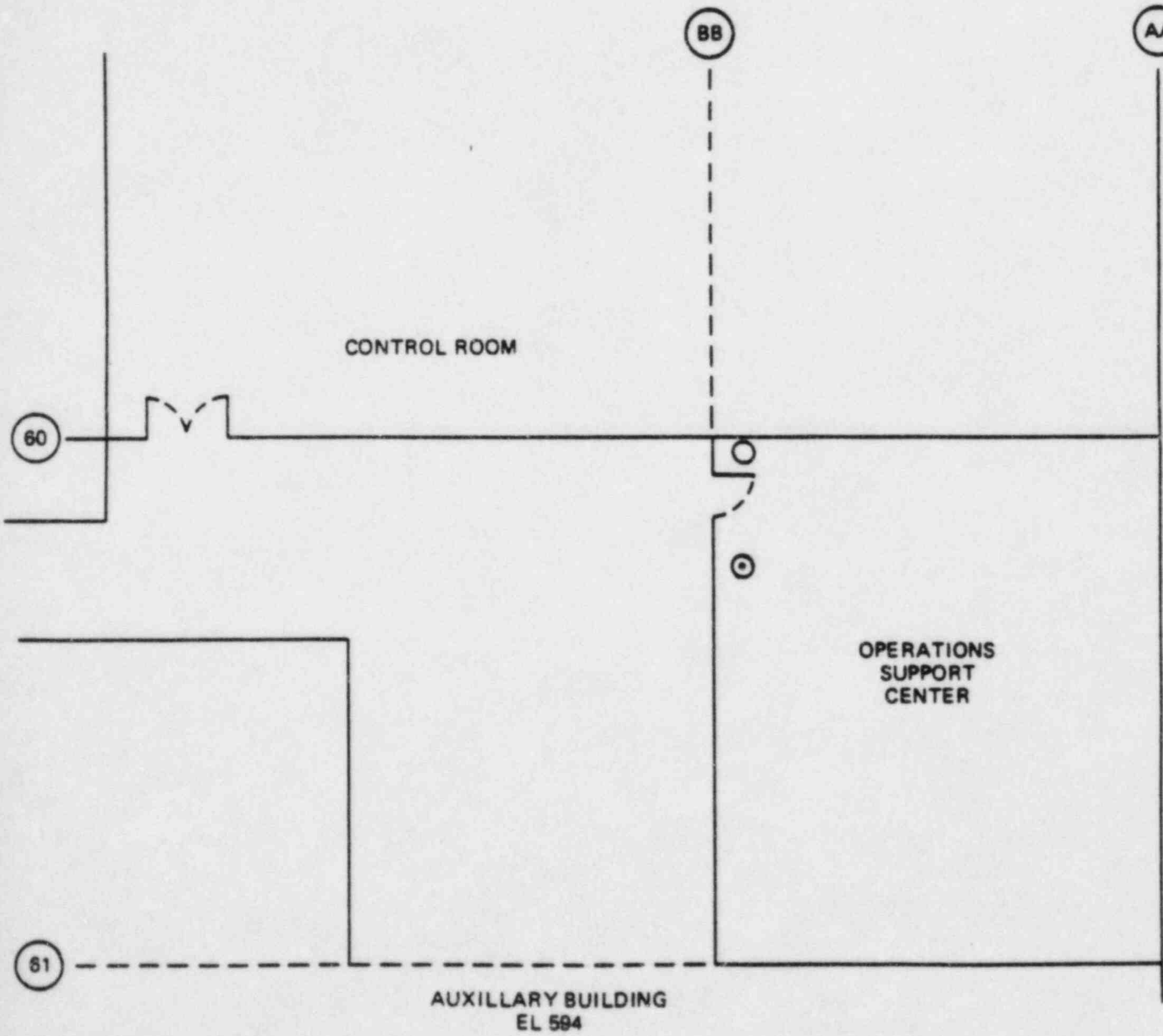


FIGURE H-3

PROTECTIVE EQUIPMENT AND SUPPLIES

KITS	LOCATION
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
Masking Tape (roll)	1
Rain Suits (set)	2
Protective Clothing (set)	2
Poly Bags (various)	12
Caution Signs w/inserts	2
Legal Pad	1
Smear Survey Form	5
Pens	2
Grease Pencil	1
Full Face Respirator Wtih 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/0/B/1003/12	1
HP/0/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/0/B/1009/18/04/16	1 Each

FIGURE H-5

ENVIRONMENTAL SURVEY KIT CHECKLIST (Con:'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/0/B/1003/02/05/12/17	1 Each
HP/0/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 (Polariod)	1
Polaroid Film Pacs	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/0/B/1009/05	1
Legal Pad	1
Pocket Knife	1
Station Directive 3.8.3	1
HP/0/B/1003/11	1
HP/0/B/1004/06	1
HP/0/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, Maksing 2"	1
Tape, Duct 2"	1
Smear Survey Forms	1
HP/0/B/1009/08	1
Swipes, Atomic (Kotex)	12
Citric Acid (1 lb.)	1
Pens	2
Legal Pad	1
Phisohex (gal.)	1
HP/0/B/1003/11	1
HP/0/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 Clearer	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/0/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/0/B/1003/11/12	1 each
HP/0/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/0/A/5000/02 through RP/0/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/0/B/1009/18	1
HP/0/B/1003/05	1
HP/0/B/1003/12	1
HP/0/B/1009/16	1
HP/0/B/1009/04	1

FIGURE H-13

FUEL TRANSFER KIT CHECKLIST

ITEM		AMOUNT
Shoe Covers:	D'sposable (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/0/B/1003/11	1
HP/0/B/1004/06	1
HP/0/B/1009/05	1
HP/0/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

TLD No.	Sector	Degrees	Distance (mi.)
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

TLD No.	Sector	Degrees	Distance (mi.)
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

TLD No.	Sector	Degrees	Distance (mi.)
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)

No. &	Sector	Radius (Mi)	Description
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.

Rev. 2
Jan. 1983

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/0/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/0/A/8700/11, Chemistry Procedure for the Operation of the Post-Accident Liquid Sample System, and HP/0/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/0/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/0/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/0/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/0/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 μCi/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/0/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 ''ATUS 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	______	LBM

C. AUXILIARY SYSTEMS;

NV LETDOWN FLOW	______	GPM
FWST LEVEL	______	%
SNSWP LEVEL	______	%
ETA VOLTS	______	KV
ETB 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 HX A RETURN FLOW	______	GPM
ND HX 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*	______	R/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.

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/0/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/0/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 10CRF20, 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/0/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 cm^2 beta-gamma and 20 dpm/100 cm^2 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 1-1 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

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CATAWBA NUCLEAR STATION
FIGURE J-1

1980 POPULATION DISTRIBUTION
OF THE CATAWBA EPZ AND ZONES

Zone	Vehicle-Owning	Non-Vehicle-Owning	Total	Transient Population	Special Facility Population
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	46,826	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	2,405	267	2,672	651	469
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. Consider evacuation, particularly for children and pregnant women.	
Thyroid 5 to 25	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.	Seeking shelter would be an alternative if evacuation were not immediately possible.
Thyroid 25 and above	Control access.	
Projected Dose (Rem) to Emergency Team Workers		
Whole Body 5 Skin of Whole Body or Thyroid 30 Extremeties 75	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.
	-VOLUNTARY ONLY-	
Whole Body 25 Skin of Whole Body or Thyroid 150 Extremities 375	Control exposure of emergency team members performing lifesaving missions to this level. (Control of time of exposure will be most effective.)	

(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.

TABLE J-2 CONTINUED

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

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

1. Evacuation
2. Shelter
3. Access Control
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

(a) Puff release - less than 2 hours

(b) Continuous release - 2 hours or more

(c) Restoration phase may begin at any time as appropriate

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, expecially 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.

