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: N/A

(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 - [redacted]
   A: See Current Operations Work List for Home Phone Number.

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

   1st Alternate - C. W. Graves _____
   Office 2304
   Home

   2nd Alternate - J. W. Cox _____
   Office
   Home

   3rd Alternate - G. T. Smith _____
   Office
   Home

   4th Alternate - A. R. Franklin _____
   Office
   Home

3. License & Projects Engineer - C. L. Hartzell
   Office
   Home

   1st Alternate - M. E. Bolch _____
   Office
   Home

   2nd Alternate - F. N. Mack _____
   Office
   Home

4.1.2 Nuclear Production Duty Engineer _____
   P & T Page [redacted]
   ** USE ENCLOSURE 4.2 **

4.1.3 State & County Emergency Centers (Within 15 minutes)

1. N.C. State Warning Point, Raleigh [redacted] _____
   *** USE ENCLOSURE 4.3 ***

2. S.C. State Warning Point, Columbia _____
   P: [redacted] 7:30 a.m. - 5:00 p.m. Weekdays
   A: [redacted] Afterhours, Week-ends & Holidays
   *** USE ENCLOSURE 4.3 ***

3. Mecklenburg County Warning Point _____
   P: Selective Signal - 116
   A: [redacted]
   Back-up: Emergency Radio, Code: 21
   *** USE ENCLOSURE 4.3 ***

4. York County Warning Point _____
   P: Selective Signal - 513
   A: [redacted]
   Back-up: Emergency Radio, Code: 41
   *** USE ENCLOSURE 4.3 ***

5. Gaston County Warning Point _____
   P: Selective Signal - 112
   A: [redacted]
   Back-up: Emergency Radio, Code 26
   *** USE ENCLOSURE 4.3 ***

4.1.4 NRC Operations Center, Bethesda Md. _____
   P: ENS phone (red phone)
   A: [redacted]

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

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.

[redacted] ***END OF INITIAL WARNING MESSAGE*** [redacted]

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. Title

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 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: N/A

(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 [redacted]
   A: See Current Operations Work List for Home Phone Number.

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

   1st Alternate - C. W. Graves _____
   Office
   Home

   2nd Alternate - J. W. Cox _____
   Office
   Home

   3rd Alternate - G. T. Smith _____
   Office
   Home

   4th Alternate - A. R. Franklin _____
   Office
   Home

3. License & Projects Engineer - C. L. Hartzell
   Office
   Home

   1st Alternate - M. E. Bolch _____
   Office
   Home

   2nd Alternate - F. N. Mack _____
   Office
   Home

4.1.2 Nuclear Production Duty Engineer _____
   P & T Page [redacted]
   ** USE ENCLOSURE 4.2 **

4.1.3 State & County Emergency Centers (Within 15 minutes)

1. N.C. State Warning Point, Raleigh [redacted] _____
   *** USE ENCLOSURE 4.3 ***

2. S.C. State Warning Point, Columbia _____
   P: [redacted] 7:30 a.m. - 5:00 p.m. Weekdays
   A: Afterhours, Week-ends & Holidays
   *** USE ENCLOSURE 4.3 ***

3. Mecklenburg County Warning Point _____
   P: Selective Signal - 116
   A: [redacted]
   Back-up: Emergency Radio, Code: 21
   *** USE ENCLOSURE 4.3 ***

4. York County Warning Point _____
   P: Selective Signal - 513
   A: [redacted]
   Back-up: Emergency Radio, Code: 41
   *** USE ENCLOSURE 4.3 ***

5. Gaston County Warning Point _____
   P: Selective Signal - 112
   A: [redacted]
   Back-up: Emergency Radio, Code 26
   *** USE ENCLOSURE 4.3 ***

4.1.4 NRC Operations Center, Bethesda Md. _____
   P: ENS phone (red phone)
   A: [redacted]

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: __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

APPROVED FOR RELEASE

12. I repeat, this message:

_____(a) Reports an actual emergency _____ _____

_____(b) Is an exercise message Emerg. Coord. Time

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

[redacted] ***END OF INITIAL WARNING MESSAGE*** [redacted]

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.

[redacted]

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?

_____
Emerg. Coord. Time)

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 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: [signature] DATE: 2-6-84

Cross-Disciplinary Review By: _____ N/R: N/A

(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
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 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 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.

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 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 [redacted]
   A: See Current Operations Work List for Home Phone Number.

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

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

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

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

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

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

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

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

4.1.2 Nuclear Production Duty Engineer _____
   P & T Page [redacted]625
   ** USE ENCLOSURE 4.2 **

4.1.3 State & County Emergency Centers (Within 15 minutes)

1. N.C. State Warning Point, Raleigh [redacted] _____
   *** USE ENCLOSURE 4.3 ***

2. S.C. State Warning Point, Columbia _____
   P: 7:30 a.m. - 5:00 p.m. Weekdays
   A: [redacted] Afterhours, Week-ends & Holidays
   *** USE ENCLOSURE 4.3 ***

3. Mecklenburg County Warning Point _____
   P: Selective Signal - 116
   A: [redacted]
   Back-up: Emergency Radio, Code: 21
   *** USE ENCLOSURE 4.3 ***

4. York County Warning Point _____
   P: Selective Signal - 513
   A: [redacted]
   Back-up: Emergency Radio, Code: 41
   *** USE ENCLOSURE 4.3 ***

5. Gaston County Warning Point _____
   P: Selective Signal - 112
   A: [redacted]
   Back-up: Emergency Radio, Code 26
   *** USE ENCLOSURE 4.3 ***

4.1.4 NRC Operations Center, Bethesda Md. _____
   P: ENS phone (red phone)
   A: [redacted]

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

[redacted] PART II [redacted]

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?

Approved for Release

_____ _____
Emerg. Coord. Time

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)

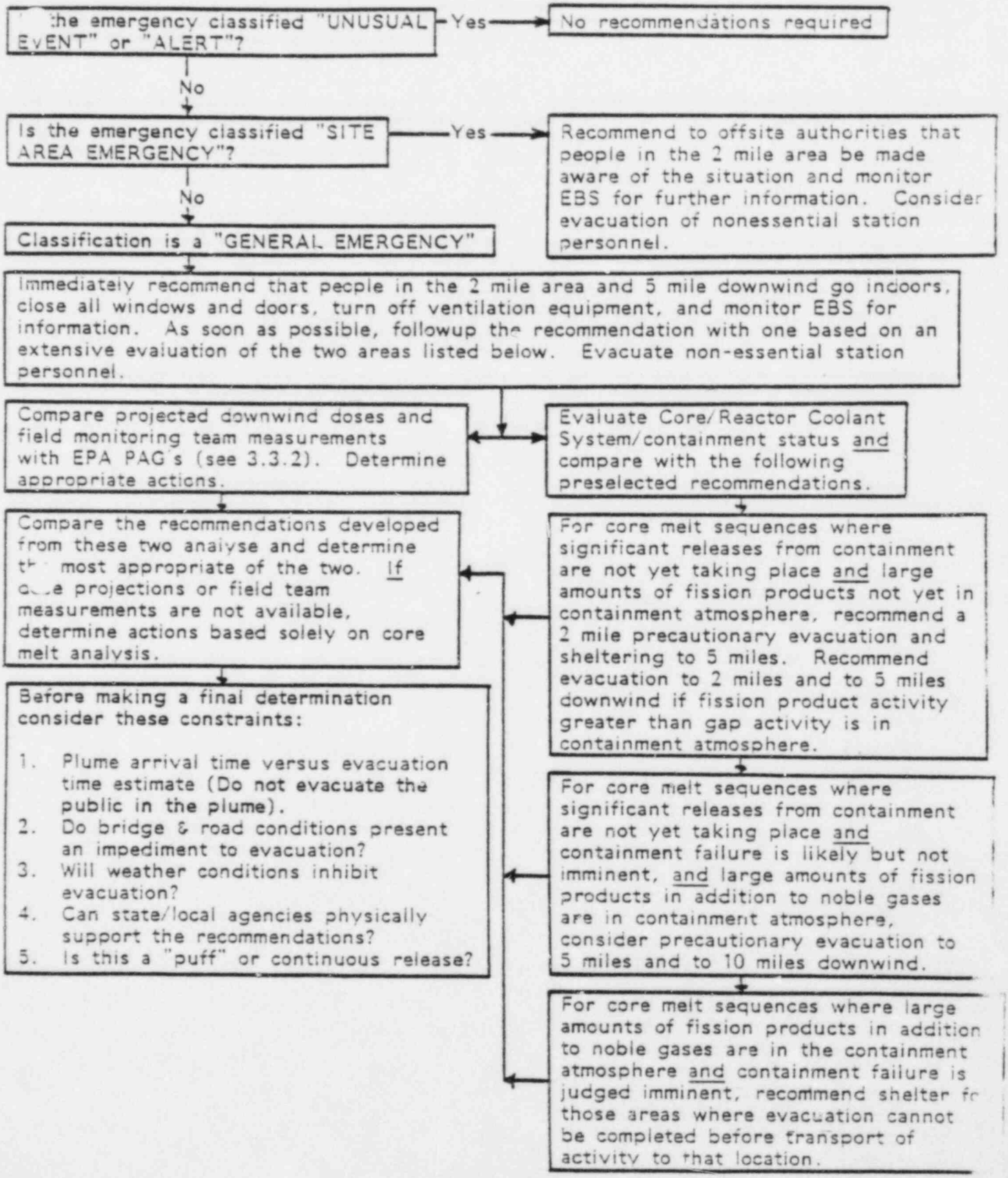
6. _____
(name) (title)

_____
(date) (time) (warning point)

7. _____
(name) (title)

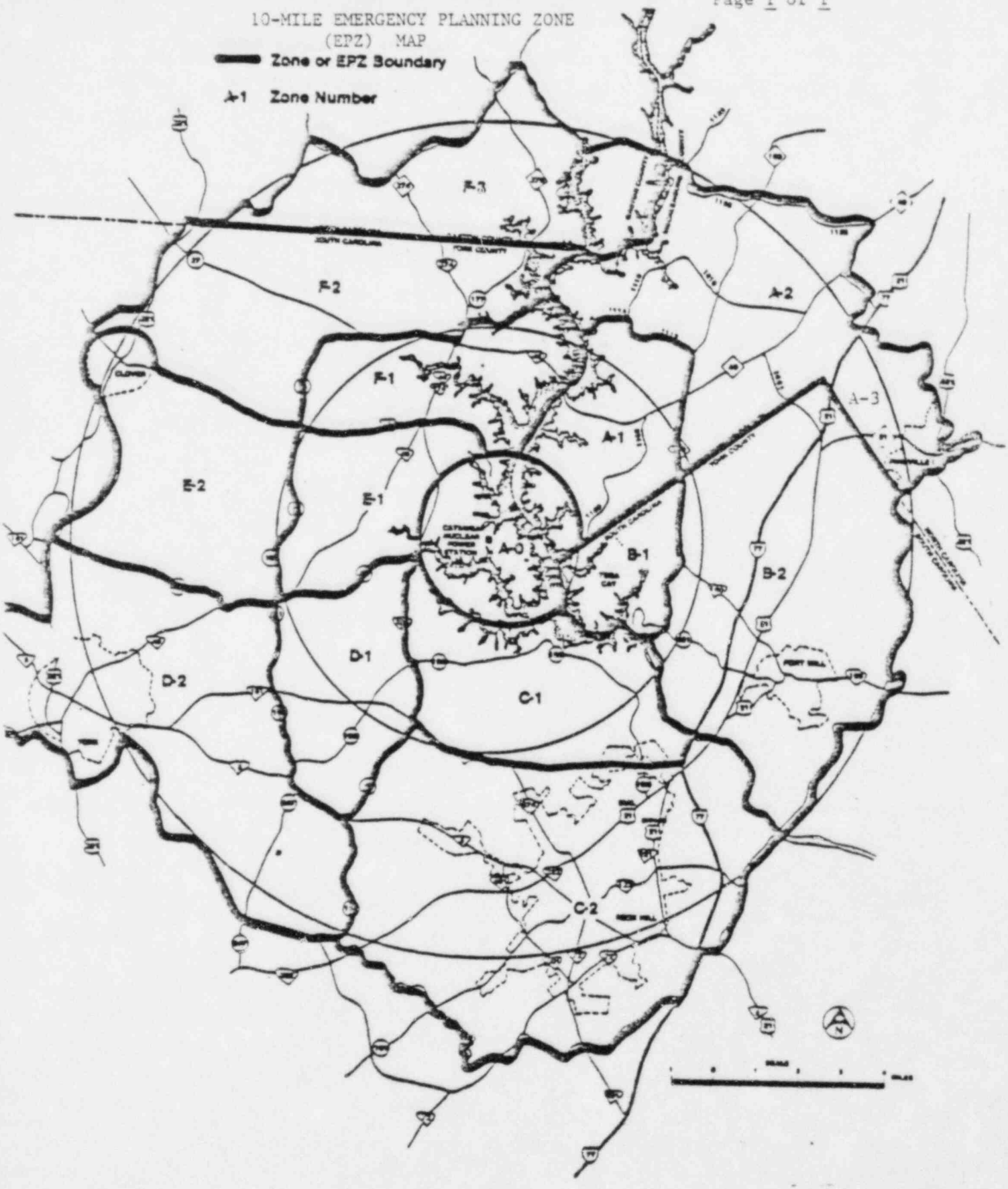
_____
(date) (time) (warning point)

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: N/A

(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
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 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 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 [redacted]
   A: See Current Operations Work List for Home Phone Number.

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

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

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

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

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

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

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

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

4.1.2 Nuclear Production Duty Engineer [redacted] _____
   P & T Page [redacted]625
   ** USE ENCLOSURE 4.2 **

4.1.3 State & County Emergency Centers (Within 15 minutes)

1. N.C. State Warning Point, Raleigh [redacted] _____
*** USE ENCLOSURE 4.3 ***

2. S.C. State Warning Point, Columbia _____
P: [redacted] 7:30 a.m. - 5:00 p.m. Weekdays
A: Afterhours, Week-ends & Holidays
*** USE ENCLOSURE 4.3 ***

3. Mecklenburg County Warning Point _____
P: Selective Signal - 116
A: [redacted]
Back-up: Emergency Radio, Code: 21
*** USE ENCLOSURE 4.3 ***

4. York County Warning Point _____
P: Selective Signal - 513
A: [redacted]
Back-up: Emergency Radio, Code: 41
*** USE ENCLOSURE 4.3 ***

5. Gaston County Warning Point _____
P: Selective Signal - 112
A: [redacted]
Back-up: Emergency Radio, Code 26
*** USE ENCLOSURE 4.3 ***

1.4 NRC Operations Center, Bethesda Md. _____
P: ENS phone (red phone)
A: [redacted]

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/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

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)

