



Duke Power
Catawba Nuclear Station
4800 Concord Road
York, SC 29745
(803) 831-4251 OFFICE
(803) 831-3221 FAX

Gary R. Peterson
Vice President

July 11, 2001

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Subject: Duke Energy Corporation
Catawba Nuclear Station Units 1 and 2
Docket Nos. 50-413 and 50-414
Emergency Plan Implementing Procedures

Please find enclosed for NRC Staff use and review the following
Emergency Plan Implementing Procedure:

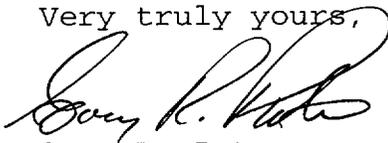
HP/0/B/1009/004, Environmental Monitoring for Emergency
Conditions Within the Ten Mile Radius of CNS
(Rev. 028)

This revision is being submitted in accordance with 10CFR
50.54(q) and does not decrease the effectiveness of the
Emergency Plan Implementing Procedures or the Emergency Plan.

By copy of this letter, two copies of the above documents are
being provided to the NRC, Region II.

If there are any questions, please call Tom Beadle at 803-831-
4027.

Very truly yours,



Gary R. Peterson

Attachments

A045

U.S. Nuclear Regulatory Commission
July 11, 2001
Page 2

xc (w/attachments):

L. A. Reyes
U.S. Nuclear Regulatory Commission
Regional Administrator, Region II
Atlanta Federal Center
61 Forsyth St., SW, Suite 23T85
Atlanta, GA 30303

(w/o attachments):

C. P. Patel
NRC Senior Project Manager (CNS)
U.S. Nuclear Regulatory Commission
Mail Stop O-8 H12
Washington, DC 20555-0001

D. J. Roberts
Senior Resident Inspector (CNS)
U.S. Nuclear Regulatory Commission
Catawba Nuclear Site

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURES INDEX

VOLUME I

PROCEDURE	TITLE
RP/0/A/5000/001	Classification of Emergency (Rev. 013)
RP/0/A/5000/002	Notification of Unusual Event (Rev. 035)
RP/0/A/5000/003	Alert (Rev. 037)
RP/0/A/5000/004	Site Area Emergency (Rev. 039)
RP/0/A/5000/005	General Emergency (Rev. 039)
RP/0/A/5000/006	Deleted
RP/0/A/5000/006 A	Notifications to States and Counties from the Control Room (Rev. 012)
RP/0/A/5000/006 B	Notifications to States and Counties from the Technical Support Center (Rev. 012)
RP/0/A/5000/006 C	Deleted
RP/0/A/5000/007	Natural Disaster and Earthquake (Rev. 020)
RP/0/A/5000/008	Deleted
RP/0/B/5000/008	Spill Response (Rev. 018)
RP/0/A/5000/009	Collision/Explosion (Rev. 006)
RP/0/A/5000/010	Conducting A Site Assembly or Preparing the Site for an Evacuation (Rev. 013)
RP/0/A/5000/11	Deleted
RP/0/B/5000/12	Deleted
RP/0/B/5000/013	NRC Notification Requirements (Rev. 027)
RP/0/B/5000/14	Deleted
RP/0/A/5000/015	Core Damage Assessment (Rev. 004)
RP/0/B/5000/016	Deleted
RP/0/B/5000/17	Deleted

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURES INDEX

VOLUME I

PROCEDURE	TITLE
RP/0/A/5000/018	Emergency Worker Dose Extension (1/15/96)
RP/0/B/5000/019	Deleted
RP/0/A/5000/020	Technical Support Center (TSC) Activation Procedure (Rev. 014)
RP/0/A/5000/021	Deleted
RP/0/B/5000/022	Evacuation Coordinator Procedure (Rev. 003)
RP/0/B/5000/023	Deleted
RP/0/A/5000/024	OSC Activation Procedure (Rev. 007)
RP/0/B/5000/025	Recovery and Reentry Procedure (Rev. 002)
RP/0/B/5000/026	Response to Bomb Threat (Rev. 002)
RP/0/B/5000/028	Communications and Community Relations EnergyQuest Emergency Response Plan (Rev. 001)
RP/0/B/5000/029	Fire Brigade Response (Rev. 000)