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FIGURE J-3

EVACUATION ROUTES
LEADING OUT OF THE CATAWBA EPZ

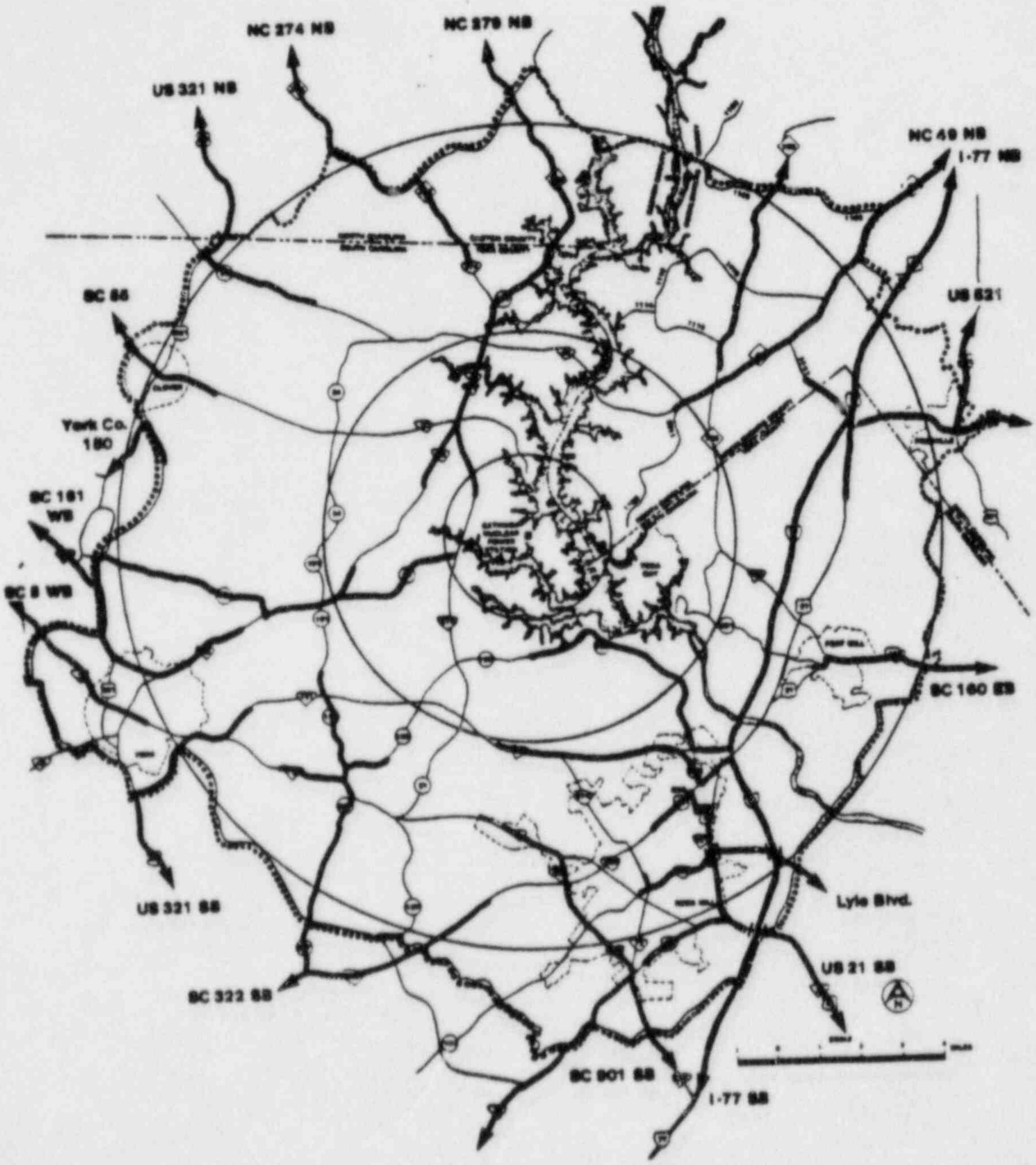

FIGURE J-4
CATAWBA NUCLEAR STATION
PROTECTIVE ACTION RECOMMENDATION FLOW CHART

Is the emergency classified "UNUSUAL EVENT" or "ALERT"?

Yes → No recommendations required

No ↓

Is the emergency classified "SITE AREA EMERGENCY"?

Yes → Recommend to offsite authorities that people in the 2 mile area be made aware of the situation and monitor EBS for further information. Consider evacuation of nonessential station personnel.

No ↓

Classification is a "GENERAL EMERGENCY"

Immediately recommend that people in the 2 mile area and 5 mile downwind go indoors, close all windows and doors, turn off ventilation equipment, and monitor EBS for information. As soon as possible, followup the recommendation with one based on an extensive evaluation of the two areas listed below. Evacuate non-essential station personnel.

Compare projected downwind doses and field monitoring team measurements with EPA PAG's (see J-2). Determine appropriate actions.

Evaluate Core/Reactor Coolant System/containment status and compare with the following preselected recommendations.

For core melt sequences where significant releases from containment are not yet taking place and large amounts of fission products not yet in containment atmosphere, recommend a 2 mile precautionary evacuation and sheltering to 5 miles. Recommend evacuation to 2 miles and to 5 miles downwind if fission product activity greater than gap activity is in containment atmosphere.

For core melt sequences where significant releases from containment are not yet taking place and containment failure is likely but not imminent, and large amounts of fission products in addition to noble gases are in containment atmosphere, consider precautionary evacuation to 5 miles and to 10 miles downwind.

For core melt sequences where large amounts of fission products in addition to 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.

Compare the recommendations developed from these two analyse and determine the most appropriate of the two. If dose projections or field team measurements are not available, determine actions based solely on core melt analysis.

Before making a final determination consider these constraints:

1. Plume arrival time versus evacuation time estimate (Do not evacuate the public in the plume).
2. Do bridge & road conditions present an impediment to evacuation?
3. Will weather conditions inhibit evacuation?
4. Can state/local agencies physically support the recommendations?
5. Is this a "puff" or continuous release?

K. RADIOLOGICAL EXPOSURE CONTROL

To assure that means for controlling radiological exposures in an emergency are establishd 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 establisned for the following categories:

a. Removal of injured persons - Whole Body 25 Rem; Skin of Whole Body 150 Rem; or Extremeties 375 Rem (Notes 1 & 3)

b. Undertaking corrective actions - Whole Body 5 Rem; Skin of Whole Body 30 Rem; Extremeties 75 Rem (Notes 2 & 3)

c. Performing assessment actions - Whole Body 5 Rem; Skin of Whole Body 30 Rem; Extremeties 75 Rem (Notes 2 & 3)

d. Providing first aid - Whole Body 25 Rem; Skin of Whole Body 150 Rem; Extremeties 375 Rem (Notes 1 & 3)

e. Performing personnel decontamination - Whole Body 5 Rem; Skin of Whole Body 30 Rem; Extremeties 75 Rem; (Notes 2 & 3)

f. Providing ambulance service - Whole Body 5 Rem; Skin of Whole Body 30 Rem; Extremeties 75 Rem (Notes 2 & 3)

g. Providing medical treatment services - Whole Body 25 Rem; Whole Body 150 Rem; Extremeties 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 tract 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/0/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 involing 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).

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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/0/B/1009/08 "Contamination Control During Transporation 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 responsiblities 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/0/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 injestion 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 air-borne 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.

O. RADIOLOGICAL EMERGENCY RESPONSE TRAINING

O.1 Offsite Agency Training

O.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 O-1.

O.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 O-1, this training is given by station personnel and documented on Duke Power Company forms.

O.2 Onsite Organization Training

The training program for members of the onsite emergency organization is outlined in Figure O-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.

O.3 First Aid Training

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

O.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 Prepared-ness 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 Reponsible 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 attendents 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 uclear 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 0-1.3
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 associted 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, in 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 EPA 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 0-2.3

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/0/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. Pratical 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 0-2.5
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 0-2.6
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/0/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

Procedure #	Title	Emerg. Plan Section Implemented
RP/0/A/5000/01	Classification of Emergency	Section D, E, I.1, J.7
RP/0/A/5000/02	Notification of Unusual Event	Section D, E, I.1, J.7
RP/0/A/5000/03	Alert	Section D, E, I.1, J.7
RP/0/A/5000/04	Site Area Emergency	Section D, E, I.1, J.7
RP/0/A/5000/05	General Emergency	Section D, E, I.1, J.7
RP/0/A/5000/06	Natural Disaster	Section D
RP/0/A/5000/07	Earthquake	Section D, H.6.a
RP/0/A/5000/08	Release of Toxic or Flammable Gas	Section D
RP/0/A/5000/09	Collision/Explosion	Section D
RP/0/A/5000/10	Conducting A Site Assembly/Evacuation	Section J.1
RP/0/A/5000/11	Offsite Dose Projections without OAC	Section D
HP/0/B/1009/01	Health Physics Recovery Plan	Section M
HP/0/B/1009/03	Environmental Surveillance Following a Primary to Secondary Leak	Section D, I
HP/0/B/1009/04	Environmental Surveillance Following a Large Unplanned Release of Gaseous Radioactivity	Section D, I
HP/0/B/1009/05	Personnel Monitoring for Emergency Conditions	Section D, I
HP/0/B/1009/06	Alternative Method for Determining Dose Rate Within the Reactor Building	Section D, I
HP/0/B/1009/07	Inplant Particulate and Iodine Monitoring Under Accident Conditions	Section D, I
HP/0/B/1009/08	Contamination Control During Transportation of Contaminated Injured Individual	Section D, I
HP/0/B/1009/09	Guidelines for Accident & Emergency Response	Section D, I
HP/0/B/1009/12	Quantifying Gaseous Releases through Steam Relief Valves under Post-Accident Conditions	Section D, I
HP/0/B/1009/13	Offsite Dose Calculation-Uncontrolled Release of Gaseous Radioactive Material Through the Unit Vent	Section D, I
HP/0/B/1009/14	Offsite Dose Projection-Uncontrolled Release of Liquid Radioactive Material	Section D, I
HP/0/B/1009/15	Offsite Dose Projection-Uncontrolled Release of Gaseous Radioactive Material Other Than Through the Unit Vent	Section D, I
HP/0/B/1009/16	Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release	Section J.6
HP/0/B/1009/17	Nuclear Post Accident Containment Air Sampling System Operation	Section I, 2
HP/0/B/1009/18	Environmental Monitoring for Emergency Conditions within the Ten Mile Radius of Catawba Nuclear Station	Section I.7, I.8

Procedure #	Title	Emerg. Plan Section Implemented
HP/0/B/1009/19	Emergency Radio System Operations, Maintenance and Communications	Section F.1.d
HP/0/B/1009/20	Estimate of Food Chain Dose Under Post Accident Conditions	Section I.10
CP/0/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/0/B/1000/06	Emergency Equipment Functional Check and Inventory	Section H.10
PT/0/B/4600/06	Emergency Exercise	Section N

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

1. J. W. Hampton
2. G. E. Vaughn
3. R. M. Glover
4. R. C. Futrell
5. J. A. Effinger - QA
6. L. Lewis
7. A. R. Franklin
8. C. W. Graves
9. G. T. Smith
10. W. P. Deal
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
26. J.L. Carroll - York County
27. Westinghouse Site Rep
28. INPO
29. W. Barron - Operator Training
30. Technical Training Center Library
31. H. B. Tucker - VP Nuclear Production
32. Extra Manual Not Issued
33. Extra Manual Not Issued
34. Extra Manual Not Issued
35. Extra Manual Not Issued

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION

APPENDIX INDEX

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 profided 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 Guassian 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 thorugh 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 Typer 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 form 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

TABLE 18. SUMMARY OF EVACUATION TIMES

Zones	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
Within Two Miles																
North Carolina	357	154	654	233	1,200	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	(5)	(5)
South Carolina	363	156	5,552	1,982	2,400	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	(5)	(5)
All Zones	720	310	6,206	2,215		(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	(5)	(5)
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)	(5)
B-1	2,631	1,131	2,588	924	1,200	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	1:45	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	1:45	2:30
D-1	1,414	608	109	39	2,400	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	(5)	(5)
E-1	429	184	0	0	3,600	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	(5)	(5)
F-1	2,573	1,106	1,582	565	3,600	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	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	1:40	2:30
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	2:45	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	2:45	4:15
C-2	44,964	19,335	0	0	11,400	(1)	(2)	(3)	(3)	(4)	(4)	4:00	6:15	1:40	2:45	4:15
D-2	9,169	3,943	0	0	4,800	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	2:45	4:15
E-2	4,957	2,132	0	0	4,800	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	2:45	4:15
F-2	2,655	1,142	650	232	6,000	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	(5)	(5)
F-3	2,672	1,149	651	232	2,400	(1)	(2)	(3)	(3)	(4)	(4)	3:25	3:25	1:40	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	2:45	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.