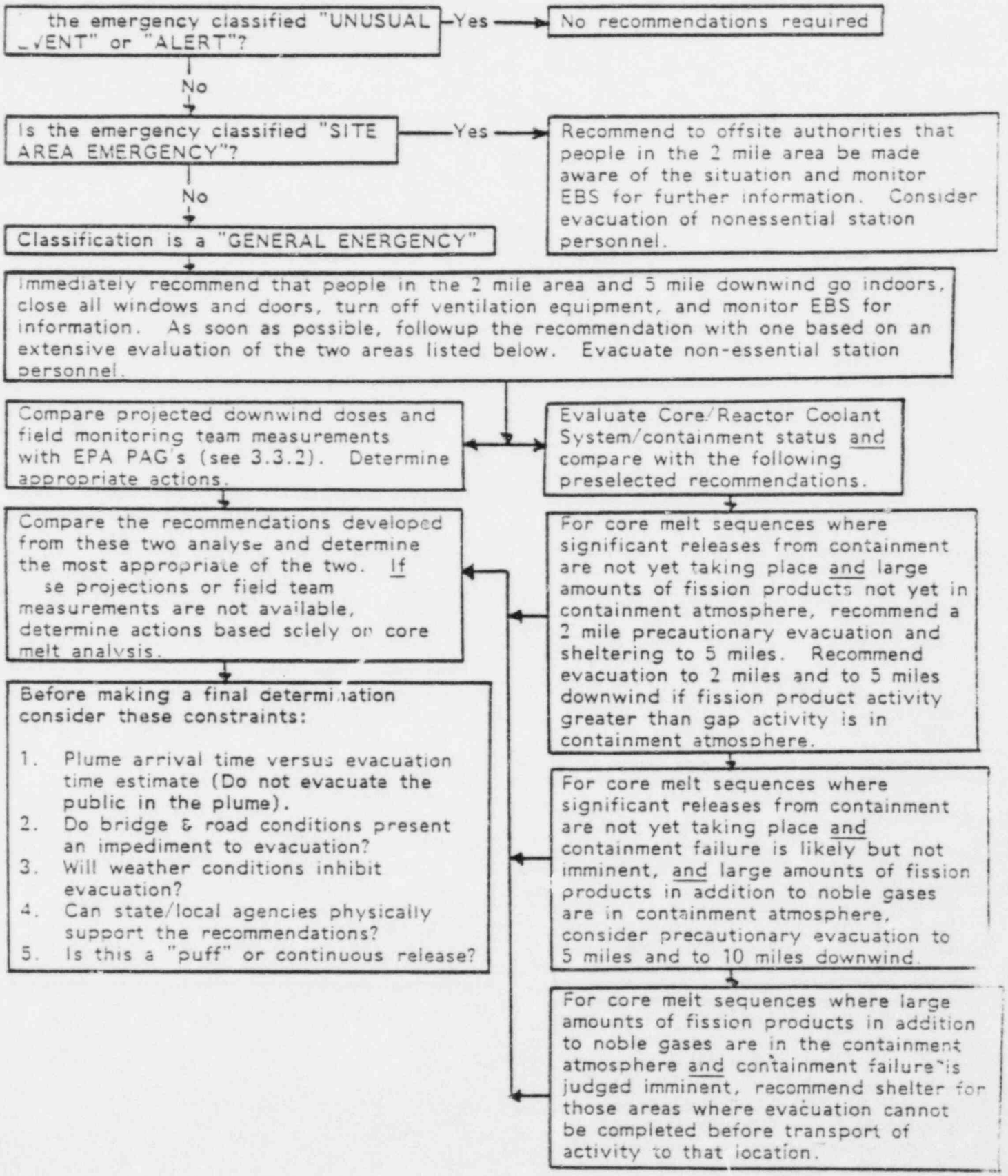
6. _____
(name) (title)

_____
(date) (time) (warning point)

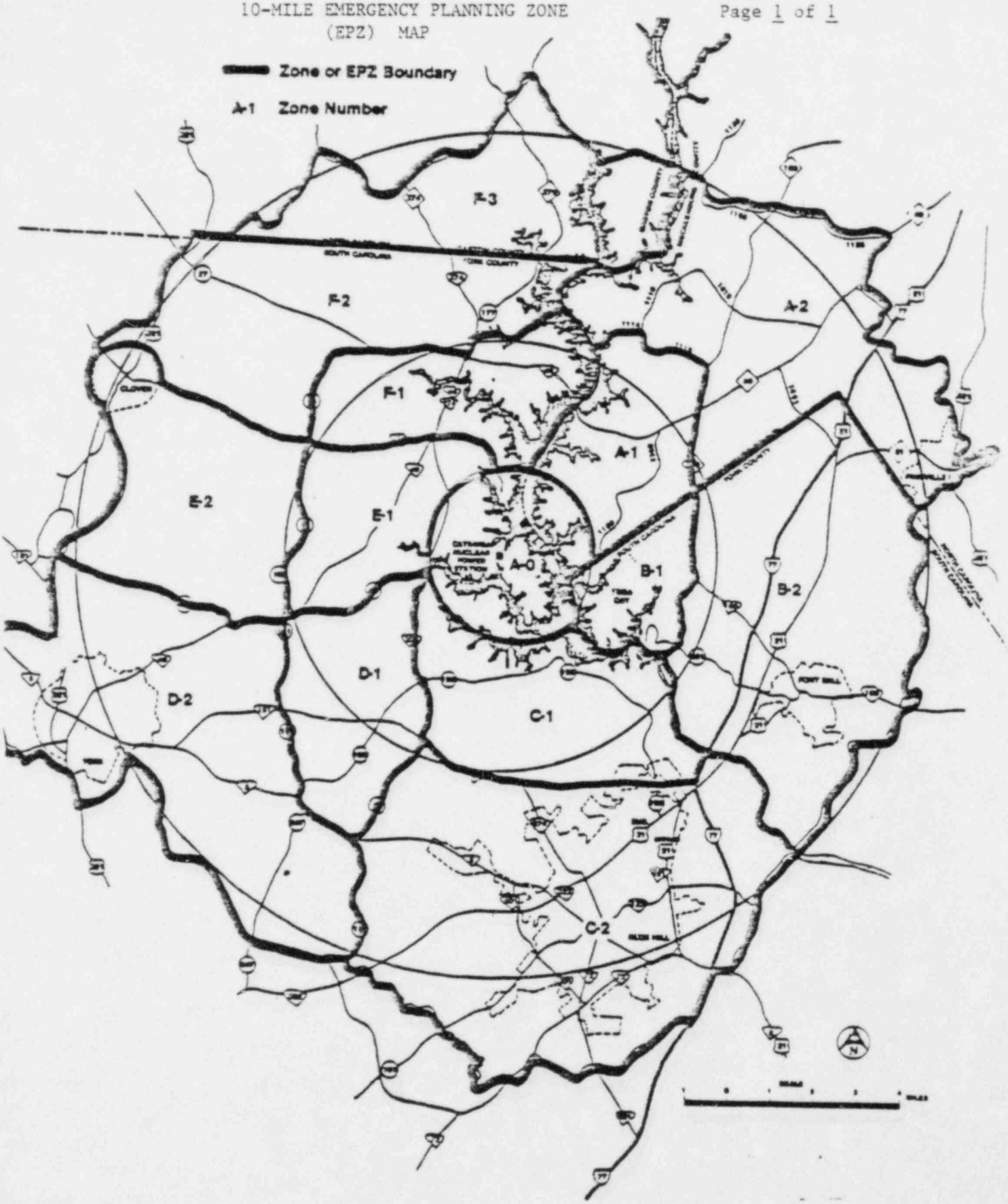
7. _____
(name) (title)

_____
(date) (time) (warning point)

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/5000/10
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: N/A

(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
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 [redacted] 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. [redacted]

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 [redacted]
B. S.C. Highway Patrol

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

A. Alpha - [redacted] Transmission Line Maintenance Warehouse
B. Bravo - [redacted] 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.

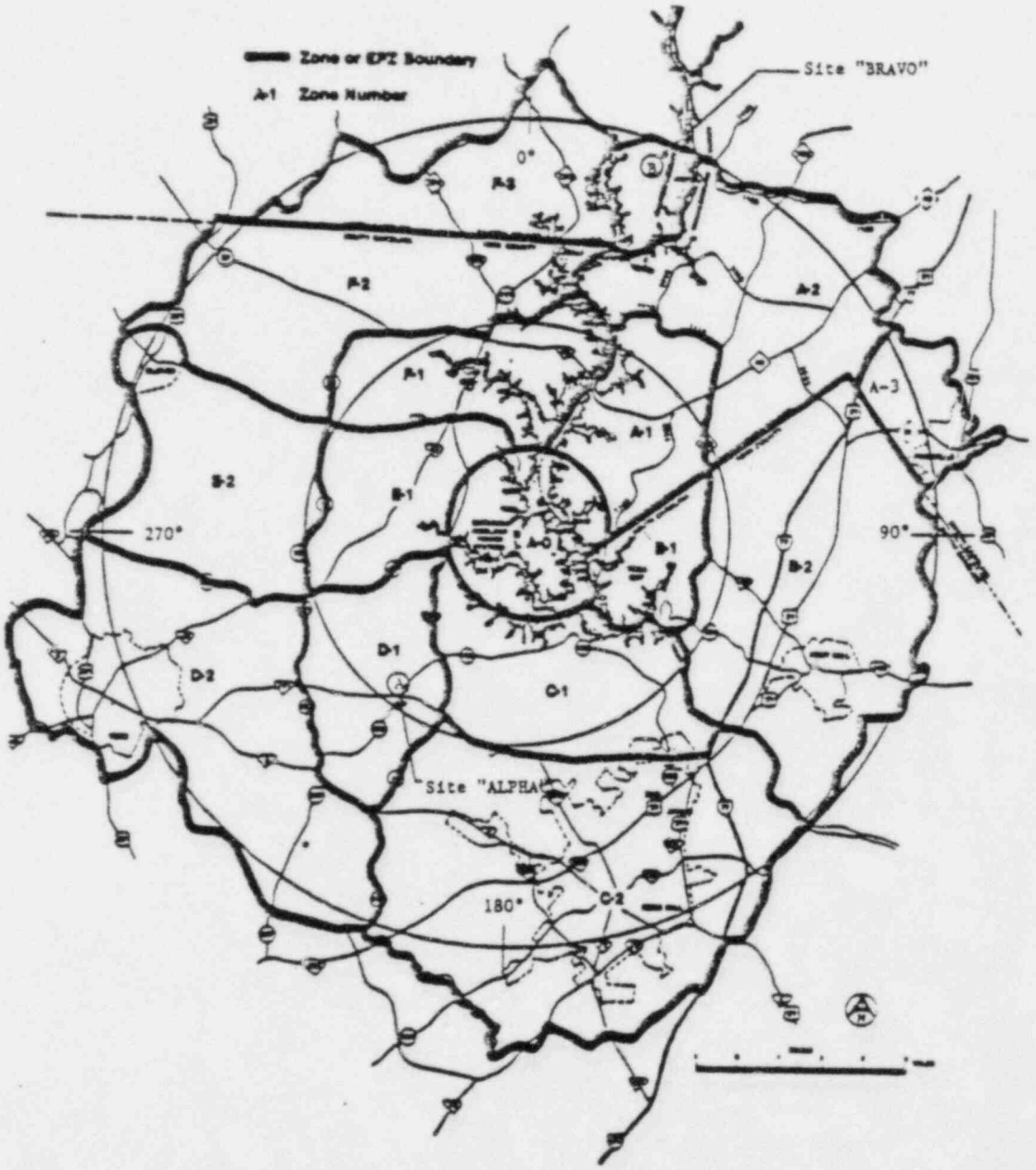
3.4 Securing from a Site Evacuation

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

EVACUATION-RELOCATION WIND 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. Dunn DATE: 1-18-84

Cross-Disciplinary Review By: [signature] 12/12/83 N/R: SCC 83/81

(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
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 $\leq$ 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 $\leq$ 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-O 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

CATAWBA NUCLEAR STATION
RP/O/A/5000/11
ENCLOSURE 4.1

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.

CATAWBA NUCLEAR STATION
RP/0/A/5000/11
ENCLOSURE 4.2

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 $\leq$ 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

	Consider		
Protective Action Recommendations	NO ACTION	EVACUATION PARTICULARLY 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

	Consider		
Protective Action Recommendations	NO ACTION	EVACUATION PARTICULARLY 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.D DATE: 1-19-84

Cross-Disciplinary Review By: _____ N/R: J.W.L

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: J.W.L 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

RP/O/B/5000/12
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: 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: David T Nash DATE: 2-2-84

Cross-Disciplinary Review By: _____ N/R: D.T. Nash

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: J W Hampton 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 Spectifications 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 firmly 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 [redacted] (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 [redacted] If these two numbers cannot be reached, an alternate number in Charlotte [redacted] 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 curre : 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

MP/3/3/[illegible]
Enclosure 5.1

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		

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).

Enclosure 3.4

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/1009/04
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: [signature] DATE: 2-1-84

Cross-Disciplinary Review By: MEB dlh N/R: _____

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: [signature] 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 [redacted] (Lake Wylie/Charlotte), 861-0331 (Gaston County), [redacted] (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 ENCLOSURES

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

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ENCLOSURE 5.1
AIR SAMPLER, TLD, AND WATER SAMPLE LOCATIONS

Air Sample Locations (need key CPD-1)

Zone & Radius (Mi)	No.	Description
A0 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).

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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).

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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).

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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).

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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
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).

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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.
F2	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.

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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).

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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).

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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.

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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.

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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.

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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.

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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).

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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			MINIMUM REQUIRED SAMPLING TIME IN MINUTES
CFM		LPM	
.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. 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).

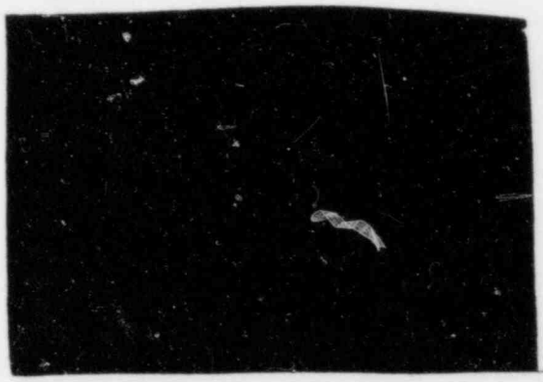
5.6.2.3.9 Press NEXT SAMPLE.

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		
Alternates:	R. L. Rivard J. E. Threatt		
TSC Radio Operators:			
Primary:	D. E. Sexton		
Alternate:	T. W. O'Donohue		
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 T Mark DATE: 1-23-84

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

Cross-Disciplinary Review By: MEBulla 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.

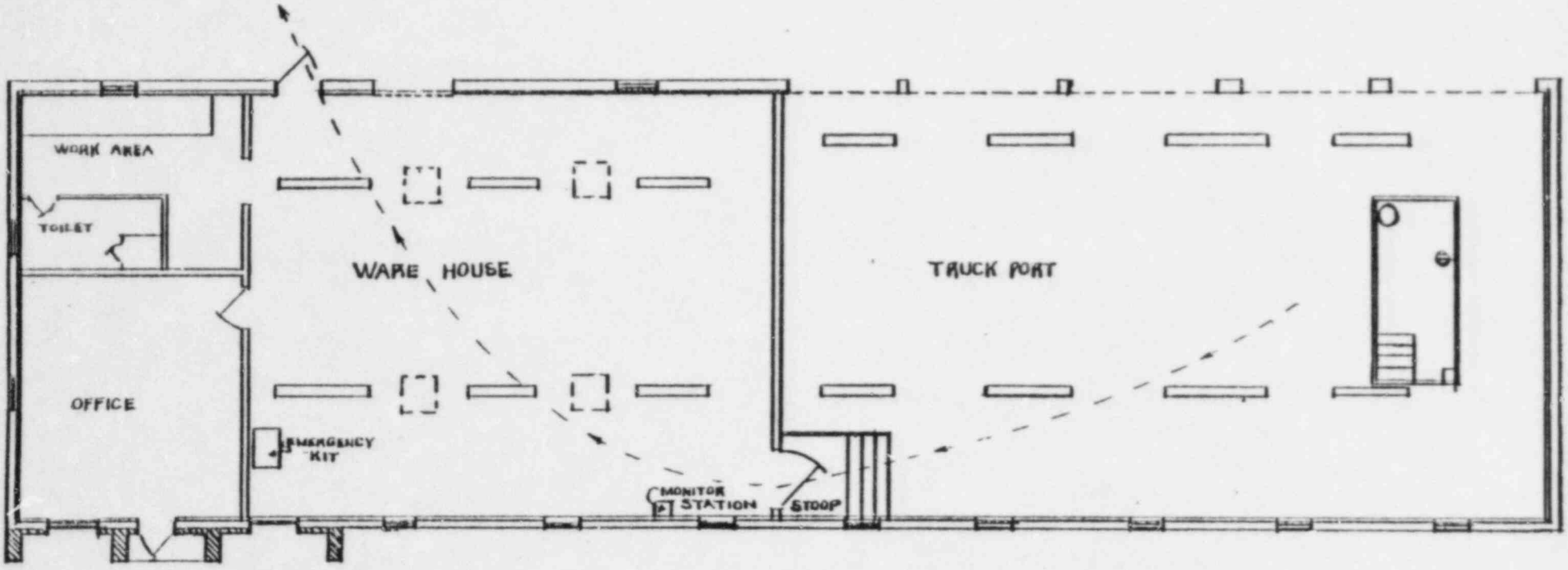
4.4.5 Supervise monitoring of employee vehicles and take actions as appropriate per Step 4.3.1.