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURES INDEX

VOLUME II

PROCEDURE	TITLE
HP/0/B/1000/006	Emergency Equipment Functional Check and Inventory (Rev. 053)
HP/0/B/1009/001	Radiation Protection Recovery Plan (Rev. 008)
HP/0/B/1009/003	Radiation Protection Response Following a Primary to Secondary Leak (Rev. 008)
HP/0/B/1009/004	Environmental Monitoring for Emergency Conditions Within the Ten-Mile Radius of CNS (Rev. 028)
HP/0/B/1009/005	Personnel/Vehicle Monitoring for Emergency Conditions (Rev. 016)
HP/0/B/1009/006	Alternative Method for Determining Dose Rate Within the Reactor Building (Rev. 008)
HP/0/B/1009/007	In-Plant Particulate and Iodine Monitoring Under Accident Conditions (Rev. 018)
HP/0/B/1009/008	Contamination Control of Injured Individuals (Rev. 015)
HP/0/B/1009/009	Guidelines for Accident and Emergency Response (Rev. 038)
HP/0/B/1009/014	Radiation Protection Actions Following an Uncontrolled Release of Radioactive Material (Rev. 008)
HP/0/B/1009/016	Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release (Rev. 011)
HP/0/B/1009/017	Deleted
HP/1/B/1009/017	Post-Accident Containment Air Sampling System (Rev. 001)
HP/2/B/1009/017	Post-Accident Containment Air Sampling System (Rev. 000)
HP/0/B/1009/018	Deleted
HP/0/B/1009/019	Emergency Radio System Operation, Maintenance and Communication (Rev. 010)
HP/0/B/1009/024	Implementing Procedure for Estimating Food Chain Doses Under Post-Accident Conditions (Rev. 002)

June 26, 2001

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURES INDEX

VOLUME II

PROCEDURE	TITLE
HP/0/B/1009/025	Deleted
HP/0/B/1009/026	On-Shift Offsite Dose Projections (Rev. 003)
SH/0/B/2005/001	Emergency Response Offsite Dose Projections (Rev. 001)
SH/0/B/2005/002	Protocol for the Field Monitoring Coordinator During Emergency Conditions (Rev. 001)
OP/0/A/6200/021	Post Accident Liquid Sampling System II+ (Rev. 034)
SR/0/B/2000/001	Standard Procedure for Public Affairs Response to the Emergency Operations Facility (Rev. 002)
SR/0/B/2000/002	Standard Procedure for EOF Services (Rev. 002)
SR/0/B/2000/003	Activation of the Emergency Operations Facility (Rev. 007)
SR/0/B/2000/004	Notification to States and Counties from the Emergency Operations Facility (Rev. 002)

Duke Power Company
Catawba Nuclear Station

**Environmental Monitoring for Emergency Conditions
Within the Ten Mile Radius of CNS**

Information Use

Procedure No.

HP/0/B/1009/004

Revision No.

028

Electronic Reference No.

CN005CV8

Environmental Monitoring for Emergency Conditions Within the Ten Mile Radius of CNS

1. Purpose

The purpose of this procedure is to describe methods for identifying airborne and liquid effluent releases resulting from an uncontrolled release of radioactive material during emergency conditions.

2. References

- 2.1 HP/0/B/1000/006 - Emergency Equipment Functional Check and Inventory
- 2.2 HP/0/B/1003/072 - Operation of Eberline ESP-2 With Na-I Detector
- 2.3 HP/0/B/1009/016 - Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release
- 2.4 HP/0/B/1009/019 - Emergency Radio System Operations, Maintenance and Communications
- 2.5 Catawba Nuclear Station Offsite Dose Calculation Manual
- 2.6 Nuclear System Directive 702 - Document Management

3. Limits and Precautions

None

4. Procedure

4.1 General Requirements

- NOTE:**
- Steps in this section are general requirements that may be performed at anytime during the performance of Field Monitoring duties.
 - Access to Administration Building Emergency Kit Room may be gained using combination lock on interior door or contacting Security to open exterior door to the room.
 - Designee for Field Monitor Coordinator (FMC) is Emergency Operations Facility (EOF) Radio Operator or RP Support position in the Technical Support Center (TSC).