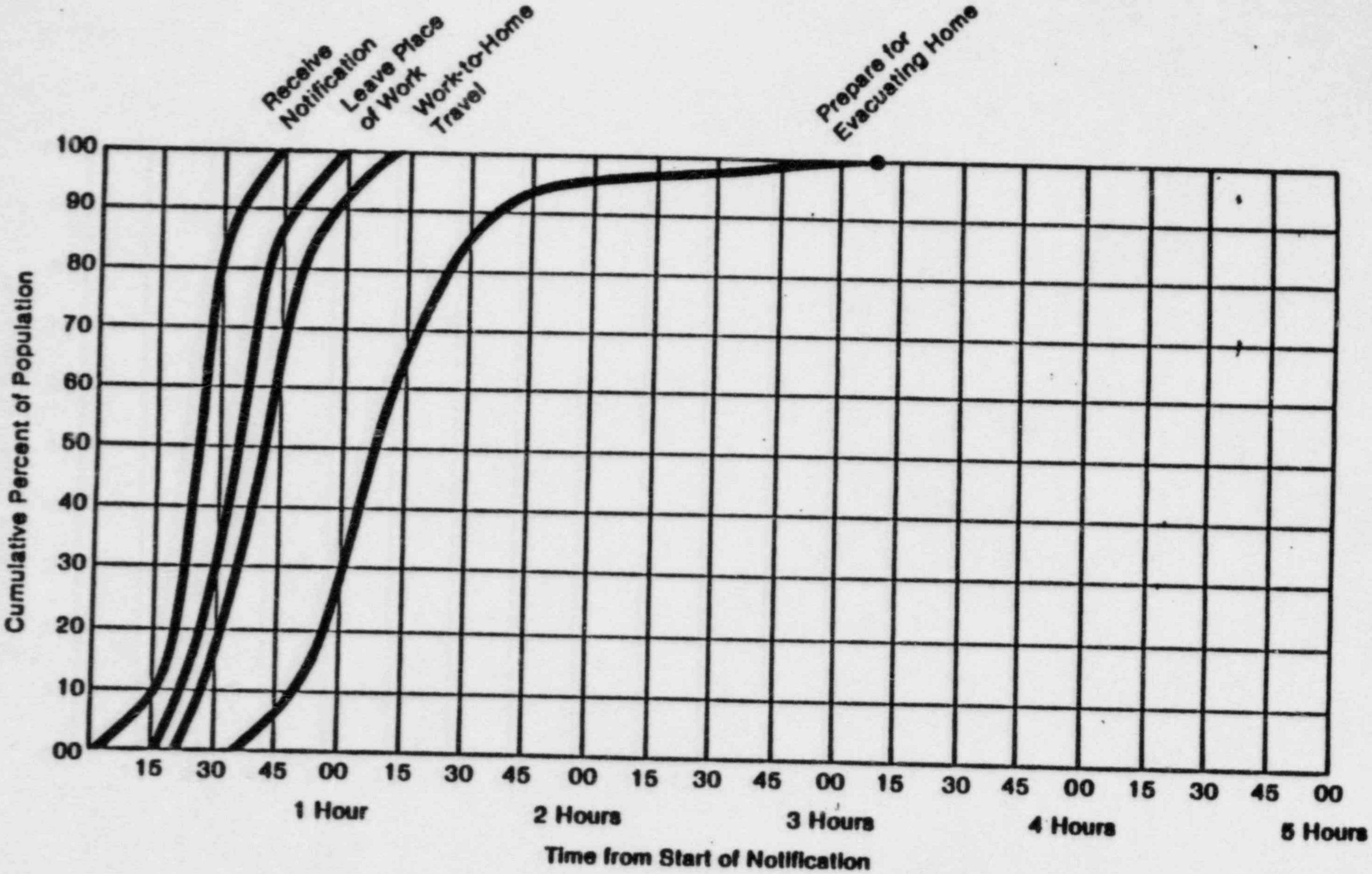


Figure 12. Evacuation Time for the Permanent Resident Population (Auto-Owning)

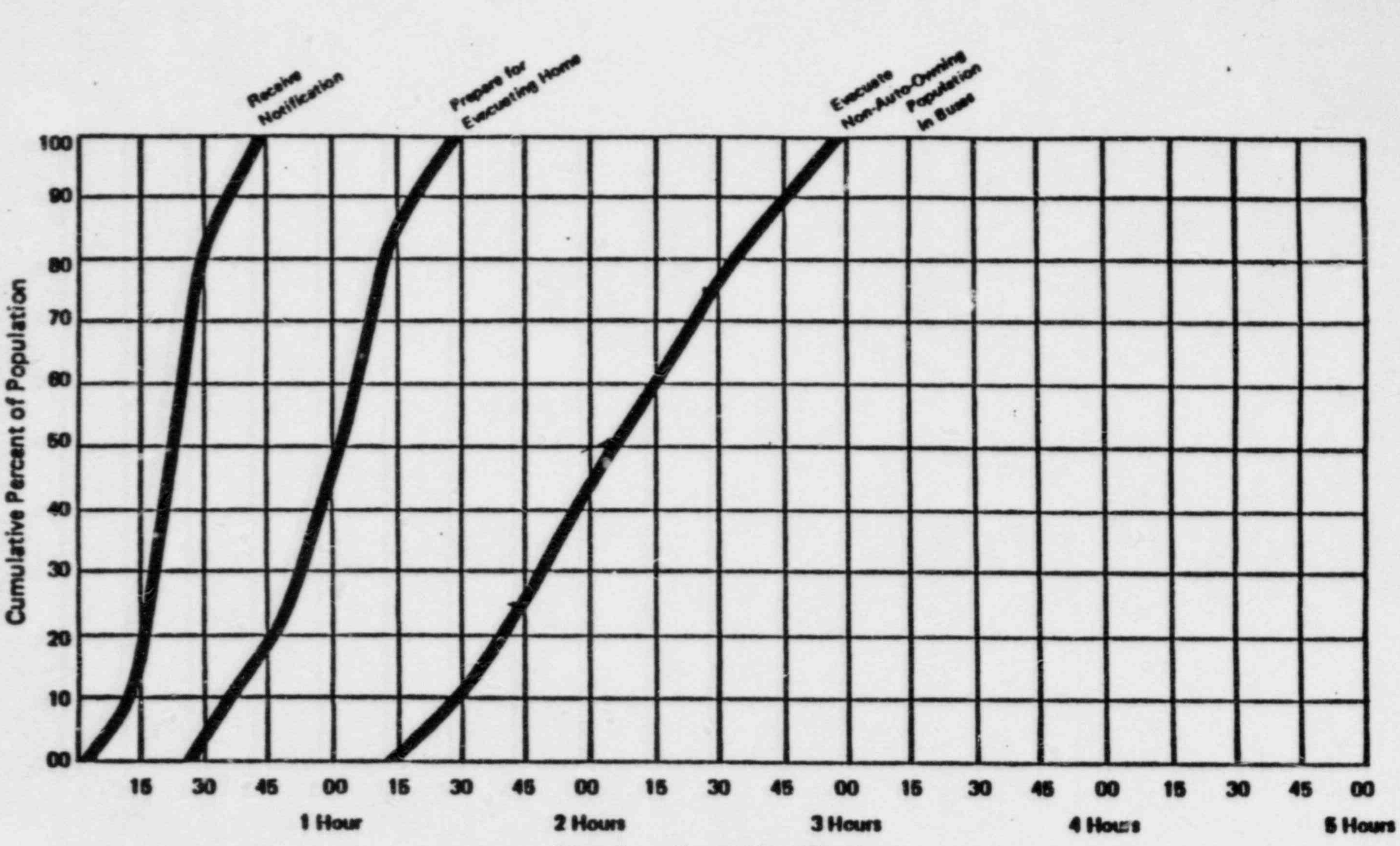


Figure 15. Evacuation Times for the Permanent Resident Population (Non-Auto-Owning)