4.4.6 Notify Surveillance and Control Coordinator of all actions taken.

5.0 ENCLOSURES

5.1 Evacuation Facilities Layout Drawings

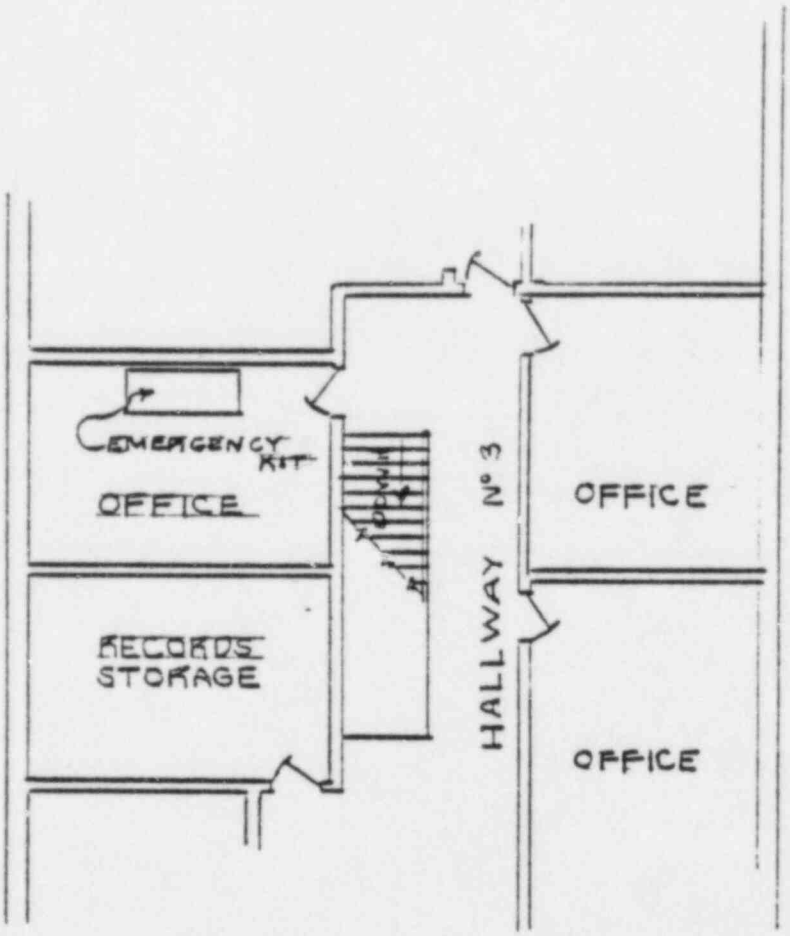
5.2 Evacuation Personnel Dose Record



FLOOR PLAN

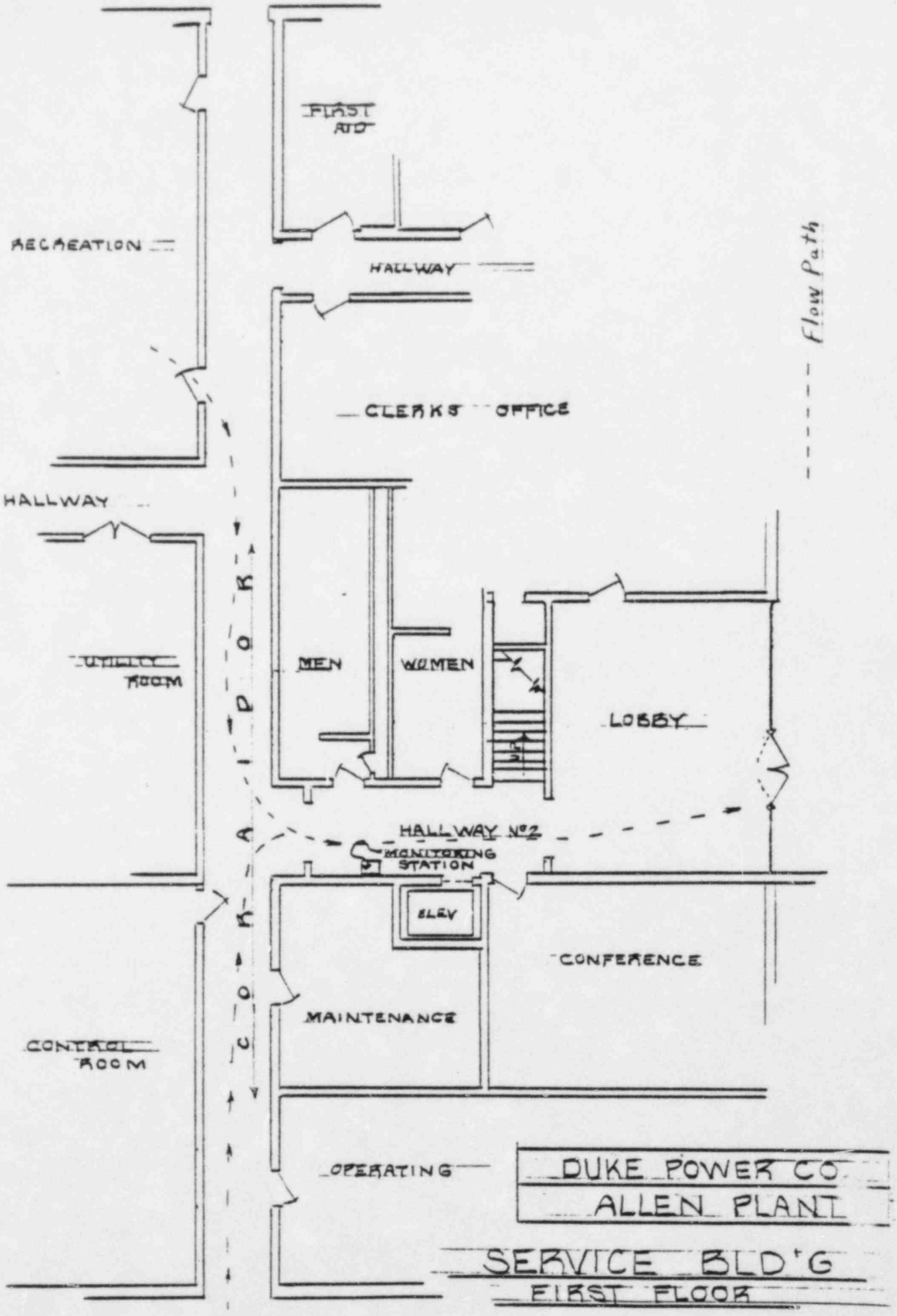
ROCK HILL MAINTENANCE BLDG.
DUKE POWER COMPANY.

------- Flow Path



SERVICE BLD'G
SECOND FLOOR

DUKE POWER COMPANY
ALLEN PLANT


FIRST AID
RECREATION
HALLWAY
CLERKS OFFICE
HALLWAY
UTILITY ROOM
MEN
WOMEN
LOBBY
CORRIDOR
HALLWAY No 2
MONITORING STATION
ELEV
CONFERENCE
MAINTENANCE
CONTROL ROOM
OPERATING
Flow Path
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: Gregory C. Cook DATE: 1/24/84

(5) REVIEWED BY: R. D. Kinard DATE: 1-24-84

Cross-Disciplinary Review By: M C Ballard N/R: _____

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: J. W. Hf 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: M E Bolch N/R: _____

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: J W Hy 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} uCi/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 $\geq$ .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 ENCLOSURES

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

$$\text{Iodine Activity} = \frac{\text{\_\_\_\_\_(A) x 28.2}}{\text{\_\_\_\_\_(B)}} = \text{\_\_\_\_\_} \frac{\mu Ci}{cc}$$

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

$$\text{Gross Particulate Activity} = \frac{\text{\_\_\_\_\_(A) x \_\_\_\_\_(B) x 4.5E-7}}{\text{\_\_\_\_\_(C)}} =$$

$$\text{\_\_\_\_\_} \frac{\mu Ci}{cc}$$

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 in x 2.54 cm/in)^2 x (1.04 in x 2.54 cm/in)

$= 67.76\ cm^3$

mass of cartridge, m = 4 oz x 28.35 gm/oz = 113.4 gm

density of cartridge, $\rho = \frac{m}{v} = \frac{113.4\ gm}{67.76\ cm^3} = 1.67\ gm/cm^3$

thickness of cartridge, x = 1.67 gm/cm^3 x (1.04 in x 2.54 cm/in)

$= 4.41\ gm/cm^2$

.19 MeV beta particle energy range = 40 mg/cm^2
(p. 123, Rad Health Handbook)

absorption coefficient, $\mu = \frac{1}{40\ mg/cm^2} = .025\ cm^2/mg$

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

$$fs = \frac{1 - e^{-.025\ cm^2/mg \times 1000\ mg/gm \times 4.41\ gm/cm^2}}{.025\ cm^2/mg \times 1000\ mg/gm \times 4.41\ gm/cm^2} = .009$$

$$1\ mR/hr \times \frac{87.8\ erg/gm}{R} \times \frac{1\ R}{1000\ mR} \times \frac{1\ MeV}{1.6 \times 10^{-6}\ erg} \times \frac{1\ hr}{3600\ sec} \times \frac{1\ \mu Ci}{3.7 \times 10^4\ dps} \times \frac{d}{.19\ MeV} \times 113.4\ gm = .245\ \mu Ci$$

so, $\frac{.245\ \mu Ci}{1\ mR/hr} = .245\ \mu Ci/mR/hr$

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: [signature] DATE: 1-24-84

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

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: ____________ (SRO) Date: ____________

By: ____________ Date: ____________

(7) APPROVED BY: [signature] 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 ENCLOSURES

5.1 Sample of Personnel Contamination and Decontamination Survey Sheet

HP/O/B/1003/08

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 _____

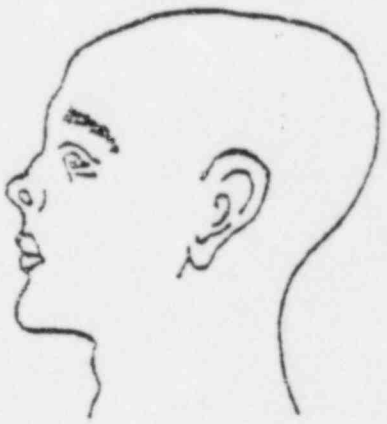
Decontamination completed by _____

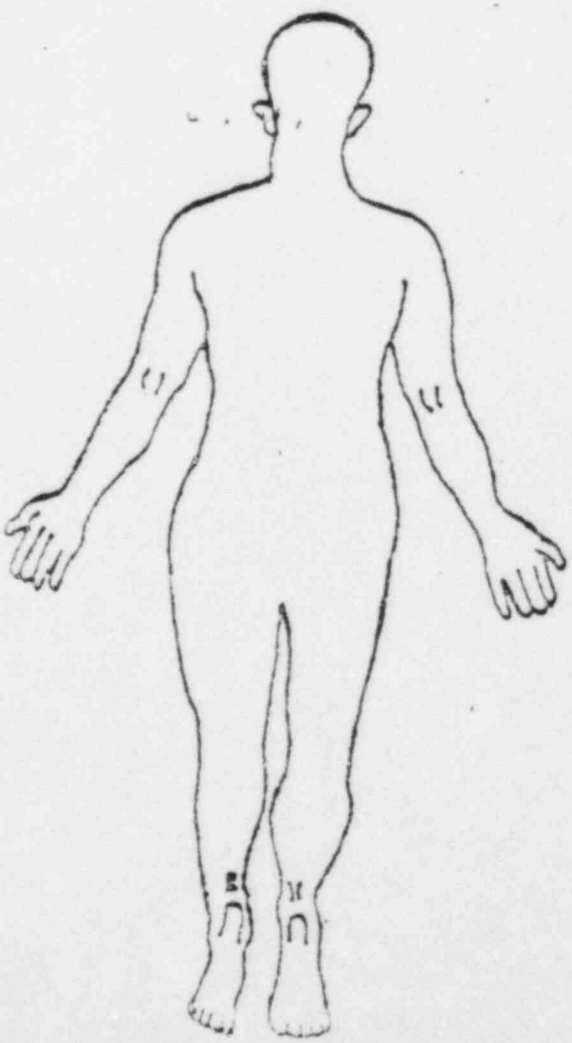
Supervisor _____

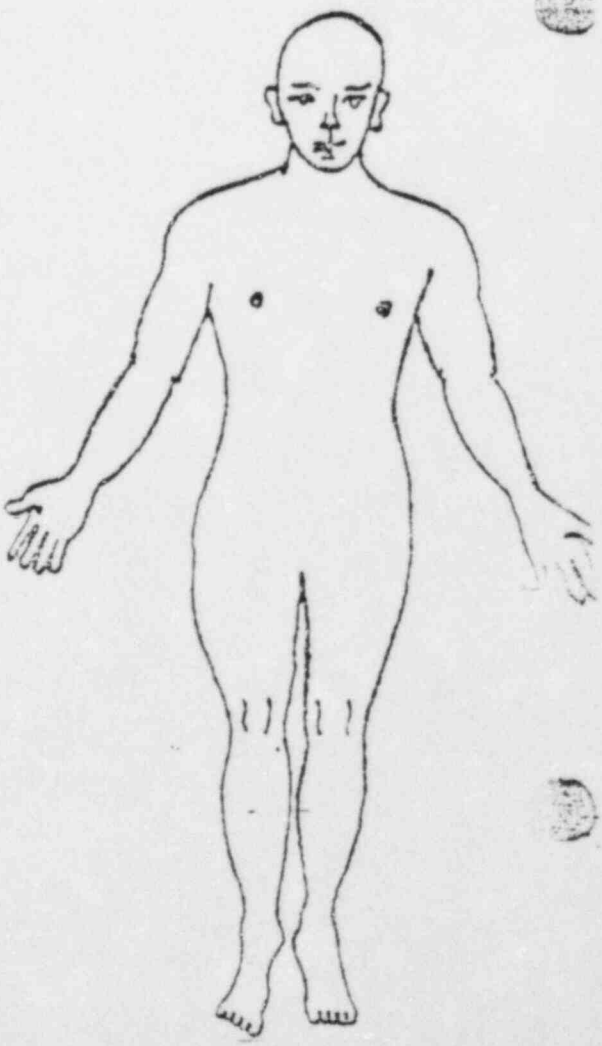
All readings should be recorded as corrected counts per minute (ccpm) or millirem per (mrem/hr). Subtract Background before recording as (ccpm or mrem/hr)

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 & 25 Incorporated

(2) STATION: Catawba

(3) PROCEDURE TITLE: Guidelines For Accident and Emergency Response

(4) PREPARED BY: [signature] DATE: 1-23-84

(5) REVIEWED BY: K. Weisman 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 ENCLOSURES

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.

HP/0/B/1009/09
ENCLOSURE 5.1

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/O/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.

HP/O/B/1009/09
ENCLOSURE 5.11
FIELD MONITORING COORDINATOR
CONTINUING RESPONSE

5.11.2.3 Once CMC has assumed control of FMT's, notify the Data Analysis Coordinator and dissolve TSC field monitoring organization.

HP/0/B/1009/09
ENCLOSURE 5.12
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.

OSC RESPONSE PERSONNEL DOSE RECORD FORM

Name:_____ HP Badge No.:_____

Social Security No.:_____ Exposure Class:_____

Birthdate:_____ Age:_____ Work Group:_____

*Quarterly Dose to Date:_____mrem

**Yearly Dose to Date:_____mrem

Permissable Lifetime Dose to Date:_____mrem

Total Lifetime Dose to Date:_____ _____mrem

Date/Time	Dosimeter Reading Out (mrem)	In	*Quarterly Dose Total (mrem)	Comments

*Current Quarter Dose _____mrem Plus Today's Dosimeter Dose _____mrem.

**Current Yearly Dose _____mrem Plus Today's Dosimeter Dose _____mrem.

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 helicopter 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		
2. L. W. Johnson		
3. L. M. Whisonant		
4. D. M. Staggs		

NOTE: These contacts are in Duke Power Company Transmission Dept., Line Division. The microwave extension for the office numbers is 220.

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 MATERIAL THROUGH THE UNIT VENT

(4) PREPARED BY: Timothy R McManus DATE: 2/6/84

(5) REVIEWED BY: R. D. Kinard DATE: 2-6-84

Cross-Disciplinary Review By: _____ N/R: N.R.

