Duke Power
A Duke Energy Company

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January 24, 2000

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

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

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

HP/0/B/1000/006, Emergency Equipment Functional Check and Inventory (Rev. 053)

HP/0/B/1009/004 Environmental Monitoring for Emergency Conditions within the Ten Mile Radius of CNS (Rev. 027)

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

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

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

Very truly yours,

Gary R. Peterson

Attachments

A045

xc (w/attachments):

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

(w/o attachments):

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Catawba Nuclear Site

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURES INDEX

VOLUME I

PROCEDURE	TITLE
RP/0/A/5000/001	Classification of Emergency (Rev. 012)
RP/0/A/5000/002	Notification of Unusual Event (Rev. 032)
RP/0/A/5000/003	Alert (Rev. 034)
RP/0/A/5000/004	Site Area Emergency (Rev. 035)
RP/0/A/5000/005	General Emergency (Rev. 036)
RP/0/A/5000/06	Deleted
RP/0/A/5000/006 A	Notifications to States and Counties from the Control Room (Rev. 010)
RP/0/A/5000/006 B	Notifications to States and Counties from the Technical Support Center (Rev. 010)
RP/0/A/5000/006 C	Notifications to States and Counties from the Emergency Operations Facility (Rev. 010)
RP/0/A/5000/007	Natural Disaster and Earthquake (Rev. 016)
RP/0/A/5000/08	Deleted
RP/0/B/5000/008	Spill Response (Rev. 015)
RP/0/A/5000/009	Collision/Explosion (Rev. 005)
RP/0/A/5000/010	Conducting A Site Assembly or Preparing the Site for an Evacuation (Rev. 013)
RP/0/A/5000/11	Deleted
RP/0/B/5000/12	Deleted
RP/0/B/5000/013	NRC Notification Requirements (Rev. 023)
RP/0/B/5000/14	Deleted
RP/0/A/5000/015	Core Damage Assessment (Rev. 004)
RP/0/B/5000/016	Deleted
RP/0/B/5000/17	Deleted

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURES INDEX

VOLUME I

PROCEDURE	TITLE
RP/0/A/5000/018	Emergency Worker Dose Extension (1/15/96)
RP/0/B/5000/019	Deleted
RP/0/A/5000/020	Technical Support Center (TSC) Activation Procedure (Rev. 012)
RP/0/A/5000/021	Deleted
RP/0/B/5000/022	Evacuation Coordinator Procedure (Rev. 003)
RP/0/B/5000/023	Deleted
RP/0/A/5000/024	OSC Activation Procedure (Rev. 006)
RP/0/B/5000/025	Recovery and Reentry Procedure (Rev. 002)
RP/0/B/5000/026	Response to Bomb Threat (5/30/96)
RP/0/B/5000/028	Communications and Community Relations EnergyQuest Emergency Response Plan (Rev. 000)

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURES INDEX

VOLUME II

PROCEDURE	TITLE
HP/0/B/1000/006	Emergency Equipment Functional Check and Inventory (Rev. 053)
HP/0/B/1009/001	Radiation Protection Recovery Plan (Rev. 007)
HP/0/B/1009/003	Radiation Protection Response Following a Primary to Secondary Leak (Rev. 008)
HP/0/B/1009/004	Environmental Monitoring for Emergency Conditions Within the Ten-Mile Radius of CNS (Rev. 027)
HP/0/B/1009/005	Personnel/Vehicle Monitoring for Emergency Conditions (Rev. 016)
HP/0/B/1009/006	Alternative Method for Determining Dose Rate Within the Reactor Building (Rev. 008)
HP/0/B/1009/007	In-Plant Particulate and Iodine Monitoring Under Accident Conditions (Rev. 018)
HP/0/B/1009/008	Contamination Control During Transportation of Contaminated Injured Individuals (Rev. 014)
HP/0/B/1009/009	Guidelines for Accident and Emergency Response (Rev. 038)
HP/0/B/1009/014	Radiation Protection Actions Following an Uncontrolled Release of Radioactive Material (Rev. 008)
HP/0/B/1009/016	Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release (Rev. 010)
HP/0/B/1009/017	Deleted
HP/1/B/1009/017	Post-Accident Containment Air Sampling System (Rev. 001)
HP/2/B/1009/017	Post-Accident Containment Air Sampling System (Rev. 000)
HP/0/B/1009/018	Deleted
HP/0/B/1009/019	Emergency Radio System Operation, Maintenance and Communication (Rev. 010)
HP/0/B/1009/024	Implementing Procedure for Estimating Food Chain Doses Under Post-Accident Conditions (Rev. 002)