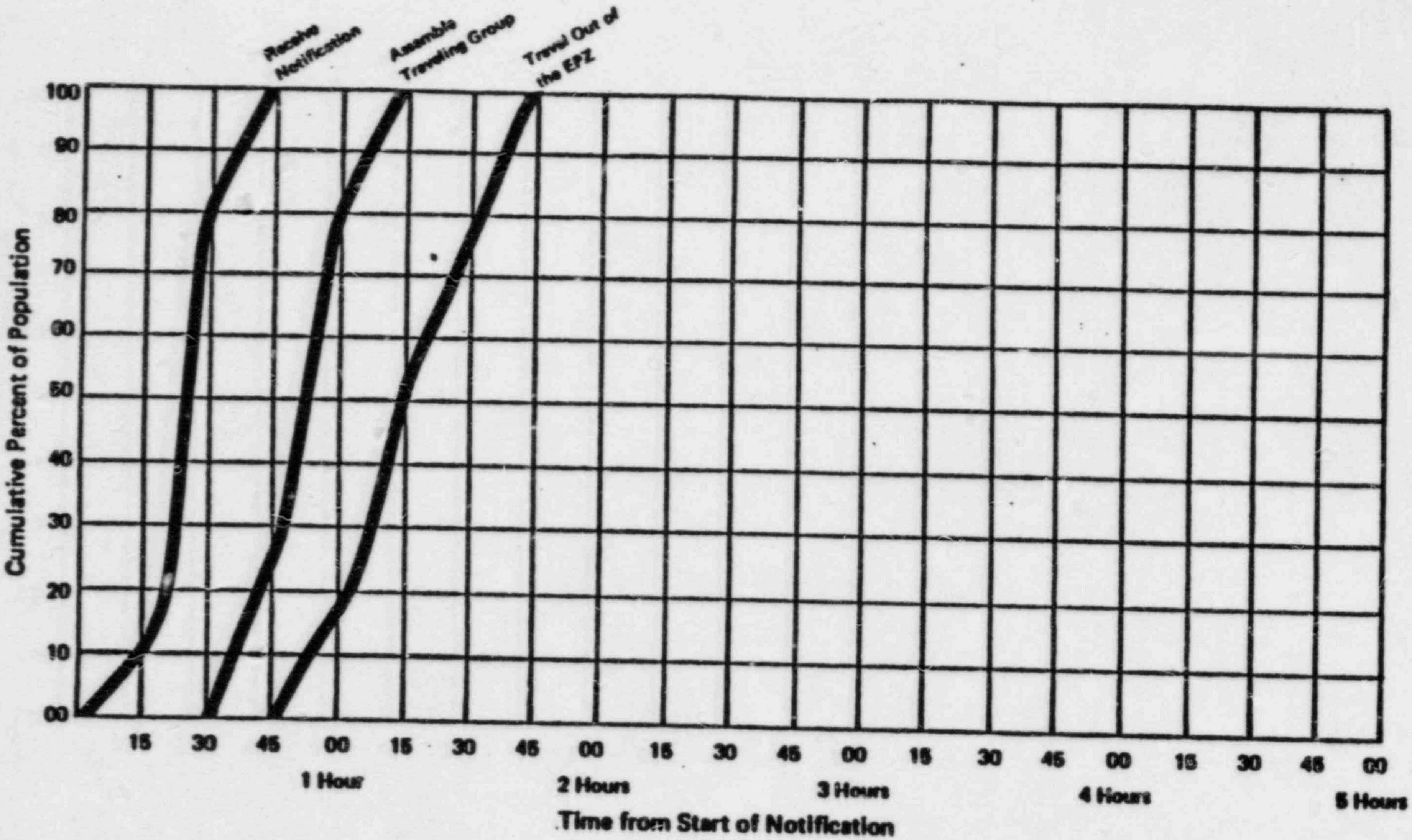


Figure 16. Evacuation Times for the Transient Population

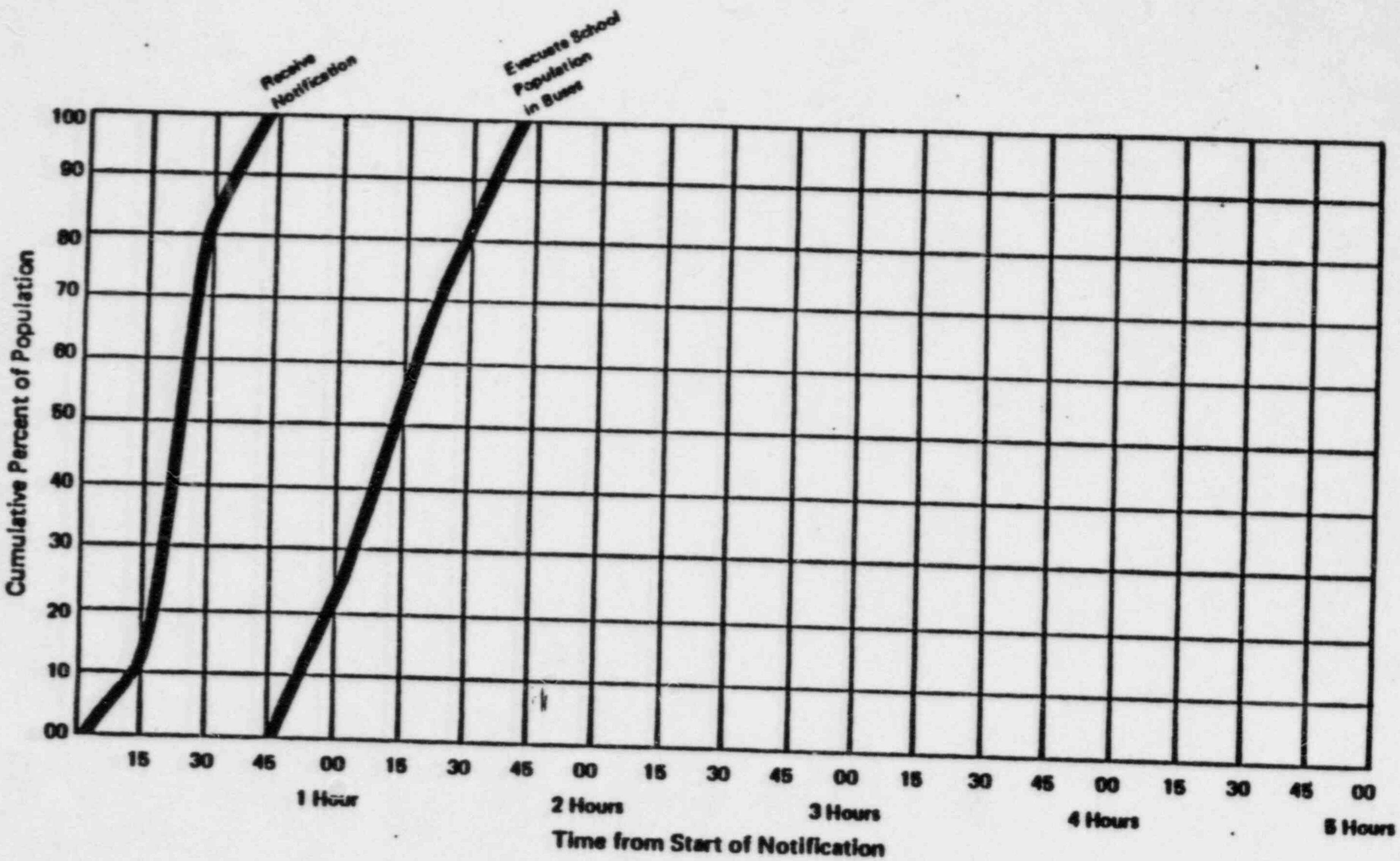


Figure 17. Evacuation Times for the Special Facilities Population (Schools)

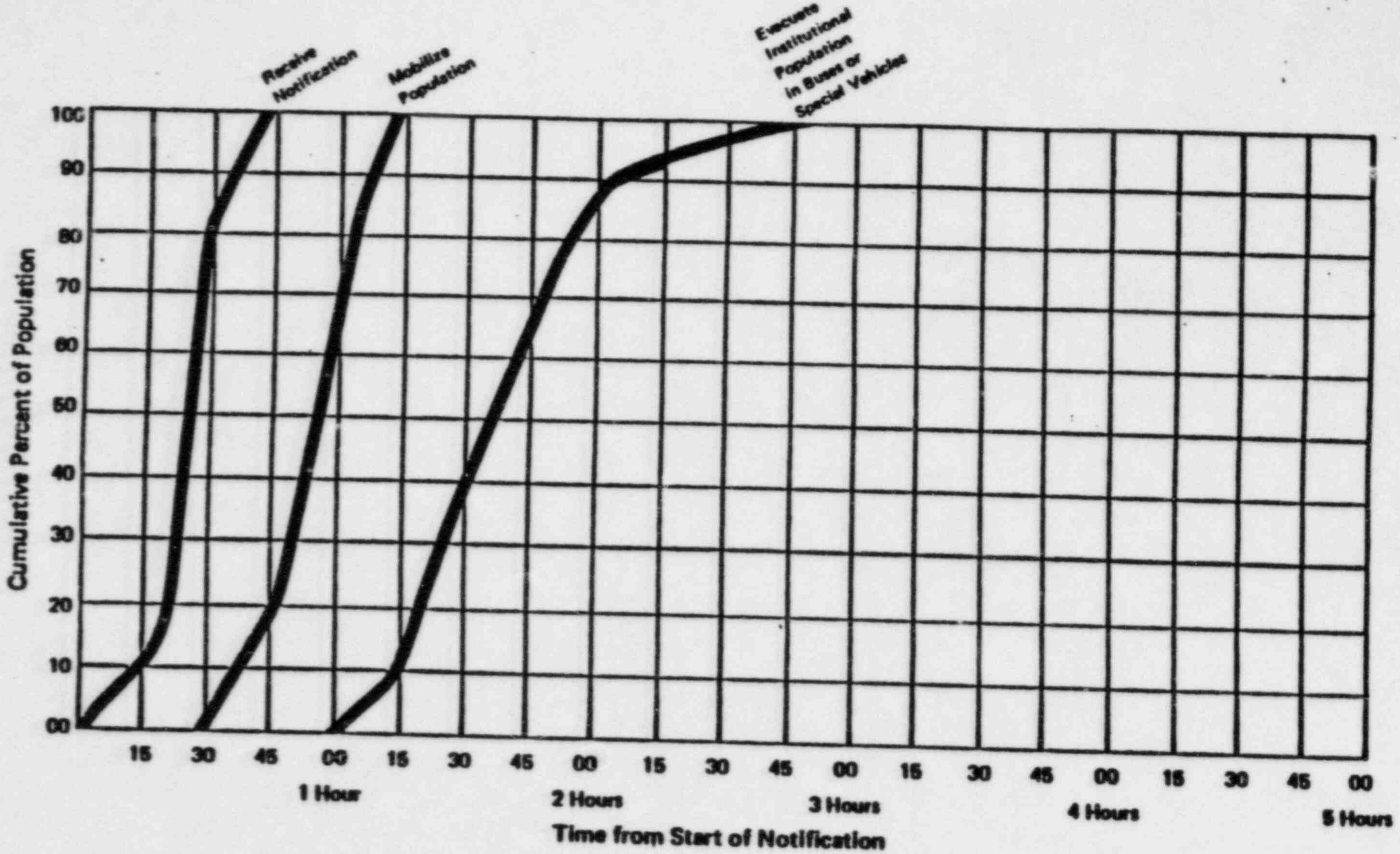


Figure 18. Evacuation Times for the Special Facility Population (Institutions)