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: J. W. Hx 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 <u>not</u> 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/m^3

U_{DWC} = unit conversions derived from $(2.832E\text{-}2 m^3/ft^3)$, $(0.017\ min/sec) = 4.8E\text{-}4 \frac{m^3 \cdot min}{ft^3 \cdot sec}$

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)

$$\cdot\ 1/2 = 2.5E\text{-}1\ \frac{\text{dis-rem-cm}^3}{\mu\text{Ci-sec-MeV}}$$

$$(2.5E\text{-}1\ \frac{\text{dis-rem-cm}^3}{\mu\text{Ci-hr-Mev}})(3600\ \frac{\text{sec}}{\text{hr}})$$

$$= 9.00\ E2\ \frac{\text{dis-rem-cm}^3}{\mu\text{Ci-hr-Mev}}$$

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 child's breathing rate (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 the 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 ENCLOSURES

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)

$$Conc_{V\text{-}low} = \frac{(EMF\ 36L\ CPM)}{2.70E7\ \frac{CPM\text{-}ml}{\mu Ci}} = \_\_\_\_\ \mu Ci/ml, \text{ or } Conc_{V\text{-}hi} = \frac{(EMF\text{-}36H\ CPM)}{4.0E3\ \frac{CPM\text{-}ml}{\mu Ci}} =$$

_____ µCi/ml

2) Iodine

$$Conc_{V\text{-}I} = \frac{(\Delta EMF\text{-}37\ CPM)\ \ (2.4E\text{-}10)}{\Delta t} = \_\_\_\_\_ \mu Ci/ml$$

ENCLOSURE 5.2
HP/O/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

$Conc_{DW} = Conc_V \cdot F_V \cdot X/Q \cdot (4.8E\text{-}4 \frac{m^3}{ft^3} \cdot \frac{min}{sec})$

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

6) Potential Whole Body Gamma Dose;

$D_{WB} = (9.00E2) \cdot Conc_{DW} \cdot \bar{E} \cdot Time$

$\bar{E}$ = _____ Mev/dis

@ _____ Mi

D_{WB} = _____ Rem

@ _____ Mi

D_{WB} = _____ Rem

@ _____ Mi

D_{WB} = _____ Rem

@ _____ Mi

D_{WB} = _____ Rem

7) Potential Child Thyroid Dose;

$D_{THY} = (1.36E6) \cdot Conc_{DW} \cdot Time$

D_{THY} = _____ Rem

D_{THY} = _____ Rem

D_{THY} = _____ Rem

D_{THY} = _____ Rem

ENCLOSURE 5.4
HP/O/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/O/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.

ENCLOSURE 5.5
DOSE ASSESSMENT REPORT
HP/O/B/1009/13

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	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: Billy R McKamey DATE: 2/6/84

(5) REVIEWED BY: R. D. Kennedy DATE: 2-6-84

Cross-Disciplinary Review By: _____ N/R: Daniel F. Hall

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: J. W. Hampton 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

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
HP/0/B/1009/14
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 $\left(\frac{1}{ft^3}\right)$	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 $\left(4 \times 10^{-9} \frac{1}{ft^3}\right)$

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 = (2.22×10^{-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: Gregory L. Crotty DATE: 1/24/84

(5) REVIEWED BY: R. D. Friend DATE: 1-24-84

Cross-Disciplinary Review By: M E Bolch N/R: _____

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: [signature] 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,

$$X/Q = \frac{CH \text{ (MPH-Sec/m}^3\text{)}}{\text{Tower Wind Speed (MPH)}}$$

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 =

$$2.2622E\text{-}2 \ \frac{\mu Ci \cdot MeV \cdot hr^2}{ml \cdot d \cdot R}$$

LR = Containment leakage rate in ml/hr

X/Q = dispersion factor in sec/m^3

$$U_{NG} = \frac{(3.7E4/sec \cdot \mu Ci)\ (1.6E\text{-}6ergs/MeV)}{2\ (100\ ergs/g\text{-}rad)\ (1.2E\text{-}3g/cm^3)\ (1E6cm^3/m^3)} \times ADC =$$

$$5.7E\text{-}9 \ \frac{hr^2\text{-}m^3 \text{ - } rad}{ml\text{-}R\text{-}sec}$$

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/m^3

U_I = breathing rate for child times µCi to pCi conversion factor

$$(1.17E\text{-}4m^3/sec)\ \ 1E3\ \frac{pCi\text{-}rem}{\mu Ci\text{-}mrem} = 1.17E\text{-}1\ \frac{m^3\text{-}pCi\text{-}rem}{sec\ \text{-}\mu Ci\text{-}mrem}$$

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/m^3
   C_H @ _____ mi. = _____, X/Q = _____ sec/m^3
   C_H @ _____ mi. = _____, X/Q = _____ sec/m^3
   C_H @ _____ mi. = _____, X/Q = _____ sec/m^3

   A. Whole Body 2 hr. dose projection from noble gases:

   by $D_{WB} = DR_M \cdot LR \cdot X/Q \cdot 5.7E\text{-}9$,

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 $DR_T = DR_M \cdot DC \cdot LR \cdot X/Q \cdot (1.17E-1)$,

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 .2
HP/O/B/10[illegible]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	6.8707E-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	6.9194E-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	1.5930E-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	6.7296E-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	8.2819E-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	8.2979E-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°	AO

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	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: _____