- 4.1.1 **WHEN** dispatched to Emergency Kit Room, initiate Enclosure 5.1 (Field Monitoring Team Checklist) by performing specified actions as appropriate.

NOTE: State or County agency communications take precedence over Duke Power Field Monitoring Team (FMT) communications.

- 4.1.2 Use 800 MHz radio system for FMT communications per HP/0/B/1009/019 (Emergency Radio System Operations, Maintenance and Communications).
- 4.1.3 **IF** any FMT equipment becomes inoperable, notify FMC as soon as practical.
- 4.1.4 **IF** hazardous field conditions exist, immediately notify FMC of conditions and request further instruction.
- 4.1.5 Use Enclosure 5.3 (Periodic Status Update For Field Monitoring Teams) to record FMC updates.

CAUTION: Do **NOT** wear respirators while driving vehicles during drills or training exercises.

- 4.1.6 Use respiratory protection as directed by the FMC.

CAUTION: Radiation Protection Manager (RPM) or FMC may direct field team member(s) to ingest one KI tablet in accordance with HP/0/B/1009/016 (Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release).

- 4.1.7 **IF** integrated radiation exposure in the field is significant **OR** > 500 mrem for any individual, use Enclosure 5.4 (Field Monitor Team Radiation Exposure Record) to document exposure.

4.2 Offsite surveys

NOTE:

- Predetermined Emergency Planning Zone (EPZ) sampling locations are denoted by a red colored dot on EPZ map. Sample point designators are in red ovals and are identified by alpha numeric (e.g., A0-1-11); where, A0 is a protective action zone in the EPZ. The second number (1) is providing approximate radial mileage from CNS and final identification number (11) is the 11th sample point in protective action zone A0.
- Some road names may change and actual mileage may vary due to development and construction of new roads within EPZ.

- 4.2.1 **WHEN** directed to a specific sampling location by the FMC, use Enclosure 5.2 (Field Monitoring Data Sheet) to record FMC instructions.
- 4.2.2 Use EPZ map to determine appropriate route to sampling location.

- 4.2.3 Ensure count rate survey meters are monitored during vehicle movement to sampling locations.

NOTE: Open window Beta/Gamma readings greater than closed window Gamma readings are general indicators of possible plume exposure.

- 4.2.4 Ensure gamma (closed window) and beta/gama (open window) measurements are collected as field conditions warrant.
- 4.2.5 Perform surveys for the following per FMC direction:
- Suspected or known contaminated areas
 - Plume centerline dose rates.
 - Edge of the suspected plume in an attempt to determine plume magnitude and directional movement.
- 4.2.6 **IF** significant radiation levels are detected while traveling to field locations, ensure results are reported to FMC as soon as practical.
- 4.2.7 **WHEN** practical, retreat to low exposure waiting area of ≤ 2 mrem/hr.
- 4.2.8 Document survey results on Enclosure 5.2 (Field Monitoring Data Sheet).

4.3 Field air sampling

- 4.3.1 **IF** directed by FMC, obtain air sample(s).

CAUTION: **WHEN** collecting samples, vehicle should be parked in a safe condition.

- 4.3.2 **IF** using sample van power inverter, ensure the engine is running to prevent low battery condition.

NOTE: Minimum field air sample volume is $\sim 2.25 \times 10^5$ ml (e.g., portable air sampler at 2 cfm X 4 minute sample = 2.26×10^5 ml).

- A. Use (CP-100) charcoal cartridge or equivalent.
- **IF** directed by FMC, use Silver Zeolite cartridge.