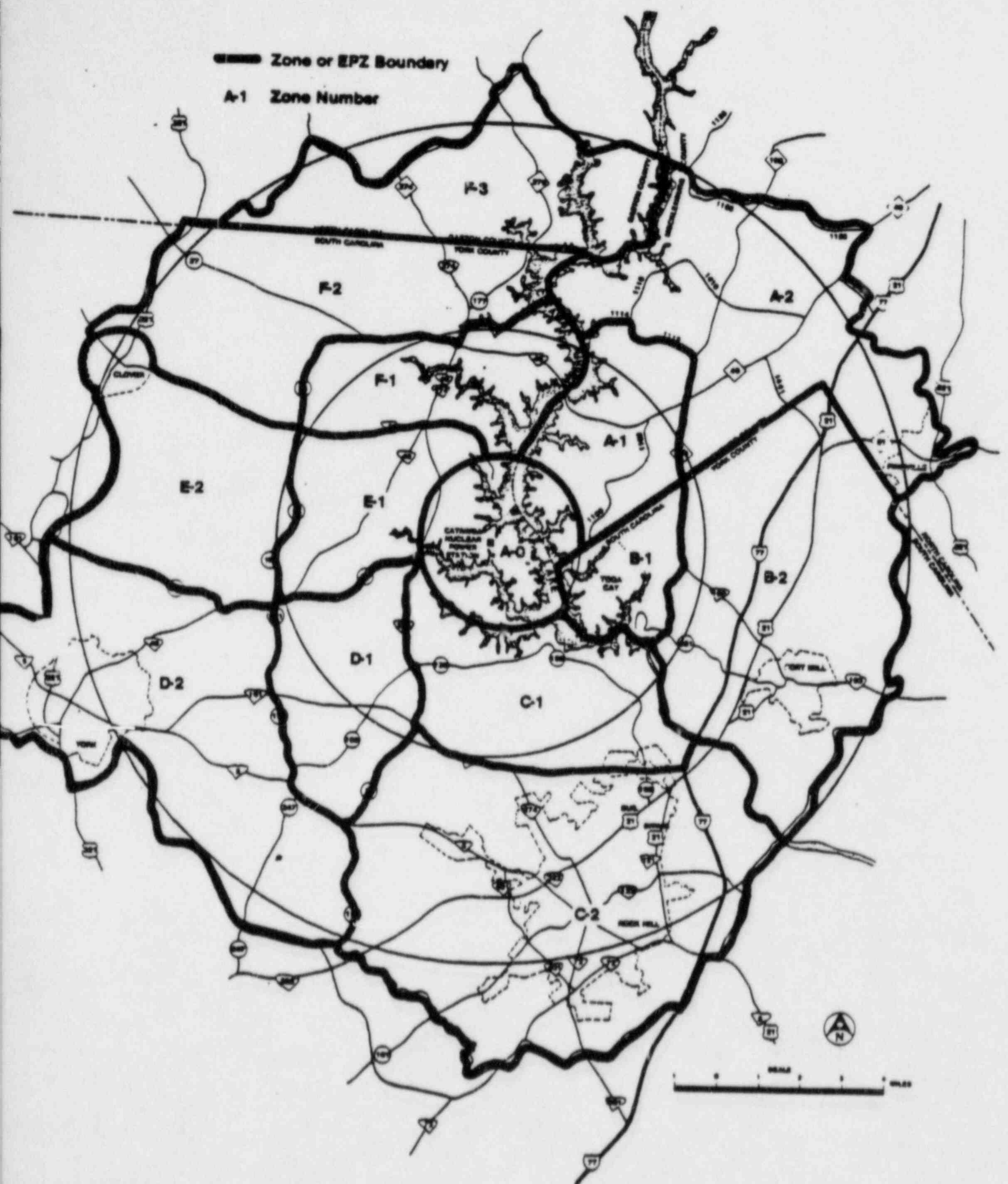
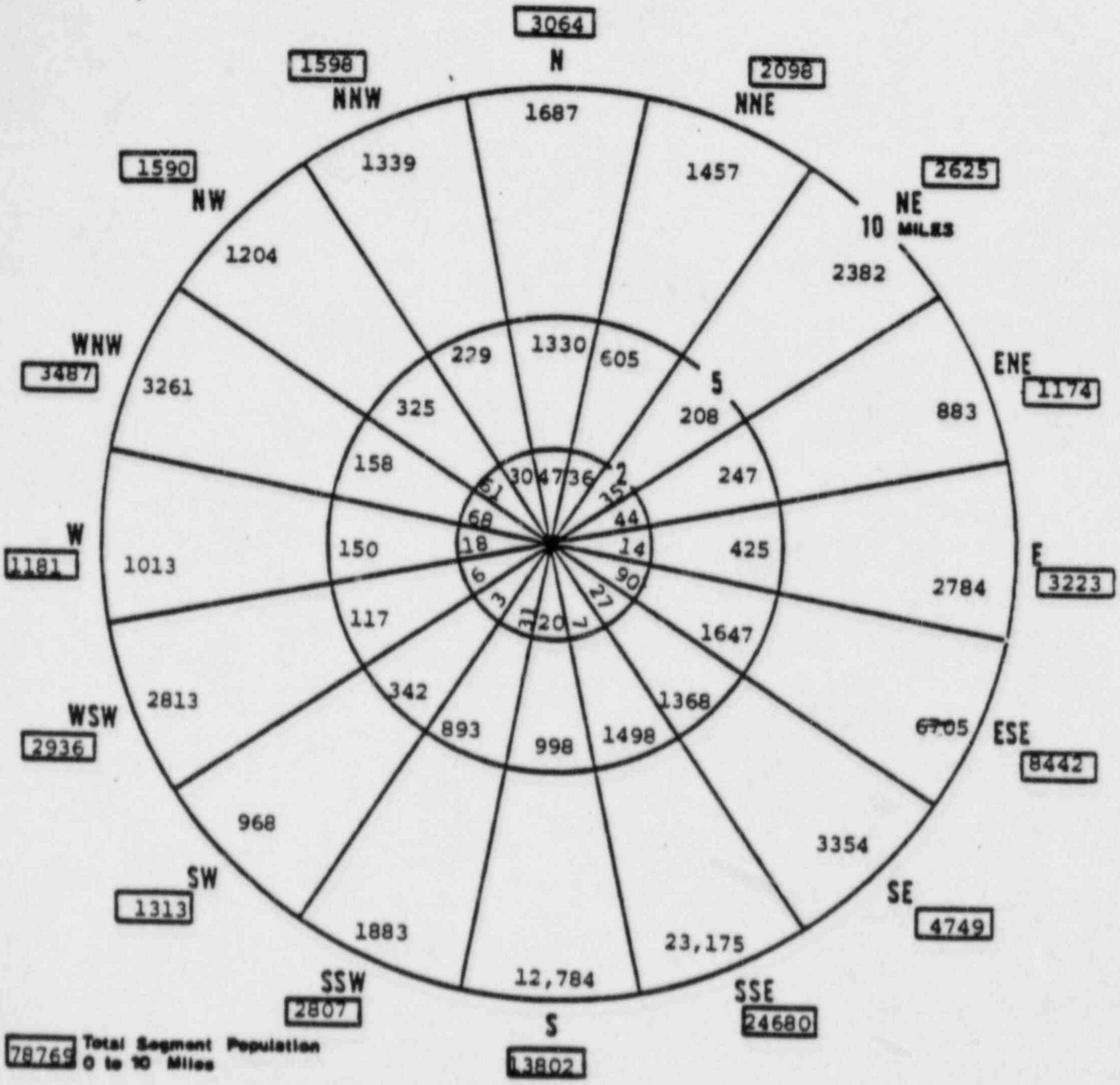


Figure 7. Selective Evacuation Zones for the Catawba EPZ

TABLE 2. POPULATION OF THE CATAWBA EPZ AND ZONES

Zone	Permanent Resident Population				
	Vehicle-Owning	Non-Vehicle-Owning	Total	Transient Population	Special Facility Population
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	46,826	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	2,405	267	2,672	651	469
TOTAL EPZ	84,136	9,347	93,483	89,699	36,231