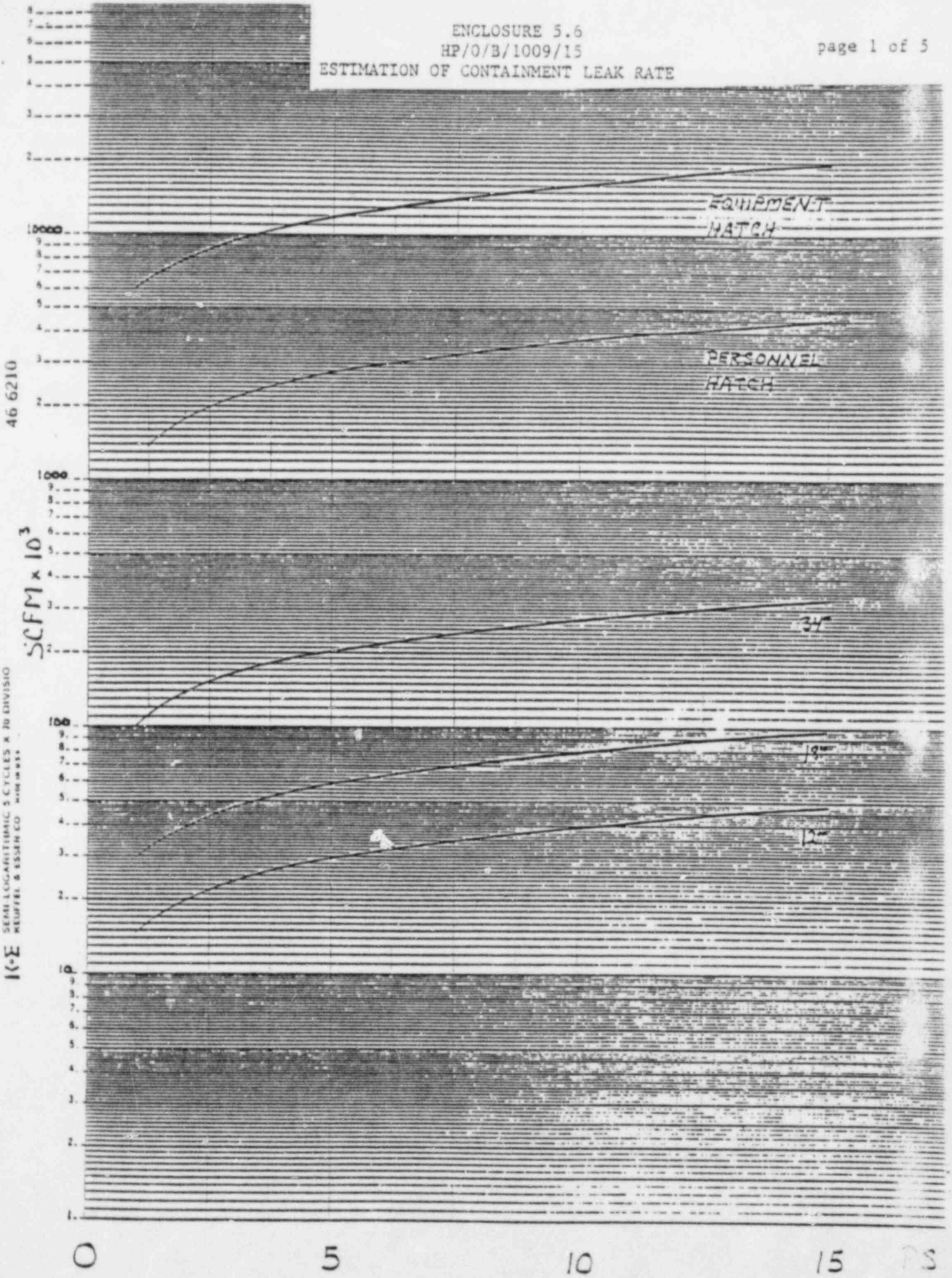
_____

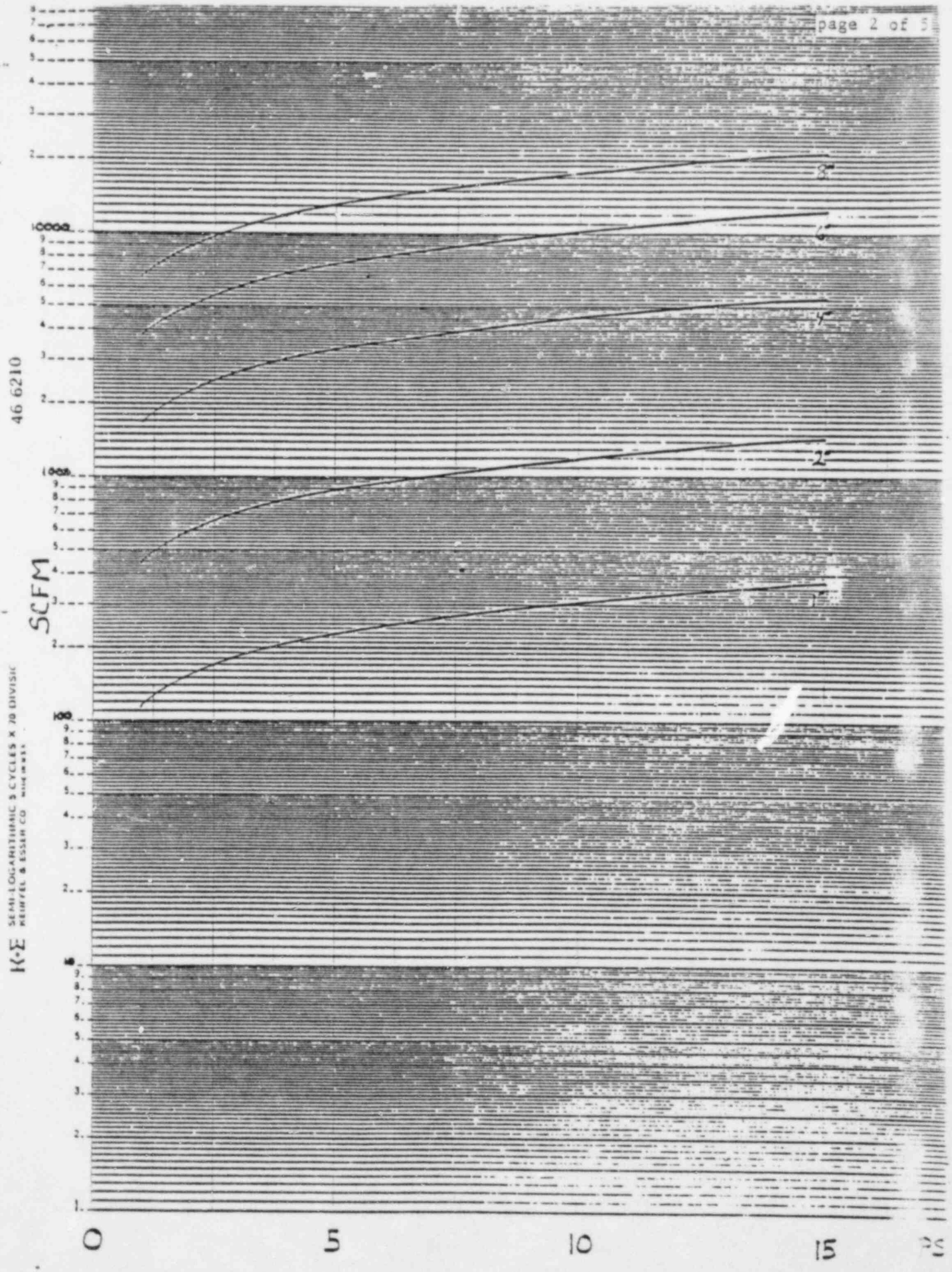
_____

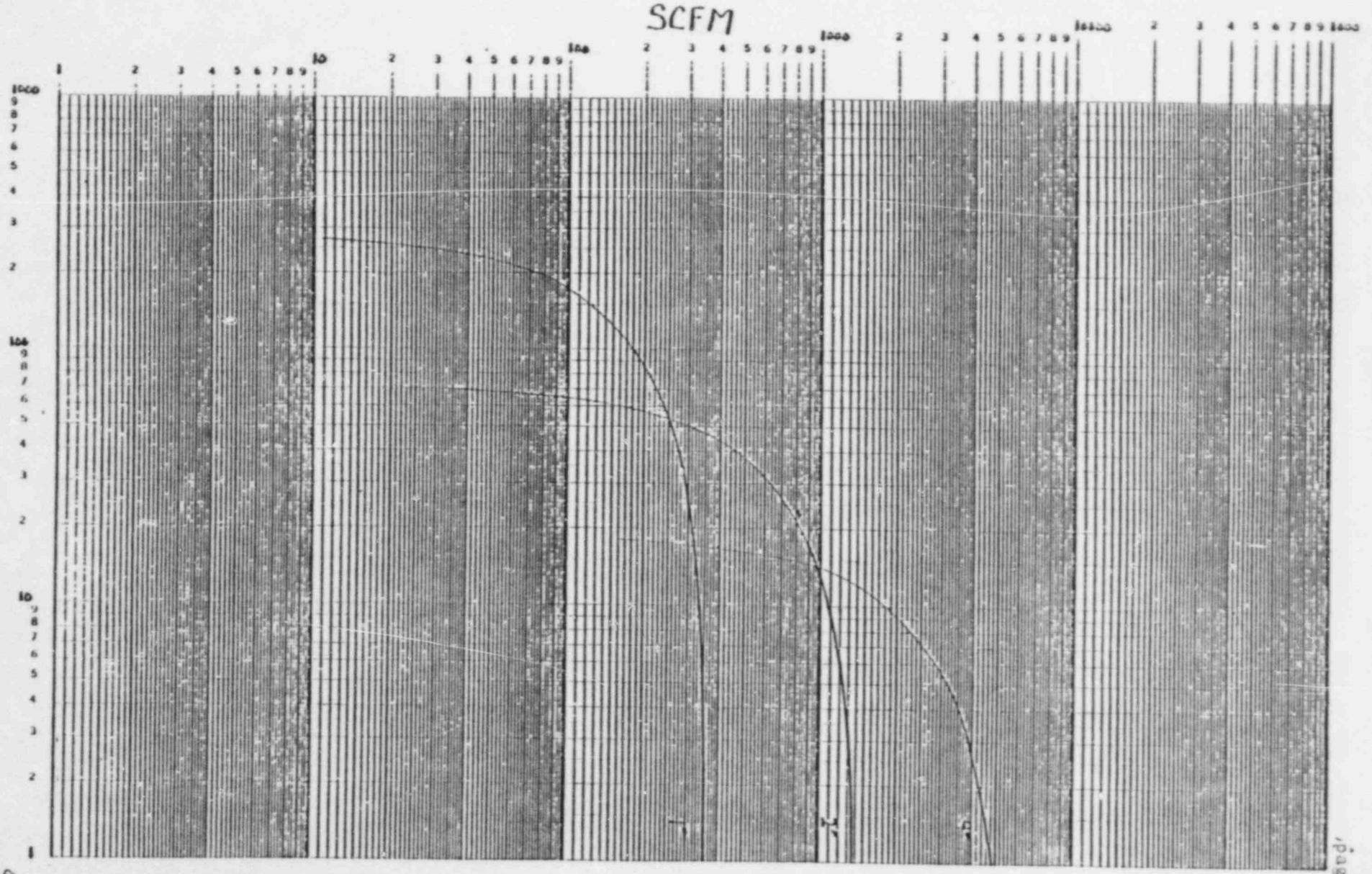
_____

xc: Data Analysis Coordinator, Station Health Physicist

ESTIMATION OF CONTAINMENT LEAK RATE

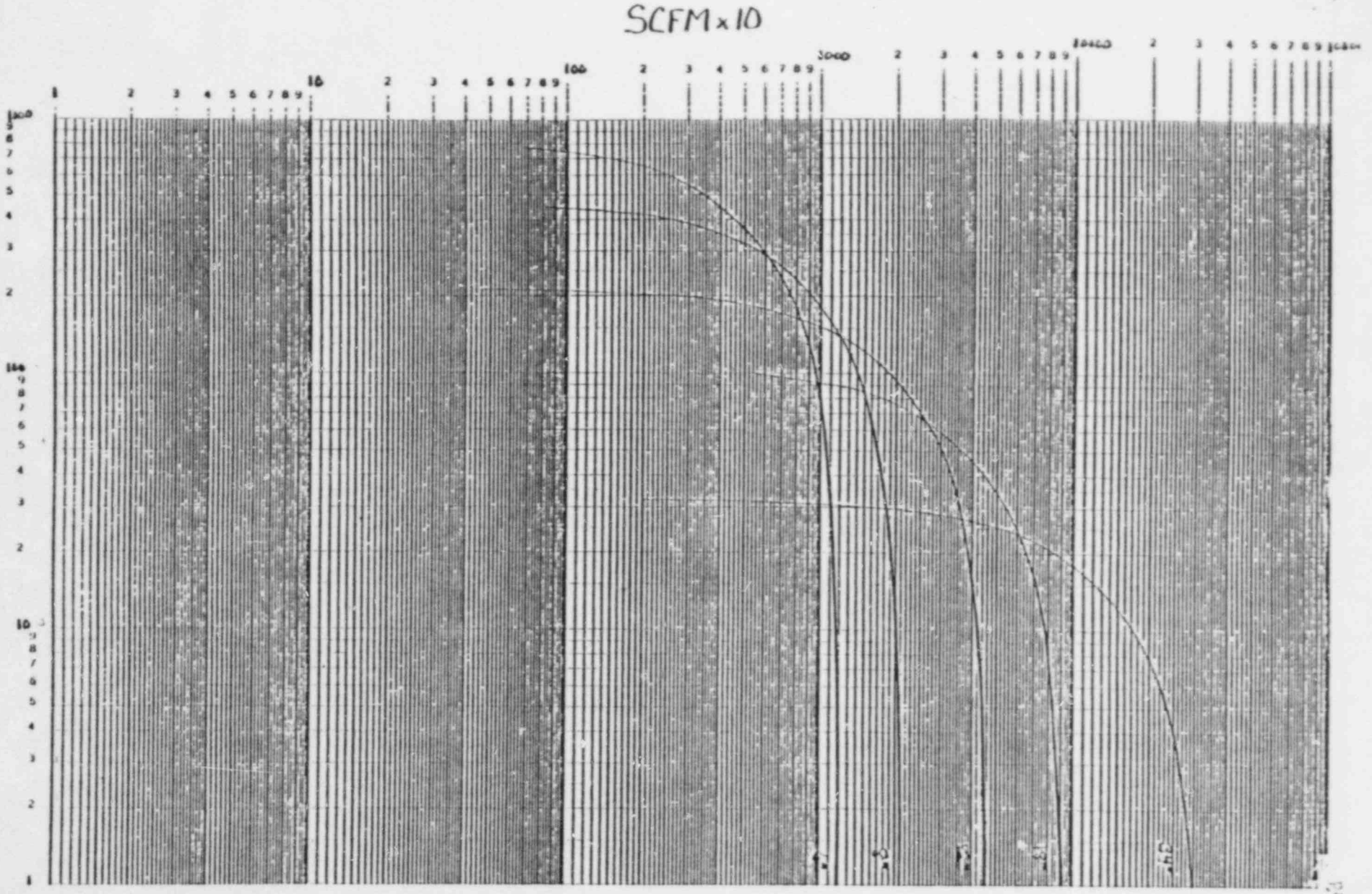


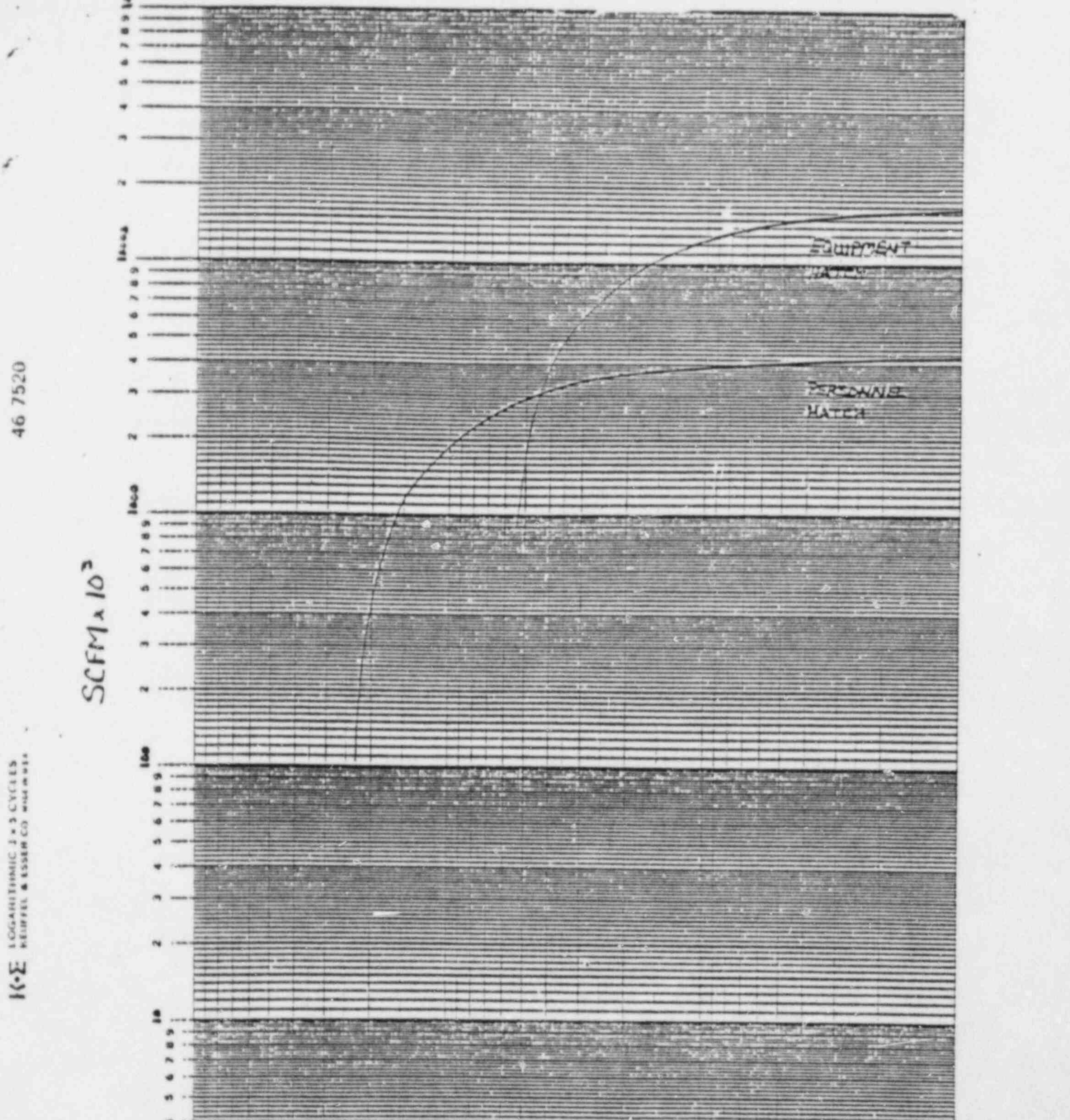

SCFM
8"
6"
4"
2"
1"
46 6210
K·E SEMI-LOGARITHMIC 5 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO
0
5
10
15


SCFM

K·E LOGARITHMIC 3 x 5 CYCLES
KEUFFEL & ESSER CO.

46 7520




SCFM x 10^3
EQUIPMENT HATCH
PERSONNEL HATCH
SEC
46 7520
K+E LOGARITHMIC 3 X 5 CYCLES

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. Kinard DATE: 1-19-84

Cross-Disciplinary Review By: M E Bolel N/R: _____

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: J. W. Hy 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 upor 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-ee-um EYE-oh-dyde)
(abbreviation: KI)
TABLETS and SOLUTION USP

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 1 YEAR OF AGE OR OLDER: One (1) tablet once a day. Crush for small children. BABIES UNDER 1 YEAR OF AGE: One-half (1/2) tablet once a day. Crush first.
Solution:	ADULTS AND CHILDREN 1 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 15° and 30°C (59° to 86°F). Keep container tightly closed and protect from light. Do not use the solution if it appears brownish in 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 130 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 iodine. 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 asked 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 to be serious at the low dose and the short time you will be taking the drug.

Possible side effects include skin rash, 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. Those could be fever and joint pains, or a welling 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

CW – 107315 – 1279

Printed 1979

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: Greg L. Cook DATE: 1/24/84

(5) REVIEWED BY: R.D. Knight DATE: 1-24-84

Cross-Disciplinary Review By: MEBolt N/R: _____

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: JW Lf 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 Radiation Monitor (#3) 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 Radiation Monitor (#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 PROCEDURE

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 Key Lock switch (#48) to Sump Pump. Accompanying power light should illuminate.

5.0 ENCLOSURES

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

DUKE POWER COMPANY
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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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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 Selector switch (#9) is in the Off position.
_____	5.2.5	Move the System Purge toggle switch (#20) to the Normal position.
_____	5.2.6	Move the Refill toggle switch (#24) to the Off (down) position.
_____	5.2.7	Turn Key Lock switch (#48) to Power On. Accompanying power light should illuminate.
_____	5.2.8	Turn the Radiation Monitor (#3) On by moving the toggle switch (located below the meter) to the Up position.

DUKE POWER COMPANY
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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.

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
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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.

DUKE POWER COMPANY
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HP/1/B/1009/17
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.

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
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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CATAWBA NUCLEAR STATION
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 --

$$CSV = 1.3\ ml \quad \frac{293°K}{(273°C + \_\_\_\_\_°C)°K} \cdot \frac{(14.7\ psig + \_\_\_\_\_\ psig)}{14.7\ psig}$$

= _____ ml at standard temperature and pressure

Section volume of CSV trapped in "Iodine Sample" bottle --

$$SV_I = \_\_\_\_\_\ ml\ (CSV) \cdot \frac{50\ ml}{\_\_\_\_\ ml\ (TSV)} = \_\_\_\_\_\ ml$$

where 50 ml sample size ÷ Thiosulfate Sample Volume from 5.3.34

Section volume of CSV trapped in gas bomb --

$$SV_G = \_\_\_\_\_\ ml\ (CSV) \cdot .01 = \_\_\_\_\_\ ml$$

where .01 = 100 ml gas bomb ÷ 10,000 ml volume of dilution

_____ _____
Station Health Physicist Date

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
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ENCLOSURE 5.5
POST-ACCIDENT CONTAINMENT AIR SAMPLING SHUTDOWN

Date/Time _____/_____ Unit _____

Check		Action
_____	5.5.1	Turn Selector switch (#9) to Off.
_____	5.5.2	Turn Radiation Monitor (#3) Off.
_____(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.