- B. **WHEN** air sampling is complete, remove filter and cartridge from sampler.
- Place filter in a separate plastic bag
 - Place cartridge in a separate plastic bag
- C. Ensure sample bags are labeled with the following information at a minimum:
- Date
 - Time
 - Sample location
 - Sample volume
 - Name of person collecting sample
- D. **IF** requested by FMC, analyze air samples for Iodine using HP/0/B/1003/072 (Operation of Eberline ESP-2 With Na-I Detector).
- Report air sample analysis results to FMC.
- E. Retain air samples for further count room analysis.

4.4 Field sampling

CAUTION: **WHEN** collecting samples, vehicle should be parked in a safe condition.

- 4.4.1 **IF** collecting samples away from sample van radio, turn radio volume up or carry portable FMT radio.

NOTE: Do **NOT** smear automobiles or vehicles.

- 4.4.2 **IF** smears are requested, collect smears on stationary horizontal surfaces (e.g., mailboxes, gas pumps, etc.).

4.4.3 **IF** directed by FMC, collect the following samples:

- Sediment sample
- Milk sample
- Vegetation sample (sufficient broad leaf vegetation from approximately one square meter and place in a 12" X 12" poly bag)
- Soil sample (from a 12" X 12" area and approximately one inch deep)
- Water sample (enough water to fill a one gallon cubitainer)

NOTE: Environmental sample locations are per CNS Offsite Dose Calculation Manual.

- Environmental samples or TLDs at locations specified on Enclosure 5.5 (Environmental Fixed Air Sampler, TLD, Milk and Water Sample Locations)

4.4.4 Ensure containers are labeled with the following information at a minimum:

- Date
- Time
- Sample location
- Sample volume
- Name of person collecting sample

4.5 FMT turnover

4.5.1 **IF** directed by FMC to provide turnover to relieving FMTs, include the following information at a minimum:

- Hazardous field conditions
- Plume dose rates including centerline and edge readings
- Results of sample data from previously surveyed areas
- FMT equipment problems or field sampling problems
- Current Emergency classification
- Current wind speed and direction
- Any radiologically affected EPZ areas
- Status of sample van supplies including emergency kit items expended per requirements of HP/0/B/1000/006 (Emergency Equipment Functional Check and Inventory)

4.5.2 Ensure field records and data sheets are turned over to FMC or designee.

4.5.3 **IF** directed by FMC, report to a designated Body Burden Analysis (BBA) facility for post-job BBA.

4.6 Record retention

4.6.1 Provide Enclosures 5.1, 5.2, 5.3, 5.4 and any field worksheets completed during drills or exercises to Emergency Planning.

4.6.2 Retain documents from an actual event per NSD 702 (Document Management).

5. Enclosure

5.1 Field Monitoring Team Checklist

5.2 Field Monitoring Data Sheet

5.3 Periodic Status Update For Field Monitoring Teams

5.4 Field Monitoring Team Radiation Exposure Record

5.5 Environmental Fixed Air Sampler, TLD, Milk and Water Sample Locations

Enclosure 5.1
Field Monitoring Team Checklist

HP/O/B/1009/004
Page 1 of 1

THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED
CORRECT.

INITIAL _____ DATE _____ TIME _____

NOTE: Actions required per this enclosure may be performed in any sequential order.

INITIAL RESPONSE

- Ensure understanding of task assignment for FMT duties per instruction from RP ERO Supervision.
- Obtain appropriate kit per field team assignment by RP ERO Supervision.
- Ensure TLD is worn.
- Ensure Pocket Dosimeter (PD) or Electronic Dosimetry (ED) is worn.
- Ensure dose card is completed or appropriate entry on RM&C System.
- Verify respiratory qualifications for FMT members. Ensure respirator card is completed per respirator use.

PERFORM THE FOLLOWING:

FMT Driver

- Obtain keys for Emergency Sample Vans from Emergency Kit. **IF** additional vehicles are necessary, request them from CNS garage.
- Start vehicle, check fuel level in tank and allow inside sample van temperature to stabilize.
- Assist RP in setting up portable radios, antennas, portable car phones, etc.
- **WHEN** event is over, ensure FMT vehicles are refilled with fuel and mechanical problems are reported to the CNS garage.
- Assist in return of FMT equipment, (e.g., radios). Ensure battery operated equipment is returned to storage for battery recharge.