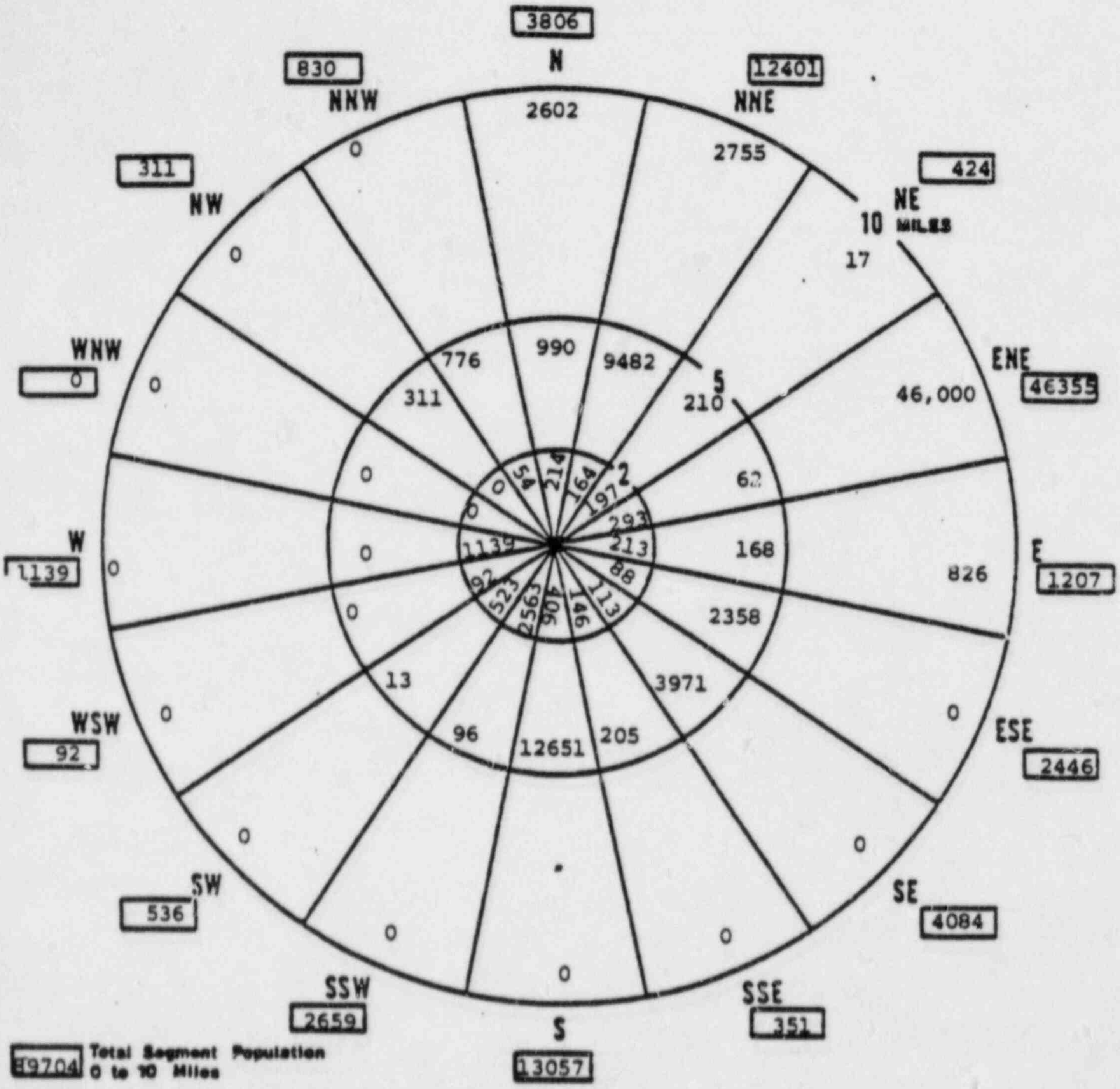
Exhibit A-1. Permanent Population by Sector



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

Rev.3
June 1983

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

Facility	Population	Location (Zone)
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
Belleview 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

Facility	Population	Location (Zone)
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	45	C-2
Yours, Mine and Ours	45	D-2

Table 3, Continued

Facility	Population	Location (Zone)
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
Fallaw 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