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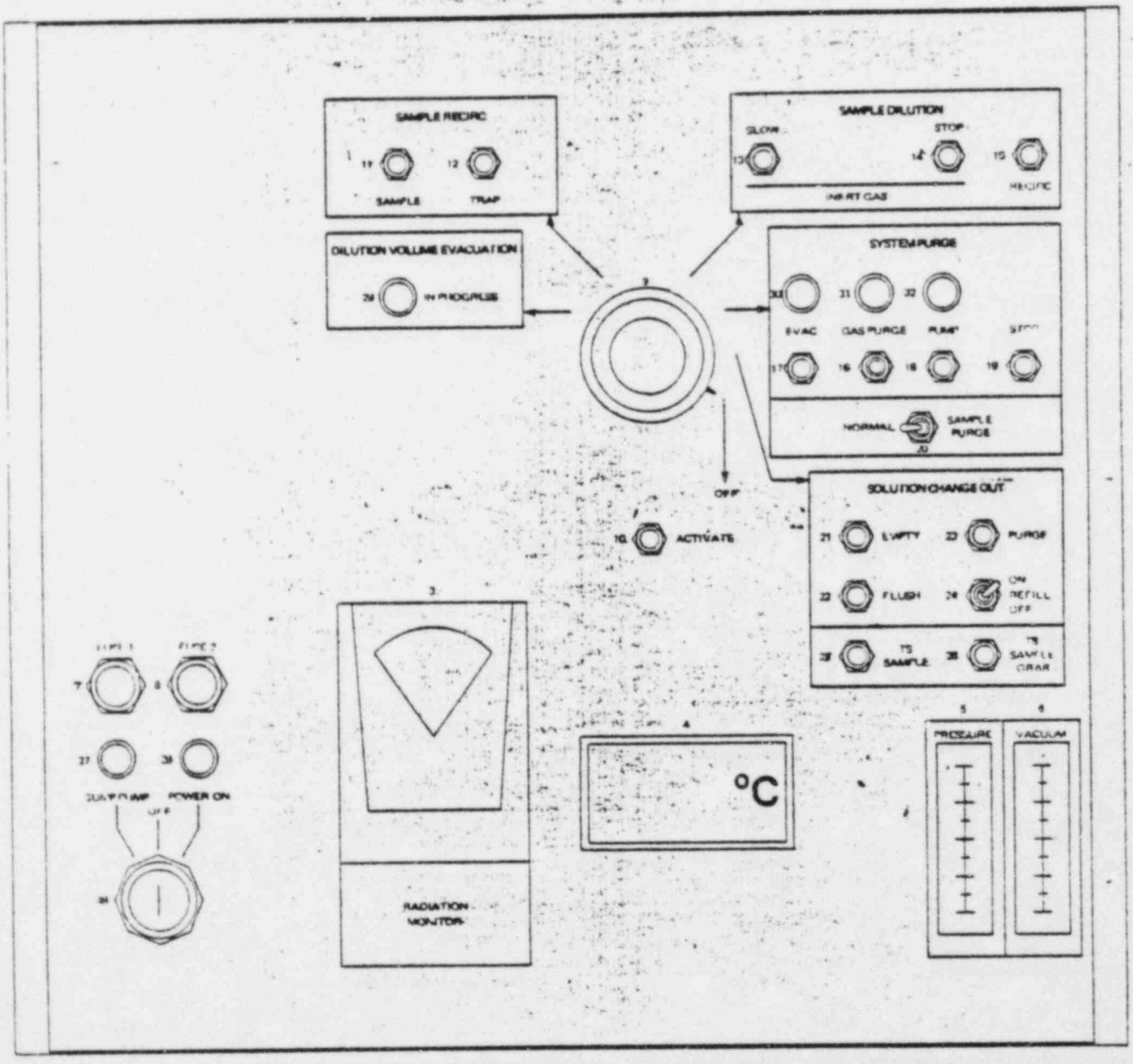
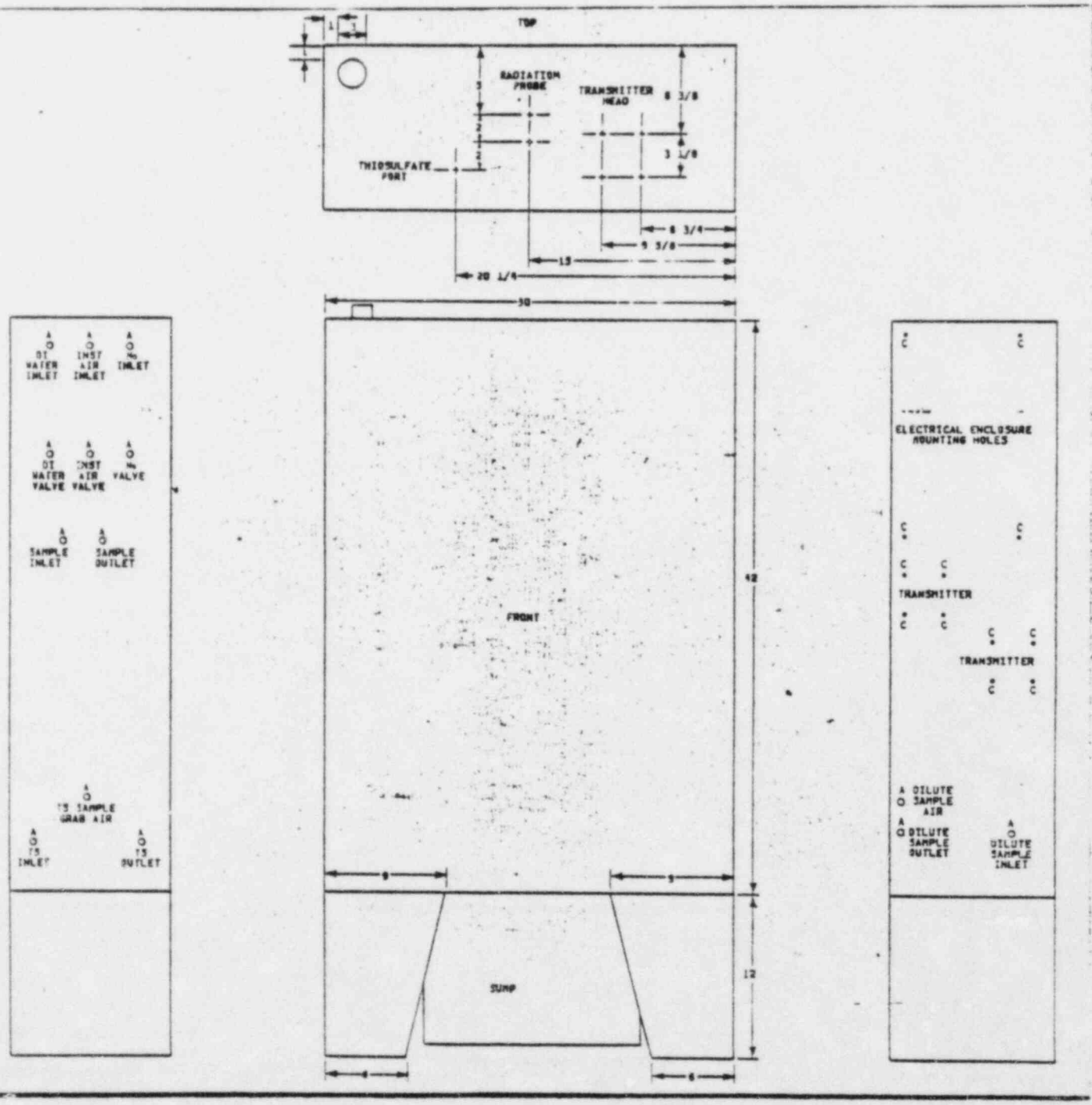
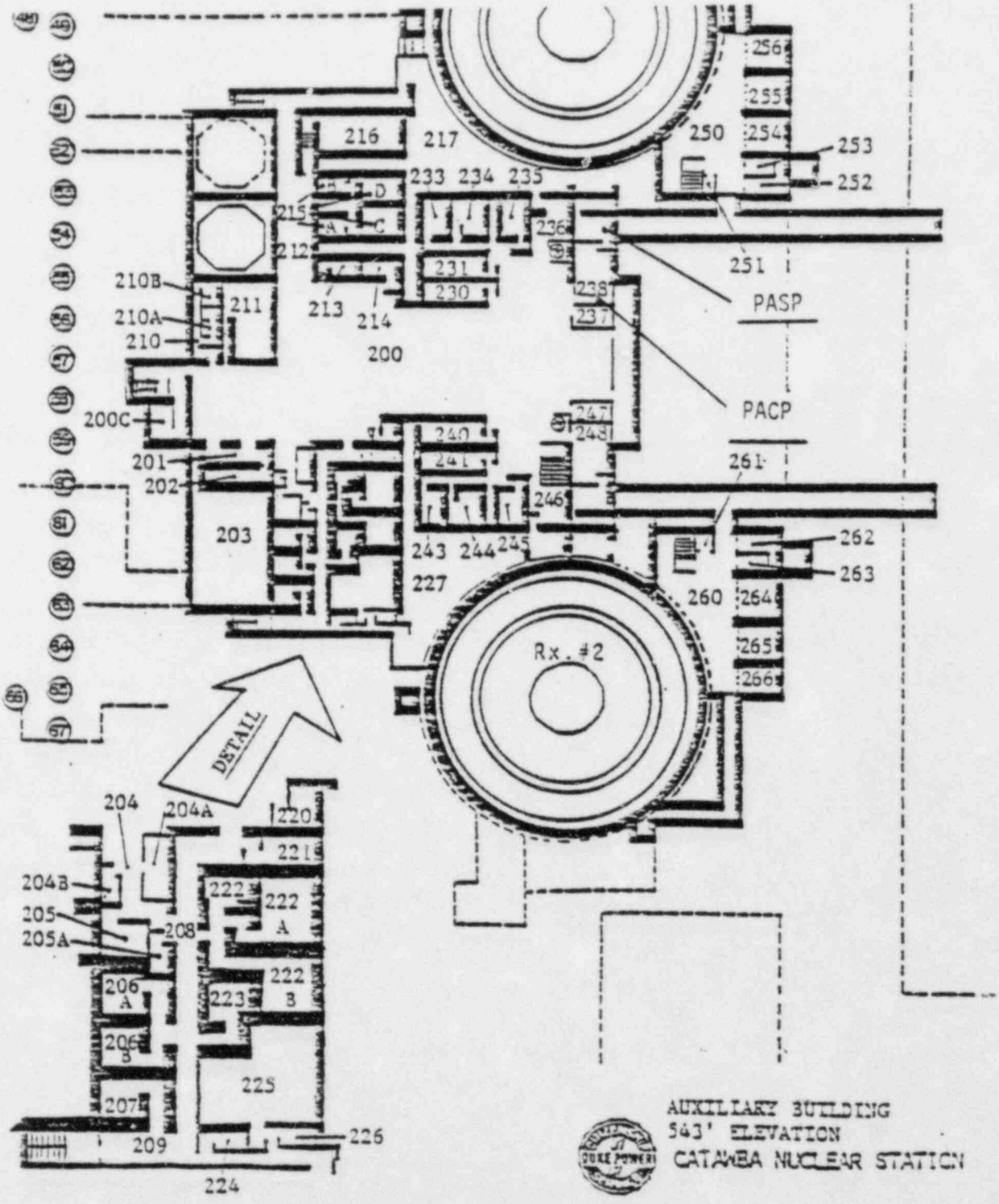
Enclosure 5.5
Post-Accident Containment Air Sampling Control Panel (PACP) Diagram



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



CATAWBA NUCLEAR STATION DIRECTIVE 3.8.4 (TS)

REV. NO. 6 DATE 2-7-84

APPROVAL [signature]

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.

4.2.5 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.

4.3 Technical Support Center Staff - The Technical Support Center (TSC), location shown in Enclosure 4, will be activated and staffed to support the control room and coordinate emergency and/or recovery efforts with offsite groups, corporate headquarters, state and local government and the NRC. The station operating staff is used as the TSC staff in the emergency situation as deemed necessary by the Emergency Coordinator. Individuals with a TSC function will have a routine function that is similar to their role in an emergency.

4.3.1 Operations Group:

A. 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 situations, and he shall augment his personnel resorces as necessary to accomplish this goal. He shall provide technical expertise to other members of the TSC and shall work closely with the Superintendent of Maintenance in restoring station equipment to an operational status during and after the emergency condition. This individual shall be the first alternate to the Emergency Coordinator in the event the Station Manager is unavailable.

B. The Operating Engineer shall assume the duties of the Superintendent of Operations when so designated. He will provide technical expertise to the Superintendent of Operations and other members of the TSC as required and maintain contact with Operations personnel in the Control Room.

C. 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 TSC as required and maintain contact with the Operations Supervisor in the Operations Support Center (OSC).

4.3.2 Technical Services Group:

A. The Superintendent of Technical Services shall assume the duties of the Station Manager when so designated. He will provide expertise to the Station Manager and the Shift Supervisor (via the Operating Engineer)

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.

The Data Analysis Coordinator shall also direct the Field Monitoring Coordinator as necessary to evaluate dose projections versus field data.

5. Field Monitoring Coordinator shall direct the actions of the field monitoring teams in gathering both on-site and off-site radiological data and make this information available to the Data Analysis Coordinator or Station Health Physicist. Constant communications will be maintained by a Radio Operator or by the use of plant or commercial telephone lines to the field teams.

C. 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 TSC as required. He is responsible for coordinating chemical technical support and for initiating necessary action to ensure 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.

D. 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 TSC as required. He will assure that adequate levels of technical and engineering manpower are available to: manage test procedure review, carryout special test procedures, insure control and accountability of special nuclear materials, and evaluate plant and reactor performance. A Test Engineer shall assist the Performance Engineer in the evaluation of plant systems and transmission of information to the CMC. A Performance Technician(s) will operate the TSC Operator Aid Computer Terminal to post and update plant status. This information will be transmitted through the VAX computer to other users. The Performance Engineer shall ensure that all areas under his supervision are staffed and prepared to manage Performance support for any emergency condition.

E. The Reactor Engineer shall assume the duties of the Performance Engineer when so designated. He will provide technical expertise to the Performance Engineer and to other members of the TSC 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.

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

the Superintendent of Administration and to other members of the TSC as required. She is responsible for coordinating and maintaining general adminstrative functions and for contacting the TSC clerk(s) as needed. The Administrative Coordinator shall ensure that all areas under her direction are staffed and prepared to manage administrative functions during any emergency condition.

D. 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 TSC as required. She is responsible for coordinating the station training and safety activities, Fire Protection and Medical Services in support of the emergency organization. The Station Safety group, under the direction of the Training and Safety Coordinator, shall coordinate Search and Rescue operations, with other station groups as necessary. 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.

4.3.4 Maintenance Group:

A. The Superintendent of Maintenance when designated, shall assume the duties of the Station Manager. He will provide technical expertise to the Station Manager and the Superintendent of Operations regarding solutions to operational problems. He shall provide technical expertise to other members of the TSC in areas of Mechanical Maintenance, Planning, Instrument and Electrical Maintenance, and Materials Support. He will insure 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 third alternate to the Emergency Coordinator in the event the Station Manager is unavailable.

B. 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 TSC as required. He is responsible for preventative and actual maintenance for all station mechanical equipment and facilities. The Mechanical Maintenance Engineer shall insure that all areas under his direction are staffed and prepared to manage maintenance support for any emergency condition.

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.

5.0 ACTIVATION OF EMERGENCY ORGANIZATION

5.1 Phased Activation of T.S.C. Organization

5.1.1 Selected station personnel are notified of situations classified as Unusual Events by Emergency Response Procedure, RP/0/A/5000/02. These individuals shall then respond as appropriate and shall notify any additional personnel in their organization to respond as needed. At the Alert class or greater, TSC activation is required, either full or partial as deemed necessary by the Station Manager.

5.1.2 To effectively respond to an emergency situation and to avoid unnecessary personnel from being activated, the TSC is divided into a Phase I and II organization, with other TSC personnel as needed. The Station Manager may activate Phase I separately or both Phase I and II jointly (Phase II is never activated without prior activation of Phase I).

5.2 Phase I of the Technical Support Center

5.2.1 Phase I of the Technical Support Center organization shall be staffed and organized as indicated below or as deemed necessary by the Station Manager.

NOTE: See Enclosure (1) for TSC organization.

5.2.2 Personnel assigned to Phase I of TSC shall be capable of supplementing the on-shift Emergency Response within 30 to 45 minutes of notification.

A. Station Manager/Emergency Coordinator
B. Group Superintendents
C. Station Health Physicist
D. Performance Engineer
E. Instrument and Electrical Engineer
F. Offsite Communicator
G. Fielding Monitoring Coordinator
H. Data Analysis Coordinator
I. S & C Coordinator
J. Support Coordinator
K. Test Engineer

5.2.3 In the event that the Technical Support Center becomes environmentally uninhabitable due to radiological or other conditions and the Control Room remains secure (habitable), Phase I of the T.S.C. shall move inside the Control Room area. In the event the Control Room also becomes uninhabitable due to radiological or other conditions, Phase I of the T.S.C. shall move to the Administration Building 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

clerks. Notification of this individual will be made by the Administrative Coordinator.

6.2 Food and beverage will be supplied to the T.S.C. and O.S.C. as appropriate for the time of day. After initial staffing of the T.S.C. and O.S.C., coffee and snack material will be provided by the Administrative group.

6.3 Station Fire Brigade

6.3.1 The fire brigade will have its normal functions of fire fighting in an emergency situation as needed.

6.3.2 Members of the fire brigade may also be called upon to perform search and rescue of personnel who may be unaccounted for as per Site Assembly/Evacuation Station Directive 3.0.7. Search and Rescue Teams can be supplemented by other station groups as appropriate, such as Health Physics and members of the missing persons work group.

6.3.3 In the event of an emergency requiring activitation of the Technical Support Center Phase I & II, the Station Fire Chief or his designee shall make frequent reports to the Training and Safety Coordinator regarding the status of any fires or emergency operations such as search and rescue.

6.3.4 The Station Fire Chief or his designee shall also coordinate and direct the services of any outside fire departments called upon to assist in fire fighting on station property.

6.4 Station Security

6.4.1 The security force will have its normal function of station security in an emergency situation.

6.4.2 In the event of an emergency requiring activation of the Technical Support Center Phase I & II, the Security Shift Lieutenant or his designee shall make frequent reports to the Chief of Security regarding the status of any security violations, threats or civil disturbances.

6.4.3 The Security Shift Lieutenant shall also coordinate and direct the services of any outside law enforcement agencies called upon to assist in an emergency situation.

6.4.4 The Security Shift Lieutenant shall inform the Chief of Security in the TSC of the status of Site Assembly/Evacuation.

6.5 Evacuation Coordinator

6.5.1 In the event of a site evacuation, the evacuation coordinator shall be the overall person in charge at the evacuation site.

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.

G. Search and Rescue to fire brigade and station safety.

H. Security training as part of Station Security Plan.

I. Fire Brigade Training as specified in Station Directive 2.11.2.

J. First Aid and Medical Support to Security, Safety and Health Physics.

7.4 Documentation

7.4.1 Records of training given shall include: a formal outline, any lesson plan, a class attendance, TSR-10 and all tests administered.

7.5 Drills

7.5.1 Practice drill sessions will be held for each group within the organization to allow the individuals to perform their assigned functions.

7.5.2 The drill instructor will make corrections of performance as needed, during the drill.

7.5.3 The drill scenario, participants names and evaluation will be documented and any deficiencies will be corrected.

8.0 ENCLOSURES

Enclosure (1) Technical Support Center Staff - Phase I & II

Enclosure (2) Technical Support Center Telephone Activation

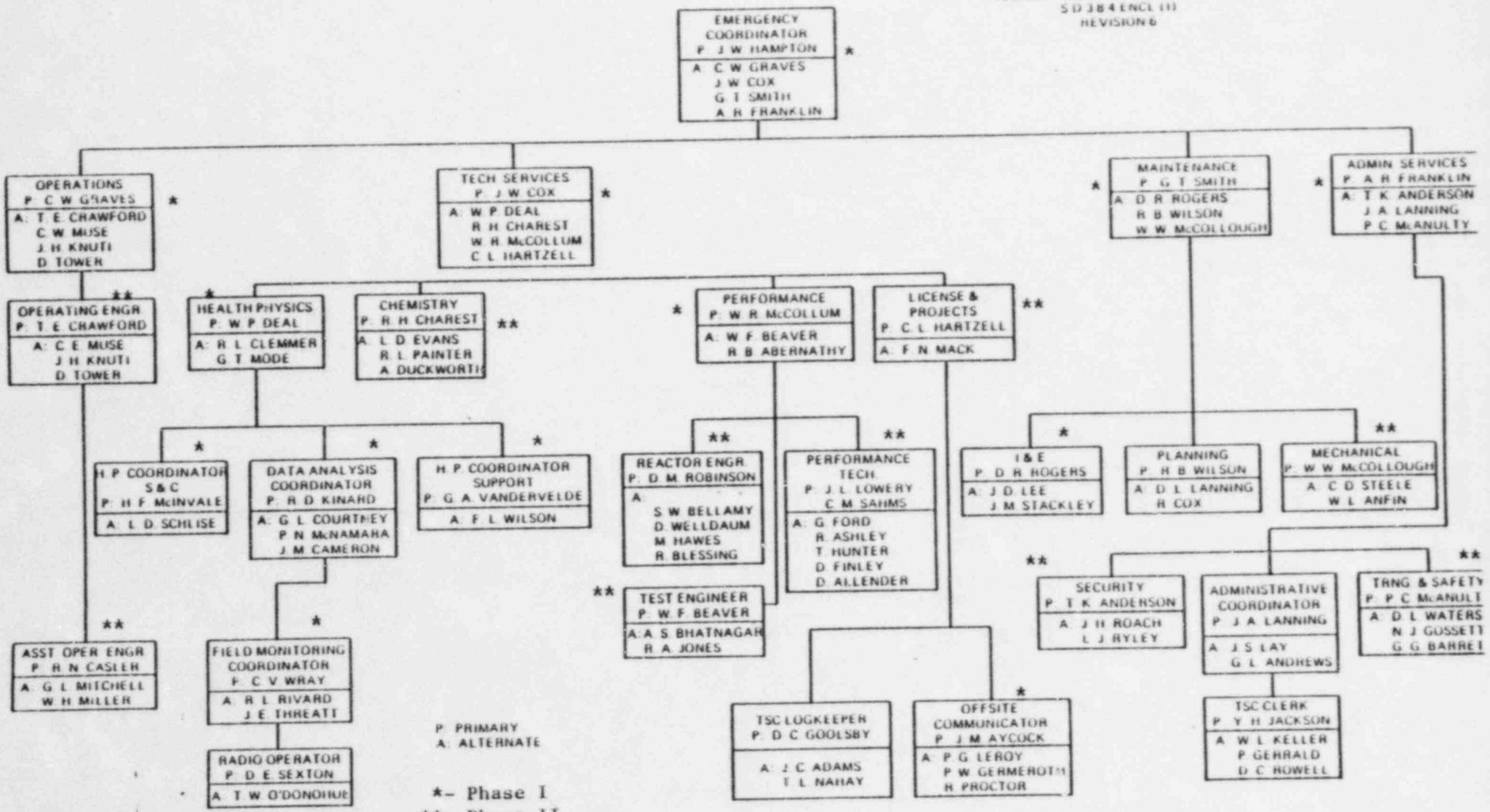
Enclosure (3) Operations Support Center Personnel