RP FMT

- Turn appropriate FMT instruments on. Ensure source checks are performed. Obtain dose rate readings at appropriate times during response.
- Obtain respiratory equipment from kit room.
- Ensure radio equipment is placed in FMT vehicle. Ensure radio sign on with the TSC or EOF is completed as soon as practical.
- Initiate source check of ESP-2 with attached Nal detector as soon as practical.
- **WHEN** event is over, inventory Emergency Kits. Restock items and return all emergency equipment to appropriate storage location after event is terminated.

FMT Driver _____
Signature

FMT RP _____ Date _____
Signature

Enclosure 5.2
Field Monitoring Data Sheet

HP/0/B/1009/004
Page 1 of 1

THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED
CORRECT.

INITIAL _____ DATE _____ TIME _____

<p>TEAM <input type="checkbox"/> Sample Van 1 <input type="checkbox"/> Sample Van 2 <input type="checkbox"/> Alpha <input type="checkbox"/> Bravo <input type="checkbox"/> _____</p> <p>LOCATION: _____</p> <hr/> <p>INSTRUCTIONS / RESULTS:</p> <p><input type="checkbox"/> Gamma Survey _____ mrem/hr <input type="checkbox"/> Smear Survey _____ ccpm <input type="checkbox"/> Air Sample I-131 _____ mrem/hr <input type="checkbox"/> Beta Survey _____ mrem/hr <input type="checkbox"/> Water Sample <input type="checkbox"/> Vegetation Sample <input type="checkbox"/> Soil Sample <input type="checkbox"/> Copy of affected area 10 mile EPZ map</p> <p>DISPATCH INSTRUCTIONS / INFORMATION: _____</p> <hr/> <hr/> <p>DISPATCHED TIME: _____ RESULTS TIME: _____</p> <p>RESULTS / INFORMATION: _____</p> <hr/> <hr/> <hr/> <hr/>	<p>TEAM <input type="checkbox"/> Sample Van 1 <input type="checkbox"/> Sample Van 2 <input type="checkbox"/> Alpha <input type="checkbox"/> Bravo <input type="checkbox"/> _____</p> <p>LOCATION: _____</p> <hr/> <p>INSTRUCTIONS / RESULTS:</p> <p><input type="checkbox"/> Gamma Survey _____ mrem/hr <input type="checkbox"/> Smear Survey _____ ccpm <input type="checkbox"/> Air Sample I-131 _____ mrem/hr <input type="checkbox"/> Beta Survey _____ mrem/hr <input type="checkbox"/> Water Sample <input type="checkbox"/> Vegetation Sample <input type="checkbox"/> Soil Sample <input type="checkbox"/> Copy of affected area 10 mile EPZ map</p> <p>DISPATCH INSTRUCTIONS / INFORMATION: _____</p> <hr/> <hr/> <p>DISPATCHED TIME: _____ RESULTS TIME: _____</p> <p>RESULTS / INFORMATION: _____</p> <hr/> <hr/> <hr/> <hr/>
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Enclosure 5.3
Periodic Status Update for Field Monitoring Teams

THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED
CORRECT.
INITIAL _____ DATE _____ TIME _____

<p>Time : _____ hours</p> <p>Classification: _____</p> <p>Wind Speed: _____ mph</p> <p>Wind Direction: from _____ °</p> <p>Zones Affected: _____</p> <p>Other: _____</p>	<p>Time : _____ hours</p> <p>Classification: _____</p> <p>Wind Speed: _____ mph</p> <p>Wind Direction: from _____ °</p> <p>Zones Affected: _____</p> <p>Other: _____</p>
<p>Time : _____ hours</p> <p>Classification: _____</p> <p>Wind Speed: _____ mph</p> <p>Wind Direction: from _____ °</p> <p>Zones Affected: _____</p> <p>Other: _____</p>	<p>Time : _____ hours</p> <p>Classification: _____</p> <p>Wind Speed: _____ mph</p> <p>Wind Direction: from _____ °</p> <p>Zones Affected: _____</p> <p>Other: _____</p>

Field Monitoring Team Radiation Exposure Record

THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT.