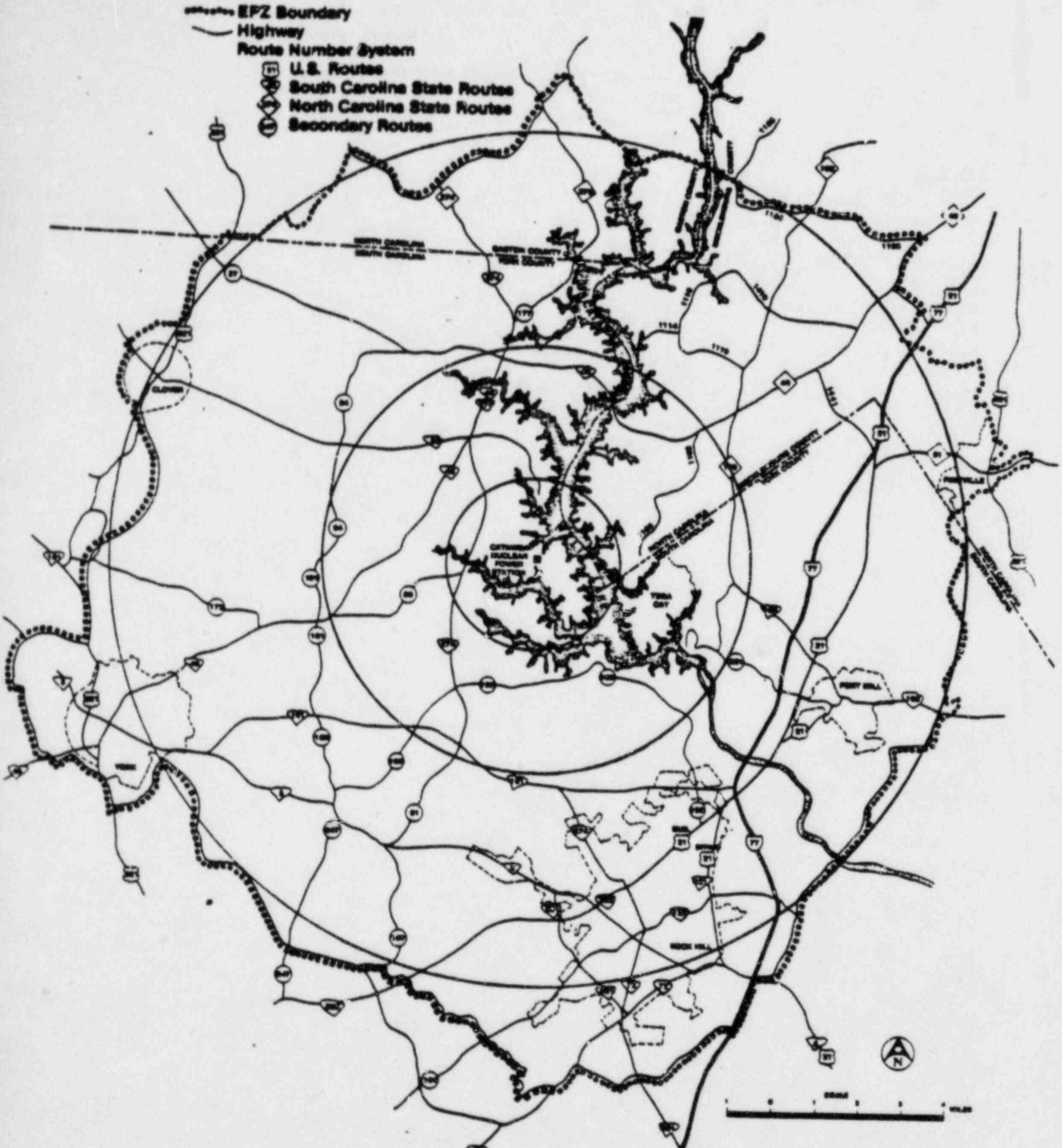


Figure 2. Highway System in the Vicinity of the Catawba Nuclear Power Station

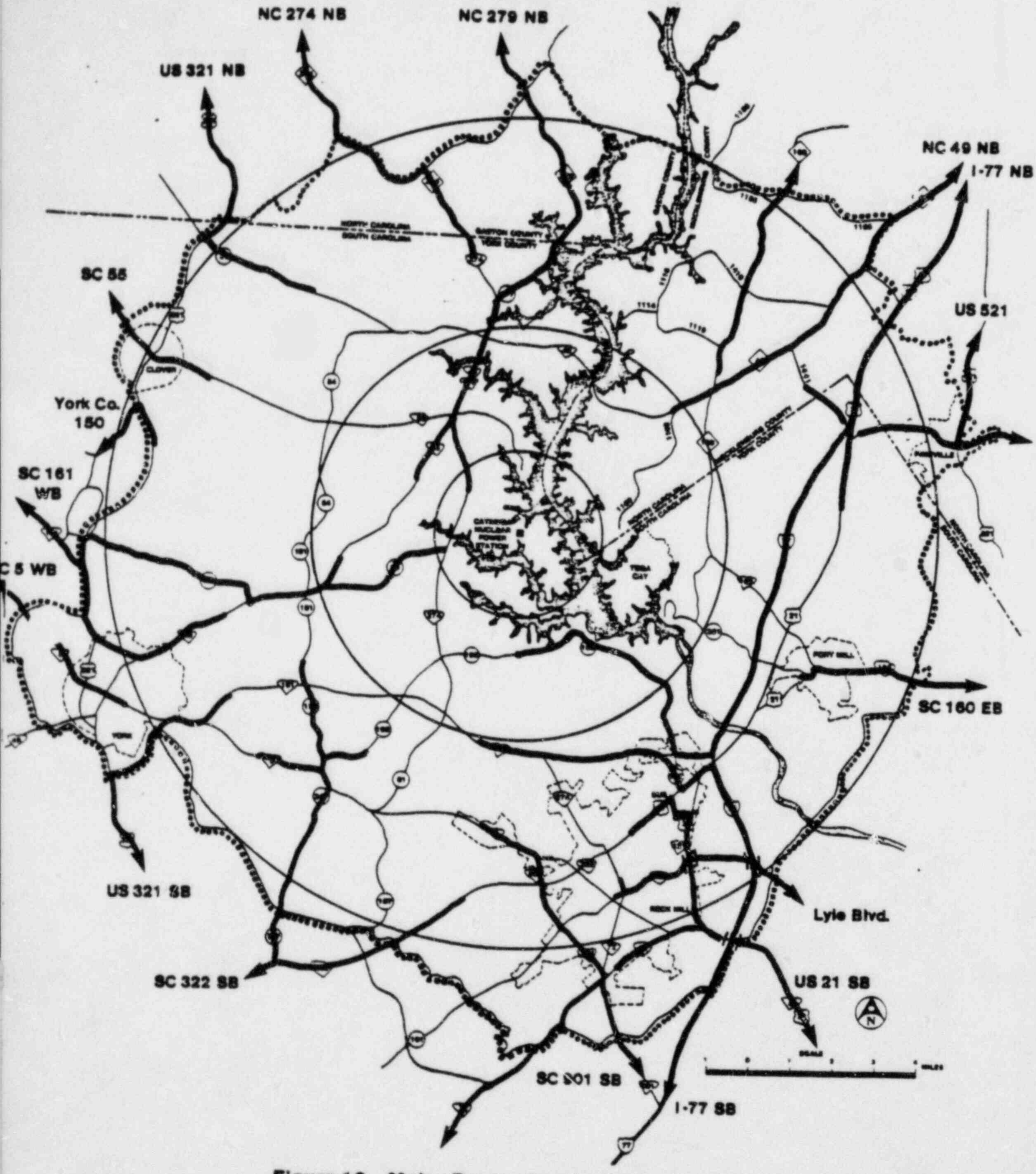


Figure 10. Major Routes Leading out of the EPZ of the Catawba Nuclear Power Station

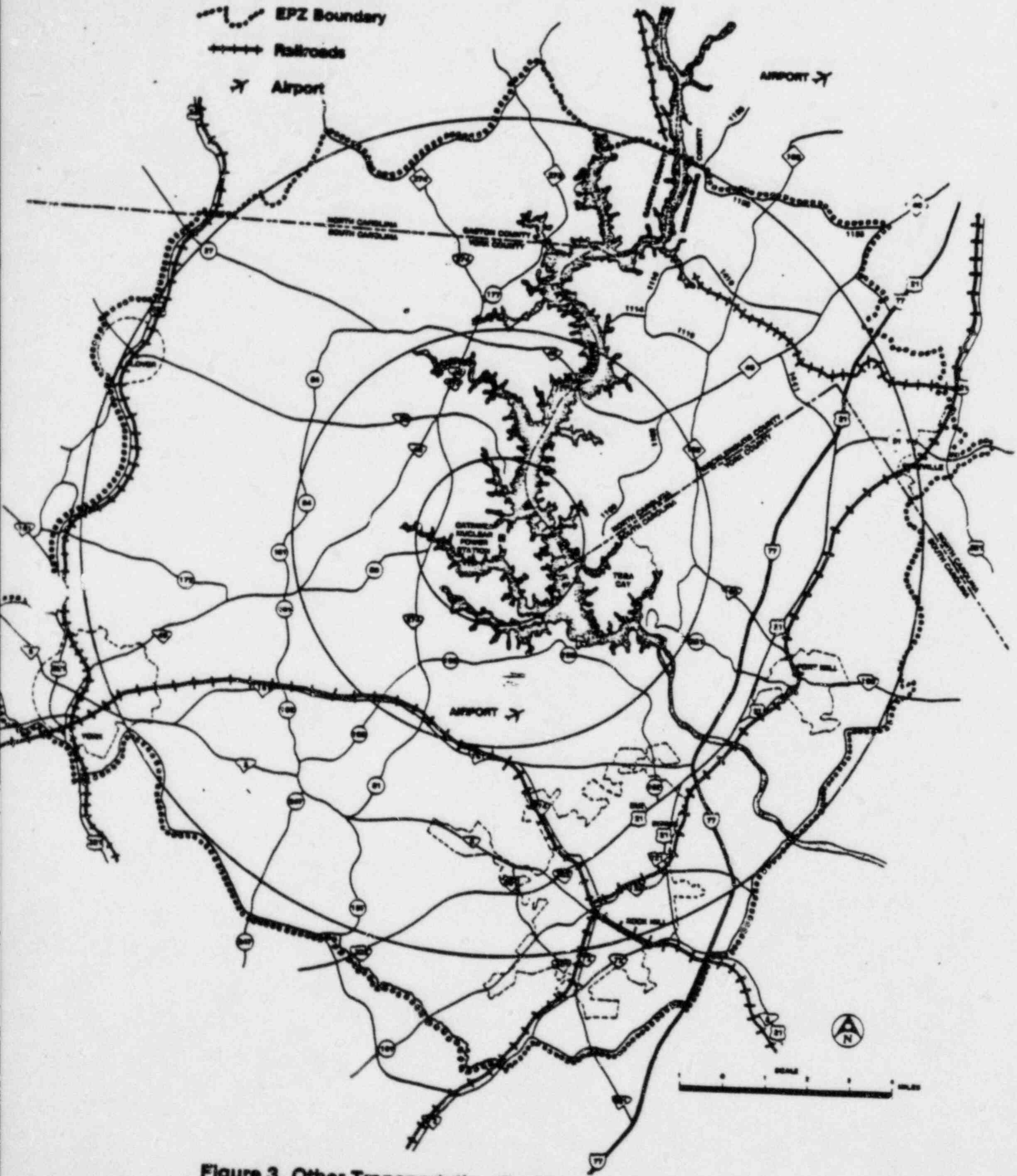


Figure 3. Other Transportation Facilities in the Vicinity of the Catawba Nuclear Power Station