Enclosure (4) TSC Location

Enclosure (5) OSC Location

Enclosure (6) Evacuation Coordinator List

ONSITE EMERGENCY ORGANIZATION
TECHNICAL SUPPORT CENTER STAFF
S.D.384 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:	
		H:	
A:	C. W. Graves	O:	
		H:	
A:	J. W. Cox	O:	
		H:	
A:	G. T. Smith	O:	
		H:	
A:	A. R. Franklin	O:	
		H:	

Superintendent of Operations

P:	C. W. Graves	O:	
		H:	
A:	T. E. Crawford	O:	
		H:	
A:	C. E. Muse	O:	
		H:	
A:	J. H. Knuti	O:	
		H:	
A:	D. Tower	O:	
		H:	

Superintendent of Technical Service

P:	J. W. Cox	O:	
		H:	
A:	W. P. Deal	O:	
		H:	
A:	K. H. Charest	O:	
		H:	
A:	W. R. McCollum	O:	
		H:	
A:	C. L. Hartzell	O:	
		H:	

Superintendent of Adminsitration

P:	A. R. Franklin	O:	
		H:	
A:	T. K. Anderson	O:	
		H:	
A:	J. A. Lanning	O:	
		H:	
A:	P. McAnulty	O:	
		H:	

Superintendent of Maintenance

P:	G. T. Smith	O	
		H	
A:	D. R. Rogers	O	
		H	
A:	R. B. Wilson	O	
		H	
A:	W. W. McCollough	O	
		H	

NOTE P: Primary A: Alternate O: Office H: Home

ONSITE EMERGENCY ORGANIZATION
TELEPHONE ACTIVATION

All telephone number will be AREA CODE 803 unless otherwise noted.

Operating Engineer

P: T. E. Crawford O:
H:
A: C. E. Muse O:
H:
A: J. H. Knuti O:
H:
A: D. Tower O:
H:

Asst. Operating Engineer

P: R. N. Casler O:
H:
A: G. Mitchell O:
H:
A: W. H. Miller O:
H:

Health Physics

P: W. P. Deal O:
H:
A: R. L. Clemmer O:
H:
A: G. T. Mode O:
H:

Field Monitoring Coordinator

P: C. V. Wray O:
H:
A: R. L. Rivard O:
H:
A: J. E. Threatt O:
H:

Data Analysis Coordinator

P: R. D. Kinard O:
H:
A: G. L. Courtney O:
H:
A: P. N. McNamara O:
H:
A: J. M. Cameron O:
H:

H. P. Support Coodinator

P: G. A. Vandervelde O:
H:
A: F. L. Wilson O:
H:

Licensing & Projects Engineer

P: C. L. Hartzell O:
H:
A: F. N. Mack O:
H:

Chemistry

P: R. H. Charest O:
H:
A: L. D. Evans O:
H:
A: B. Painter O:
H:
A: A. Duckworth O:
H:

Performance Technician

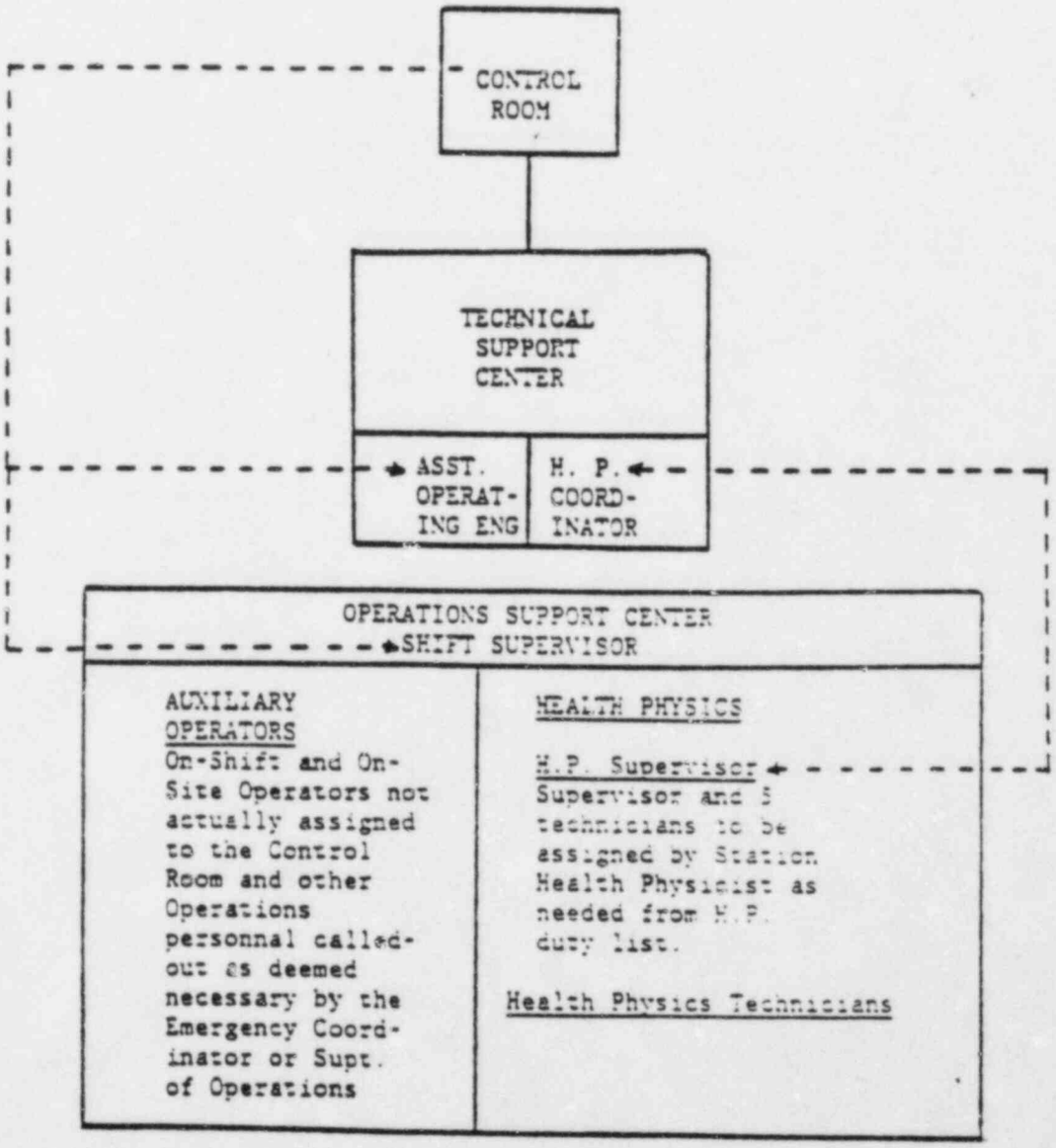
P: M. Sahms O:
H:
P: J. Lowery O:
H:
A: G. Ford O:
H:
A: R. Ashley O:
H:
A: T. Hunter O:
H:
A: D. Allender O:
H:

Performance Engineer

P: W. R. McCollum O:
H:
A: W. F. Beaver O:
H:
A: R. Abernathy O:
H:

ONSITE EMERGENCY ORGANIZATION

OPERATIONS SUPPORT CENTER



All telephone numbers will be AREA CODE 803 unless otherwise noted.

TSC Logkeeper

P: D. C. Goolsby O:
H:
A: J. Adams O:
H:
A: T. Nahay O:
H:

Offsite Communicator

P: J. M. Aycock O:
H:
P: P. G. LeRoy O:
H:
A: P. W. Germeroth O:
H:
A: R. Proctor O:
H:

Test Engineer

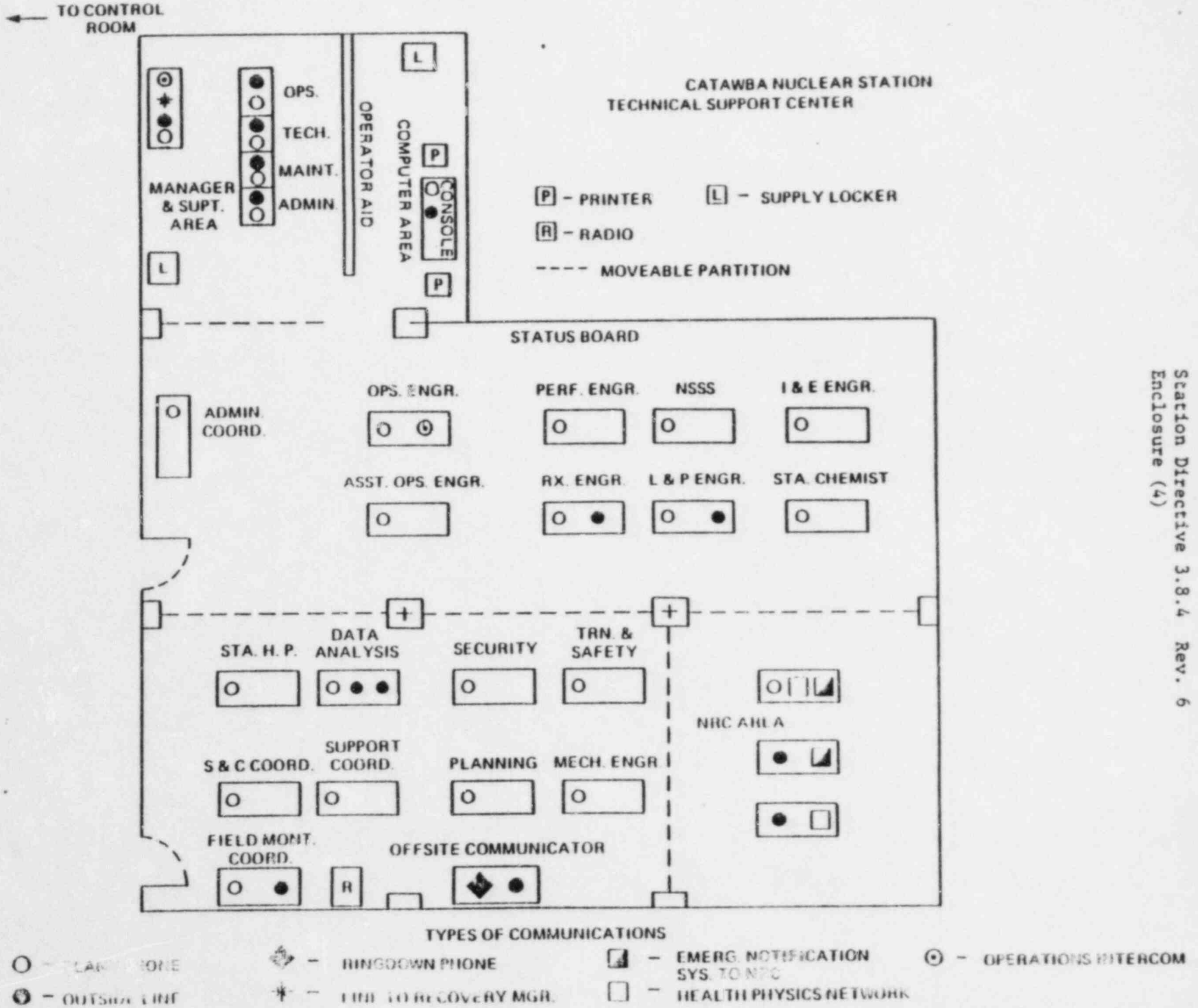
P: W. F. Beaver O:
H:
A: A. S. Bhatnagar O:
H:
A: R. A. Jones O:
H:

TSC Clerks

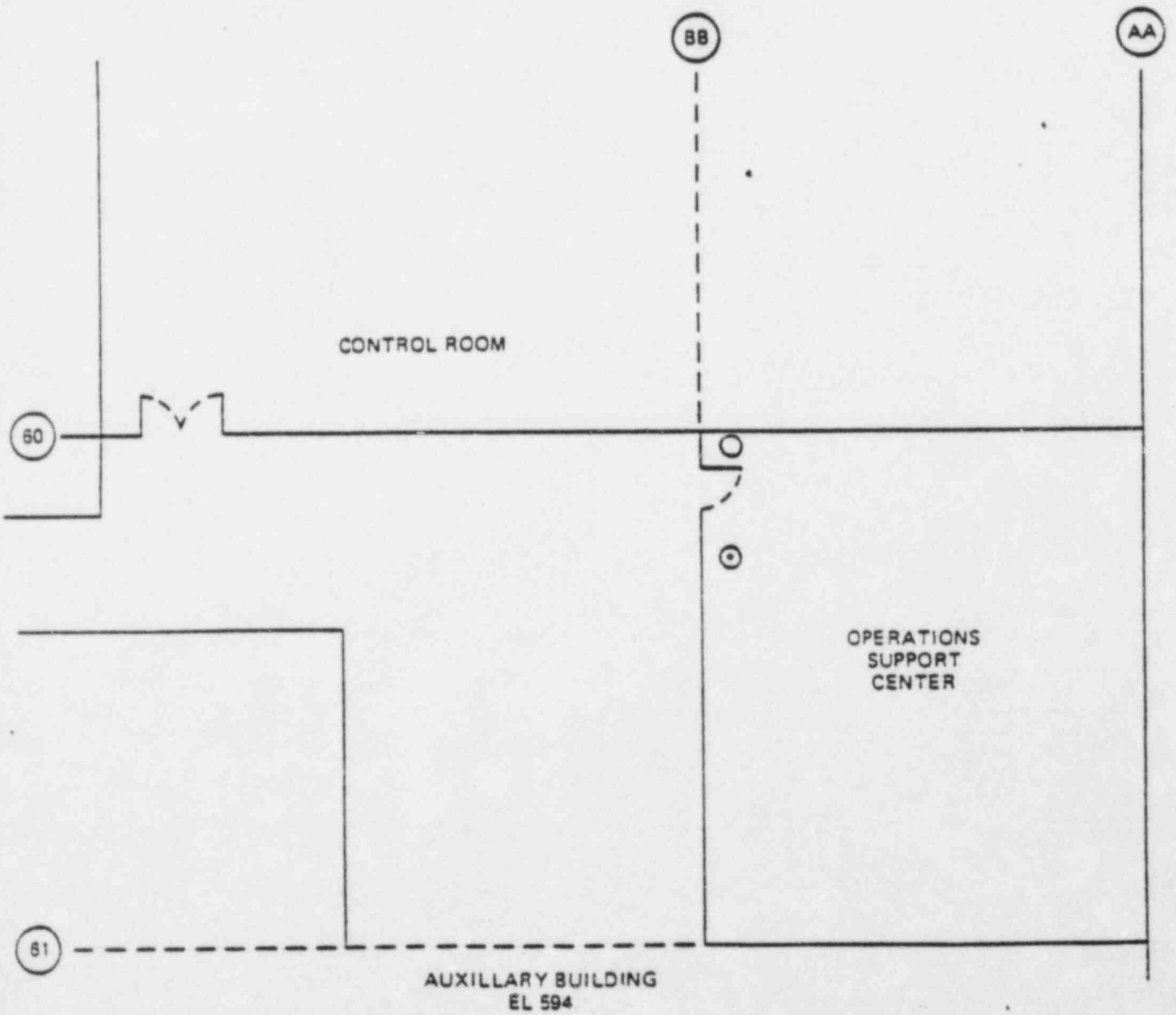
P: Y. Jackson O:
H:
A: W. Keller O:
H:
A: P. Gerrald O:
H:
A: D. Rowell O:
H:

H.P. Coordinator S&C

P: H. F. McInvale O:
H:
A: L. D. Schlise O:
H:


TO CONTROL ROOM
CATAWBA NUCLEAR STATION
TECHNICAL SUPPORT CENTER
OPS.
TECH.
MAINT.
ADMIN.
MANAGER & SUPT. AREA
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
- RINGDOWN PHONE
- EMERG. NOTIFICATION SYS. TO NRC
- OPERATIONS INTERCOM
- OUTSIDE LINE
- LINE TO RECOVERY MGR.
- HEALTH PHYSICS NETWORK

CATAWBA NUCLEAR STATION
OPERATIONS SUPPORT CENTER



ONSITE EMERGENCY ORGANIZATION

EVACUATION COORDINATOR

Primary:	C.L.Jensen	Office: [redacted]
		Beeper:
		Home:
Alternates:	R. M^{C}Elwee	Office:
		Beeper:
		Home:
	B.J.Moseley	Office:
		Beeper:
		Home:
	E.L.Feeser	Office:
		Beeper:
		Home:

CATAWBA NUCLEAR STATION DIRECTIVE 3.0.7 (TS)

REVISION NO. 2 DATE 2-7-84

APPROVAL

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 REFERENCES

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

4.0 PROCEDURE

4.1 Site Assembly

4.1.1 Events Initiating a Site Assembly

4.1.1.1 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.