DUKE POWER COMPANY
CATAWBA NUCLEAR STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURES INDEX

VOLUME II

PROCEDURE	TITLE
HP/0/B/1009/025	Deleted
HP/0/B/1009/026	On-Shift Offsite Dose Projections (Rev. 002)
SH/0/B/2005/001	Emergency Response Offsite Dose Projections (Rev. 000)
SH/0/B/2005/002	Protocol for the Field Monitoring Coordinator During Emergency Conditions (Rev. 000)
OP/0/A/6200/021	Operating Procedure for Post Accident Liquid Sampling System II+ (Rev. 031)
SR/0/B/2000/001	Standard Procedure for Public Affairs Response to the Emergency Response Facility (Rev. 001)
SR/0/B/2000/002	Standard Procedure for EOF Commodities and Facilities (Rev. 0)
SR/0/B/2000/003	Activation of the Emergency Operations Facility (Rev. 003)

(R06-97)

Duke Power Company
PROCEDURE PROCESS RECORD

(1) ID No. HP/0/B/1000/006
Revision No. 053

PREPARATION

(2) Station Catawba

(3) Procedure Title Emergency Equipment Functional Check and Inventory

(4) Prepared By D W Bampinger Date 12/21/1999

(5) Requires 10CFR50.59 evaluation?

☑ Yes (New procedure or revision with major changes)

☐ No (Revision with minor changes)

☐ No (To incorporate previously approved changes)

(6) Reviewed By David T. Pagoon (QR) Date 12/29/99

Cross-Disciplinary Review By Gary L Mitchell (QR) NA ____ Date 12/29/99

Reactivity Mgmt. Review By _____ (QR) NA DD Date 12/29/99

(7) Additional Reviews

Reviewed By _____ Date _____

Reviewed By _____ Date _____

(8) Temporary Approval (*if necessary*)

By _____ (SRO/QR) Date _____

By _____ (QR) Date _____

(9) Approved By Michael J Boyle Date 1/4/00

PERFORMANCE (Compare with Control Copy every 14 calendar days while work is being performed.)

(10) Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

(11) Date(s) Performed _____

Work Order Number (WO#) _____

COMPLETION

(12) Procedure Completion Verification

☐ Yes ☐ NA Check lists and/or blanks initialed, signed, dated, or filled in NA, as appropriate?

☐ Yes ☐ NA Listed enclosures attached?

☐ Yes ☐ NA Data sheets attached, completed, dated, and signed?

☐ Yes ☐ NA Charts, graphs, etc. attached, dated, identified, and marked?

☐ Yes ☐ NA Procedure requirements met?

Verified By _____ Date _____

(13) Procedure Completion Approved _____ Date _____

(14) Remarks (*Attach additional pages, if necessary.*)

Duke Power Company Catawba Nuclear Station	Procedure No. **HP/0/B/1000/006**
Emergency Equipment Functional Check and Inventory	Revision No. 053
Multiple Use	Electronic Reference No. CN005CPJ

Emergency Equipment Functional Check and Inventory

Reference Use

1. Purpose

To verify availability and readiness of Radiation Protection (RP) emergency response equipment.

2. References

2.1 HP/0/B/1003/022 - Inservice Radiation Protection Instrument Source Check

2.2 HP/0/B/1005/008 - Radiological Respirators

2.3 HP/0/B/1009/019 - Emergency Radio System Operations, Maintenance and Communication

2.4 Nuclear Policy Manual-Nuclear Site Directive 702 Records Management

2.5 Maintenance of Silver Zeolite Air Sampling Cartridges Letter; File: CN-768.01

2.6 Shelf-Life of Health Physics Clothing; File: CN-766.00

3. Limits and Precautions

None

4. Procedure

NOTE:
- Staff Support Scientist or designated Qualified Reviewer may authorize operation outside the scope and acceptance criteria stated in this procedure provided the technical basis and impact to existing procedure 10 CFR 50.59 evaluation is clearly documented on applicable paperwork.
- **IF** original 10 CFR 50.59 evaluation is affected, another evaluation must be performed.

4.1 Emergency kit inventory requirements

4.1.1 Perform an inventory whenever kit contents may be compromised; (e.g., items used for drills or during Emergency Response Organization (ERO) activation).

NOTE:
- RP personnel using emergency kit items are responsible for completing a kit inventory and ensuring that items are replaced as necessary.
- RP personnel using off-site kit items are responsible for inventory and restocking as soon as practical after use; (e.g., Piedmont Medical Center medical response).
- RP personnel performing inventory of emergency kits may perform procedure steps in any sequence to successfully complete an inventory.

4.1.2 Return or replace equipment removed from emergency kit(s) within twenty-four hours following termination of an event.

- **IF** items can not be replaced or restocked in a kit, document the results on Enclosure 5.16 (Emergency Equipment Deviation Notification Record).