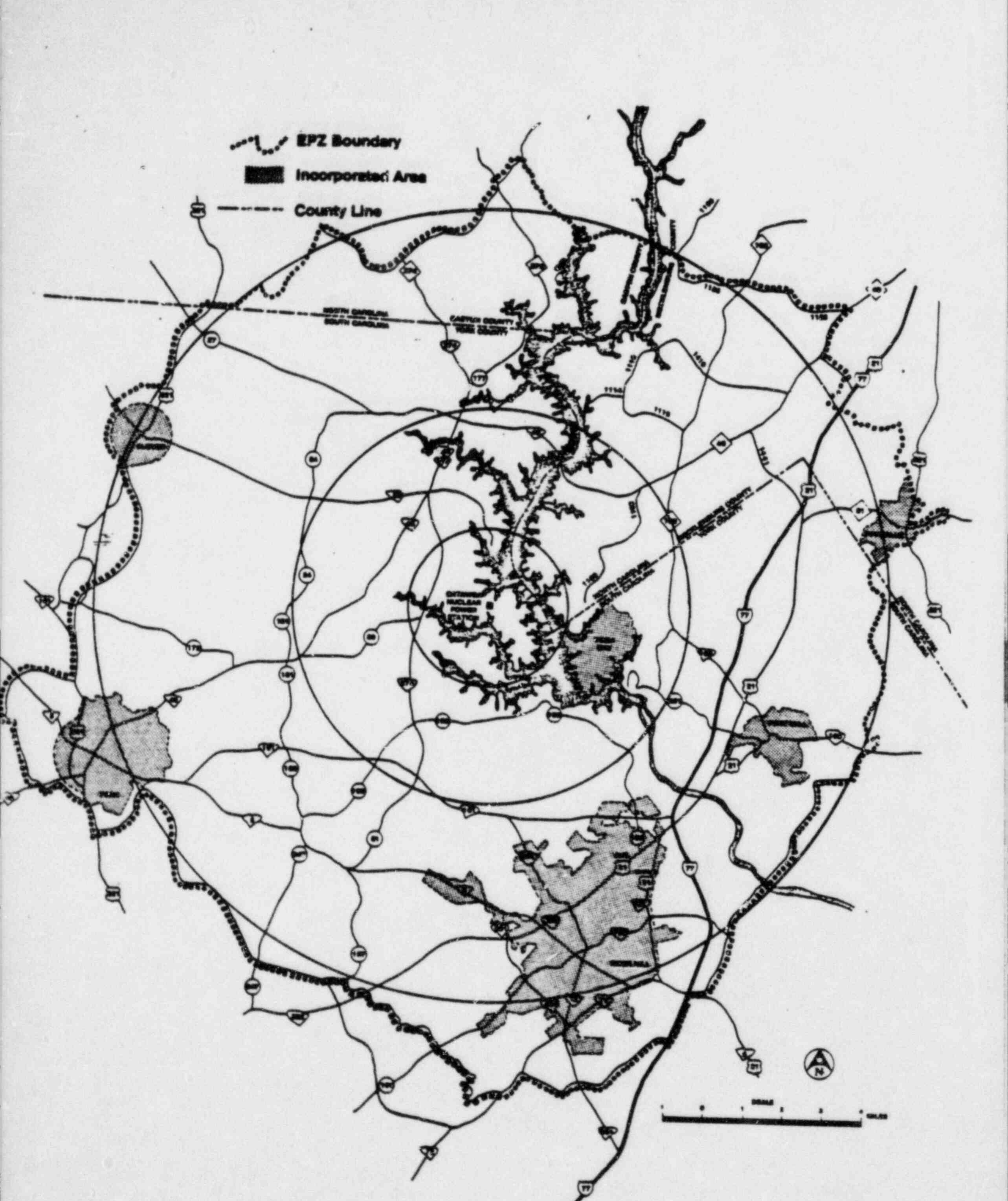


Figure 4. Local Government Jurisdictions

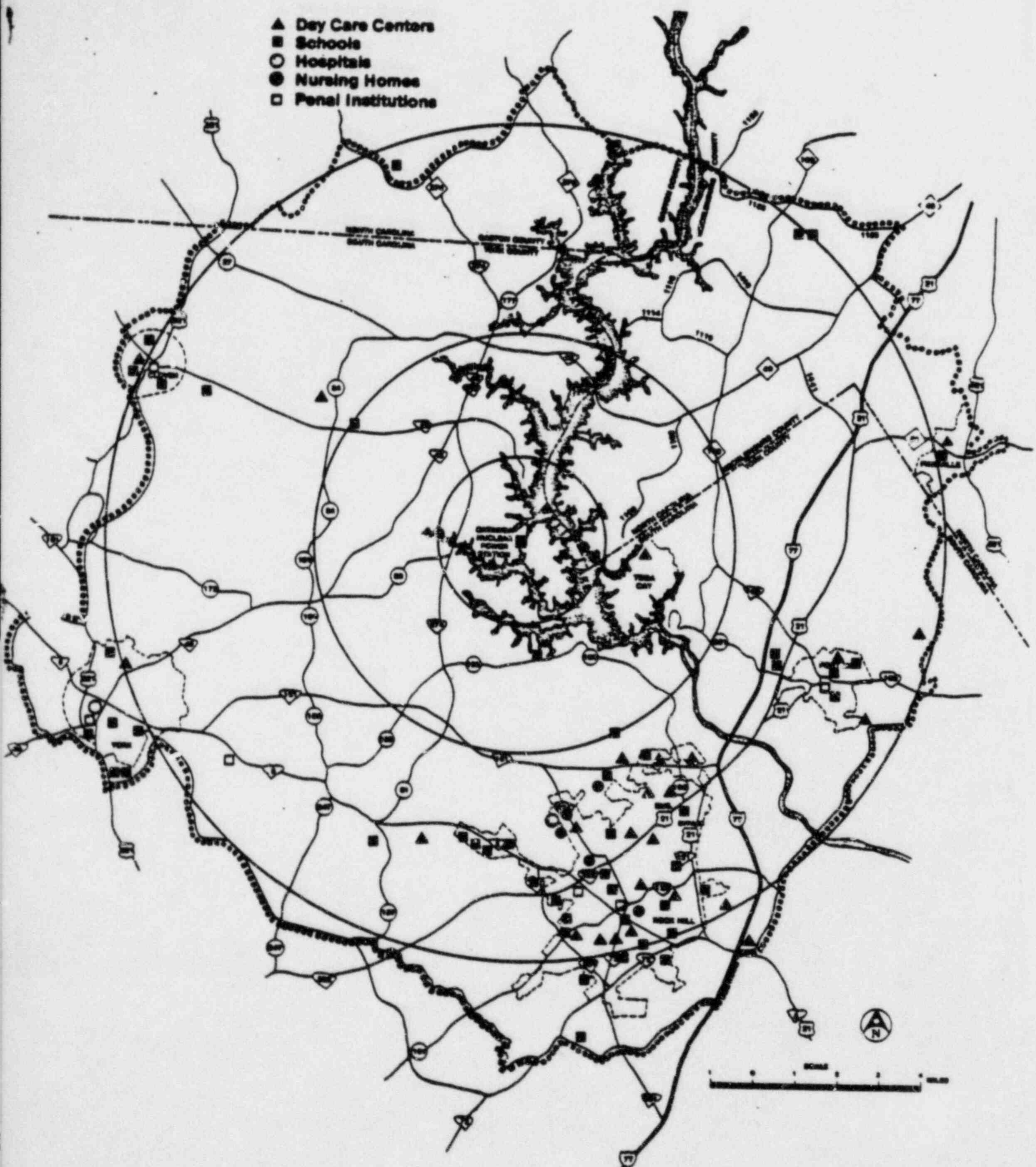


Figure 5. Location of Special Facilities

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

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

Secretary
Dept. of Crime Control and Public Safety

Hal B. Tucker
Utility Representative
Vice President, Nuc. 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. Moore
Director
FOR SOUTH CAROLINA EMERGENCY PREPAREDNESS DIVISION

April 20, 1983
DATE

Heyward G. Shealy
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 S C 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.

Please sign below if these terms are acceptable.

ACCEPTED BY:

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

Date

J W Hampton

J. W. Hampton, Manager
Catawba Nuclear Station

6.24.83
Date

Robert D. Lesslie, M.D.

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

6/20/83
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
P O BOX 256 CLOVER S C 29710 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 perodic 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

J. W. Hampton, Manager
Catawba Nuclear Station

Accepted By: Steve Shillinglaw

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

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 anually. 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.

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

William R. Johnston, Chief
Bethel Volunteer Fire Department

James L. Carroll

James L. Carroll, Director
Municipal County Emergency Preparedness

1-9-82

Date

cc: Mike Bolch

DUKE POWER COMPANY

CATAWBA NUCLEAR STATION

P.O. BOX 256 CLOVER S.C. 29710 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

J. W. Hampton, Manager
Catawba Nuclear Station

JWH/MEB/gcd

,81

PREP

AGREEMENT ACKNOWLEDGEMENT

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

James L. Carroll
Signature

Director
Title

11-23-81
Date

DUKE POWER COMPANY

CATAWBA NUCLEAR STATION

P.O. BOX 256 CLOVER, S.C. 29710 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

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

GASTON COUNTY

EMERGENCY MANAGEMENT

P. O. Box 1578 — Phone 866-3303
Gastonia, North Carolina 28052

January 4, 1982

J. W. Hampton
Catawba Nuclear Station
Clover, S. C. 29710

Dear Sir:

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 conditon 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 Phillips

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

BEP/dg

cc Mike Bolch

APPENDIX 6
CATAWBA NUCLEAR STATION
EMERGENCY PLAN
DISTRIBUTION LIST

1. J. W. Hampton
2. A. R. Franklin
3. M. S. Tuckman
4. G. T. Smith
5. B. Wilson
6. W. P. Deal
7. J. Lanning
8. J. W. Cox
9. D. Tower
10. T. E. Crawford
11. J. H. Knuti
12. C. E. Muse
13. C. W. Graves, Jr.
14. R. L. Clemmer
15. W. W. McCollough
16. Wofford Scruggs
17. D. M. Robinson
18. R. D. Kinard
19. P. C. McAnulty
20. NRC Site Rep. P. H. Skinner
21. TSC - M. E. Bolch
22. D. L. Waters
23. Shift Supervisors Office
24. Control Room
25. M. E. Bolch
26. Technical Training Center Library
27. Oconee Nuclear Station
28. McGuire Nuclear Station
29. Westinghouse Site-Construction
30. T. K. Anderson
31. R. W. Rasmussen, Nuclear Production
32. R. W. Rasmussen, Nuclear Production
33. Pat Osborne - Corp. Comm. Catawba
34. Lionel Lewis - Nuclear Prod.
35. H. B. Tucker - Nuclear Prod. VP
36. R. M. Grover - Nuclear Prod.
37. G. E. Vaughn - Nuclear Prod. Mgr.
38. K. S. Canady - Nuclear Prod.
39. R. O. Sharpe - Nuclear Prod.
40. Mary Cartwright - Corp. Comm.
41. J. A. Effinger - Q.A. Elec. Cen.
42. R. H. Charest
43. W. R. McCollum
44. R. O. Sharpe

to

46. Forward to NRC, Wash., Atlanta
58. D. R. Rogers

<u>South Carolina</u>

59. Paul Lunsford
60. Josh Moore

<u>North Carolina</u>

61. J. T. Pugh, III
62. Joe Meyers

<u>York County</u>

63. J. L. Carroll

<u>Mecklenburg County</u>

64. K. E. Williams

<u>Gaston County</u>

65. Bob Phillips
66. Document Control

April 2, 1984

PALMETTO ALLIANCE

FREEDOM OF INFORMATION
ACT REQUEST

FOIA-84-253
Rec'd 4-5-84

Director
Office of Administration
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Freedom of Information Act Request

Dear Sir or Madam:

This is a request for the identification and copying of records pursuant to the provisions of the Freedom of Information Act, 5 U.S.C. 552. At your earliest convenience, please provide us copies of any and all records in the possession of your agency or subject to its control, regarding emergency planning for the Catawba Nuclear Station, Units 1 and 2, presently under construction in York County, South Carolina. We are particularly interested in any records reflecting your agency's review of whether there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at the Catawba Nuclear Station. See, 10 C.F.R. Section 50.47, "Emergency Plans".

We ask that you provide us these records at your earliest convenience since, as you are aware, the subject of emergency planning for the Catawba facility is a matter of current public interest to citizens living near the plant and is the subject of pending licensing review by the NRC's Atomic Safety and Licensing Board. We seek such records in furtherance of our public education program as well as for use in the pending licensing proceeding.

In the event that it is determined that any portions of the requested documents are exempt from disclosure, we ask that you explain such determination with particularity, provide us with an index of the documents that you have determined not to disclose, and disclose the non-exempt portions to us. While we are prepared to pay the costs of searching for and copying these records, we believe that we are entitled to a reduction or waiver of such fees since the furnishing of the information contained in these records will primarily benefit the general public.

We appreciate your cooperation in communicating the work of your agency to our members and the public.

Sincerely,

Donna M. Ahlers

Donna M. Ahlers
PALMETTO ALLIANCE, INC.

dma

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