INITIAL _____ DATE _____ TIME _____

TEAM NAME	Sample Van 1	Sample Van 2	Alpha FMT	Bravo FMT	Other FMTs
Individual's Name					
TLD #					
Time _____ Current Deep Dose Equivalent (SRD or ED Reading)					
Time _____ Subsequent Deep Dose Equivalent (SRD or ED Reading)					
Cumulative Deep Dose at Time _____					
Time _____ Subsequent Deep Dose Equivalent (SRD or ED Reading)					
Cumulative Deep Dose at Time _____					
Total Deep Dose Equivalent For FMT member					
(Total Deep Dose Equivalent) X (Committed Dose Equivalent SRD Correction Factor) ^a = Total Effective Dose Equivalent					

^a SRD Correction Factor is obtained from the Raddose-5 printout

**Environmental Fixed Air Sampler, TLD, Milk
and Water Sample Locations**

NOTE: Some sample locations may need CPD-1 key for access. CPD-1 key is contained in sample van emergency kits.

TLD SITES

Site #	Location	Distance	Sector	Site #	Location	Distance	Sector
200	SITE BOUNDARY	0.6 miles	NNE	234	HOME FEDERAL BANK	4.5 miles	E
201	SITE BOUNDARY	0.5 miles	NE	235	LAKE WYLIE DAM	3.9 miles	ESE
203	SITE BOUNDARY	0.4 miles	ESE	236	SC WILDLIFE FEDERATION OFFICE	4.3 miles	SE
204	SITE BOUNDARY	0.5 miles	SSW	237	TWIN LAKES ROAD AND HOMESTEAD ROAD	4.8 miles	SSE
205	SITE BOUNDARY	0.3 miles	SW	238	PENNINGTON ROAD AND WEST OAK ROAD	4.0 miles	S
206	SITE BOUNDARY	0.7 miles	WNW	239	CARTER LUMBER COMPANY	4.5 miles	SSW
207	SITE BOUNDARY	0.9 miles	NNW	240	PARAHAM ROAD	4.1 miles	SW
212	TEGA CAY AIR SITE	3.3 miles	E	241	CAMPBELL ROAD	4.6 miles	WSW
217	ROCK HILL AIR SITE	10.3 miles	SSE	242	TRANSMISSION TOWER ON PARAHAM ROAD	4.6 miles	W
222	SITE BOUNDARY	0.7 miles	N	243	KINGSBERRY ROAD	4.4 miles	WNW
223	SITE BOUNDARY	0.6 miles	E	244	BETHEL ELEMENTARY SCHOOL	4.0 miles	NW
225	SITE BOUNDARY	0.7 miles	SE	245	CROWDERS CREEK BOAT LANDING	4.1 miles	NNW
226	SITE BOUNDARY	0.5 miles	S	246	CAROWINDS GUARD HOUSE	7.8 miles	ENE
227	SITE BOUNDARY	0.5 miles	WSW	247	FORT MILL	7.3 miles	ESE
228	SITE BOUNDARY	0.6 miles	W	248	PIEDMONT MEDICAL CENTER	6.6 miles	S
229	SITE BOUNDARY	0.8 miles	NW	249	YORK COUNTY OPERATIONS CENTER	8.1 miles	S
230	RIVER HILLS COMMUNITY CHURCH	4.4 miles	N	250	YORK DUKE POWER OFFICE	10.4 miles	WSW
231	RIVER HILLS FRONT ENTRANCE	4.2 miles	NNE	251	CLOVER	9.7 miles	WNW
232	PLEASANT HILL ROAD	4.1 miles	NE	255	SITE BOUNDARY	0.6 miles	ENE
233	ZOAR ROAD AND THOMAS DRIVE	3.9 miles	ENE	256	SITE BOUNDARY	0.6 miles	SSE