4.1.1.2 Events Necessating a Site Assembly:

A. Emergency Classification

a. Alert, if plant conditions are rapidly degrading (opinion of Emergency Coordinator)

b. Site area Emergency

c. General Emergency

B. Other plant conditions could warrant a precautionary assembly/evacuation as determined by the Shift Supervisor/Emergency Coordinator.

C. Auxiliary Building radiation levels abnormally high, in areas where access is unrestricted

1. > 2 mr/hr
2. > 1 x 10^6 cpm airborne by EMF-41

4.1.2 Implementation

4.1.2.1 The Shift Supervisor/Emergency Coordinator shall announce the Site Assembly per RP/0/A/5000/10, Conducting A Site Assembly/ Evacuation.

4.1.2.2 Upon hearing the alarm and the announcement, all personnel shall report to their supervisors at predesignated assembly points as follows:

NOTE: The PAP is secured upon a Site Assembly; therefore, all non-essential station personnel shall go to either their primary (inside Security boundary) or secondary (outside Security boundary) assembly point.

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 Tra·ning Service	Document Control or DDP Room	Training Service Office Admin. Bldg.*
2) Safety/ ledical	Safety Office*	Training Service Office Admin. Bldg.
3) Security	Security Assembly Rm.*	Conf. Rm. #4 Admin. Bldg.
NOTE: Securit rsonnel 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.

Group		Primary Assembly Point	Secondary Assembly Point
D.	Maintenance (Continued)		
	2) I&E Craft	I&E Shop	Interface Room Admin. Bldg.
	I&E Staff	I&E Office Area*	Interface Room Admin. Bldg.
	3) Planning	Tool Issue*	Interface Room Admin. Bldg.
E.	Outage Coordination	Outage Coordination Office Area*	Conf. Rm #3 Admin. Bldg.
F.	QA	QA Office*	Admin. Bldg. Break Rm.
G.	Construction	See Const. Procedure 833	
H.	Support Groups (SMS, SSD, NSS)	High Rise Break Rm.*	Admin. Bldg. Brk. Rm.
I.	Model Group	Model Shop*	Conf. Rm.#4 Admin. Bldg.
J.	Owner's Group	Owner's Group Office*	Conf. Rm.#4 Admin. Bldg.
K.	CSEG	CSEG Office*	Conf. Rm.#4 Admin. Bldg.
L.	Community Relation	Control Room	Conf. Rm.#4 Admin. Bldg.
M.	NRC Residents & Staff	NRC Office High Rise*	Body Burden Room
N.	Visitors - Remain with escort or go to PAP if unescorted.		

NOTES

1. ***For a Bomb Threat personnel are to assemble in the station parking lots unless otherwise directed.***

2. Personnel who cannot report in person shall telephone to the assembly point as soon as possible.

3. Persons working in Radiation Control Areas in protective clothing should leave their work areas and go to the appropriate change room. In the change room, they should contact the appropriate persons as designated by 4.1.2.2 for personnel accountability reporting. Judgment should be used concerning the advisability of changing clothes and reporting to normal assembly areas.

4. Station Security shall be responsible for the accountability of visitors within the PAP.

5. If there are any radiological implications, any Health Physics escort shall take his/her visitor to PAP.

* Call to Security for the indicated group shall originate from this location.
** Accountability of personnel in classrooms shall be reported by their Instructor.

4.2.3.4 Upon hearing the Site Evacuation alarm and the announcement, all evacuating personnel shall be monitored at the PAP Construction Exits by HP personnel before proceeding to the location as announced.

4.2.3.5 Upon arrival at the Evacuation-Relocation Site, personnel shall remain as a group to be checked for possible contamination, where they shall be under the direction and control of the Evacuation Coordinator.

4.2.4 Securing from a Site Evacuation

4.2.4.1 When the emergency situation has been brought under control and when it has been determined that the evacuated personnel can return to their work location safely, the Evacuation Coordinator will be notified by either the Shift Supervisor/Emergency Coordinator or by the CMC Recovery Manager.

4.3 Training and Drills

4.3.1 All personnel with unescorted access to the station are given training on Site Assembly/Evacuation on an annual basis as part of the General Employee Training Program

4.3.2 Site Assembly drills will be conducted on a semi-annual basis to test the ability of personnel onsite to adequately respond in an emergency.

4.3.3 A Site Evacuation drill will be conducted once a year to coincide with the Station's Annual Emergency Exercise.

NOTE: The evacuation will be <u>simulated</u>, except for a small group of non-essential employees who will actually proceed to the Evacuation-Relocation Site.

4.1.4.3 All reporting organizations shall report on the status of their personnel at thirty (30) minute intervals in the same manner as the initial report.

4.1.5 Securing from a Site Assembly

4.1.5.1 When the emergency condition has been brought under control or when it has been determined that personnel can return to their work location safely, the all-clear message will be sounded by the Shift Supervisor.

4.2 Evacuation

4.2.1 Evacuation Coordination

4.2.1.1 Prior to a Site Evacuation the Shift Supervisor/ Emergency Coordinator shall notify the Evacuation Coordinator. He shall be the "individual-in-charge" at the Evacuation-Relocation Site. See Enclosure 6 of Catawba Nuclear Station Directive 3.8.4.

4.2.1.2 In the event of a Site Evacuation without the Evacuation Coordinator present, the most senior employee present shall assume the duties of the Evacuation Coordinator.

4.2.1.3 Information about the status of evacuation will be relayed to the Evacuation Coordinator who will dissimenate it to station personnel as necessary.

4.2.1.4 The Evacuation Coordinator will meet with York County Sheriff's Deputies or South Carolina Highway Patrol to lead the way to the chosen Evacuation-Relocation Site.

A. York County Sheriff Department .

B. S. C. Highway Patrol . . . . .

4.2.1.5 The Evacuation Coordinator or delegate will remain in touch with the station TSC or CMC and will direct the return of station personnel if needed or authorize the station personnel to go home as the situation warrants.

4.2.1.6 SLED Identification badges will be issued to those personnel who need them at the Evacuation Relocation Site.

4.2.2 Evacuation-Relocation Sites

4.2.2.1 Site "Alpha" - Duke Power Company Transmission Line Maintenance Warehouse on Parham Road (CR-54) (Enclosure 2)

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:

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:

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.

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.

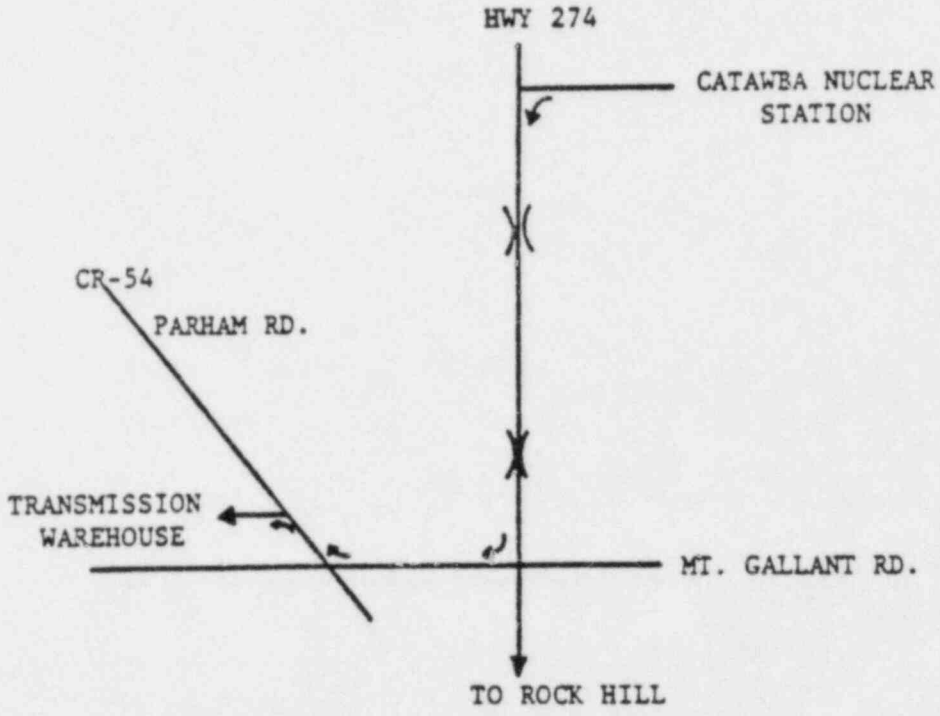
STATION DIRECTIVE 3.0.7 (TS)
ENCLOSURE 1

UNACCOUNTED FOR PERSONNEL

NAME	GROUP	SUPERVISOR	LAST KNOWN LOCATION	STATUS

CATAWBA NUCLEAR STATION
STATION DIRECTIVE 3.0.7 (TS)
ENCLOSURE 2

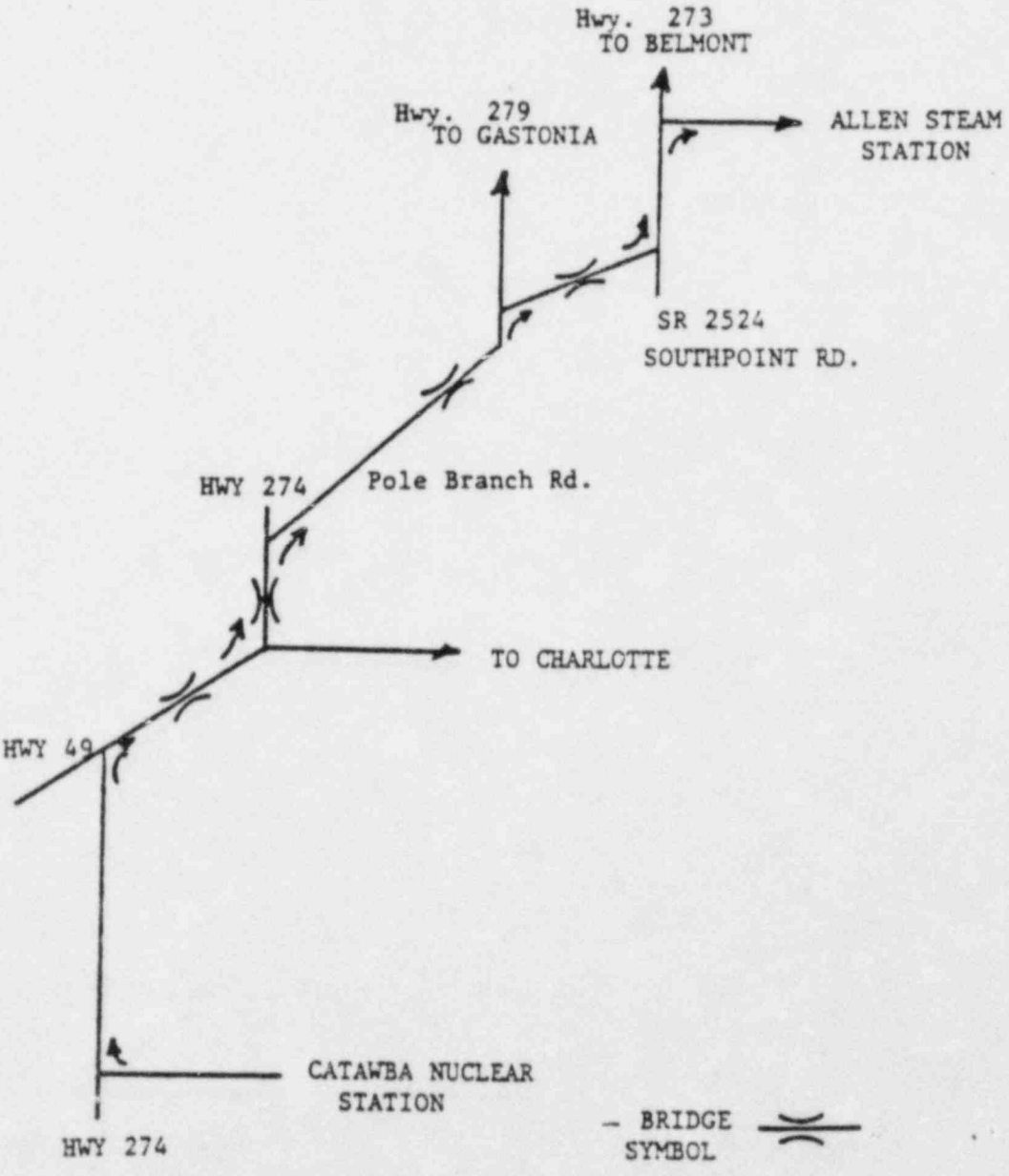
EVACUATION/RELOCATION SITE "ALPHA"
DUKL POWER CO. TRANSMISSION LINE WAREHOUSE
PARHAM ROAD (CR-54) YORK COUNTY



BRIDGE SYMBOL

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



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

March 21, 1984

50-413/414 Catawba

MEMORANDUM FOR: Chief, Document Management Branch, TIDC

FROM: Director, Division of Rules and Records, ADM

SUBJECT: REVIEW OF UTILITY EMERGENCY PLAN DOCUMENTATION

The Division of Rules and Records has reviewed the attached document and has determined that it may now be made publicly available.

J. M. Felton, Director
Division of Rules and Records
Office of Administration

Attachment: As stated

DUKE POWER COMPANY
P.O. BOX 33189
CHARLOTTE, N.C. 28242

HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

TELEPHONE
(704) 373-4531

March 12, 1984

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

Dear Sir:

Enclosed for NRC staff use and review are two copies of the latest revision to the following Catawba Nuclear Station Emergency Plan Implementing Procedures:

1. RP/0/A/5000/02
2. RP/0/A/5000/03
3. RP/0/A/5000/04
4. RP/0/A/5000/05
5. RP/0/A/5000/10
6. RP/0/A/5000/11
7. RP/0/B/5000/12
8. HP/0/B/1000/06
9. HP/0/B/1009/04
10. HP/0/B/1009/05
11. HP/0/B/1009/06
12. HP/0/B/1009/07
13. HP/0/B/1009/08
14. HP/0/B/1009/09
15. HP/0/B/1009/13
16. HP/0/B/1009/14
17. HP/0/B/1009/15
18. HP/0/B/1009/16
19. HP/1/B/1009/17

Please delete privacy material in the form of personal telephone numbers prior to placing any material in the public document room, specifically:

1. RP/0/A/5000/02, Enclosure 4.1
2. RP/0/A/5000/03, Enclosure 4.1
3. RP/0/A/5000/04, Enclosure 4.1
4. RP/0/A/5000/05, Enclosure 4.1
5. HP/0/B/1009/04, Enclosure 5.7
6. HP/0/B/1009/08, Enclosure 5.16

X005
1/2

These revisions are being submitted in accordance with 10 CFR 50.54(q) and do not decrease the effectiveness of the Emergency Plan Implementing Procedures.

By copy of this letter, one copy of each of the above documents is being provided to the NRC, Region II.

Very truly yours,

Hal B. Tucker

RWO/php

Enclosures

cc: (w/enclosure)
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 enclosure)
NRC Resident Inspector
Catawba Nuclear Station

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