4.1.3 Perform a minimum emergency kit inventory following use.

- Replace used, mutilated or damaged procedure(s) or enclosure(s) with Control Copy(s).
- Verify equipment is stored in operable condition; (e.g., survey meters and/or protective clothing is not returned to kit in a damaged condition).
- Verify battery equipment is turned off before placing item in storage.
- Verify items against kit enclosure list of contents using applicable enclosure 5.4 through 5.13; respective to the kit being inventoried

4.1.4 Document results using Enclosure 5.14 (Emergency Kit Inventory Record).

- Replace kit tamper seal.

Information Use

4.2 Emergency kit enclosures

4.2.1 Use Enclosure 5.1 (Emergency Kit Storage Location) to determine location of kit(s).

4.2.2 Use Enclosure 5.2 (Emergency Kit Inspection Record) to document quarterly inventories.

4.2.3 Use Enclosure 5.3 (Emergency Kit Procedure Record) to document Control Copy(s) procedures maintained in kits.

4.2.4 Use Enclosures 5.4 through 5.13 (Emergency Kit List of Contents) to determine items maintained in each kit.

4.2.5 Use Enclosure 5.14 (Emergency Kit Inventory Record) to document results of each kit inventory.

4.2.6 Use Enclosure 5.15 (Recommended Shelf-life for Protective Clothing) to determine requirement for replacing protective clothing in kits.

4.2.7 Use Enclosure 5.16 (Emergency Equipment Deviation Notification Record) to document emergency kit deviations.

4.2.8 Use Enclosure 5.17 (Quarterly Field Team Radio / Cellular Phone Check Record) to document results of radio and cellular phone checks.

Reference Use

NOTE:
- Emergency response kits with a tamper seal that remains intact between the quarterly inspection may provide a satisfactory substitute for a complete inventory of all kit contents; however, a minimum inventory of each kit is to be performed at least once per quarter.
- A complete inventory is performed by ensuring that equipment is inspected and inventoried per all requirements of steps in Section 4.3.

4.3 Quarterly emergency kit inventory

4.3.1 Use Enclosure 5.2 to determine quarterly kit inspection requirements.

4.3.2 Use Enclosure 5.3 to verify emergency kit procedures.

- Ensure current Control Copy(s) are in kits.
- Record at least procedure revision number, and/or approval date on Enclosure 5.3.

4.3.3 Perform quarterly inventory of each respective emergency kit using applicable Enclosure 5.4 through 5.12 (Emergency Kit List of Contents).

- **IF** the Fuel Transfer Kit is required use Enclosure 5.13 (Fuel Transfer Kit List of Contents) to assemble items for the kit.

4.3.4 Ensure portable survey instruments are available and acceptable for use.

- Perform instrument source check in accordance with HP/0/B/1003/022 (Inservice Radiation Protection Instrument Source Check).
- Inspect instrument for physical damage that could affect operation.
- Verify instrument calibration sticker indicates instrument has been calibrated within past six months.

4.3.5 Ensure air samplers are ready and acceptable for use.

- Inspect sampler for physical damage that could affect operation.
- Verify air sampler operates when plugged into an electrical outlet.
- Verify calibration sticker indicates sampler has been calibrated within past six months.

4.3.6 Ensure emergency kit batteries acceptable for use.

- Verify battery tester needle indicates "good" when batteries are tested.
- Inspect batteries for acceptable physical condition, (e.g., no dents or corrosion).

4.3.7 Inspect the following emergency kit items:

- Inspect battery operated equipment; (e.g., flashlights and self-reading pocket dosimeter chargers have no corrosion) and the bulbs in battery operated equipment illuminate properly.
- Inspect Silver Zeolite, or equivalent type cartridge, manufacture packet to ensure it is sealed and that cartridges are not damaged in accordance with Maintenance of Silver Zeolite Air Sampling Cartridges Letter (File: CN-768.01).
- Inspect protective clothing to ensure it has not exceeded Enclosure 5.15 (Recommended Shelf-life for Protective Clothing) in accordance with Shelf Life of Health Physics Clothing (File: CN-766.00).

Information Use

NOTE: Leak/source check of Pocket Dosimeters (PD's) is performed at least semi-annually by Respiratory Instrument Calibration (RIC).

- Replace PD's in designated emergency kits.
- Return PD's removed from kits to DRC.

NOTE: Duke General Office TLD Laboratory provides Thermoluminescent Dosimeters (TLD's) to Catawba Dosimetry Records Control (DRC) at least quarterly.

- Replace TLD's in kits, including control TLD's issued by DRC.
- Return TLD's removed from kits to DRC.

NOTE: ESP-2 check sources exceeding manufacturer expiration date are analyzed using count room Multi-Channel Analyzer (MCA) equipment to verify (Ba-133) source decay.

- Inspect emergency kit instrument sources and notify RP Staff Scientist of any sources that may be damaged or require a count room analysis.

Reference Use

NOTE:
- Respiratory equipment is inspected and maintained by RIC work group using HP/0/B/1005/008 (Radiological Respirators).
- Replacement or alteration of emergency kit respiratory equipment is per direction of emergency response RP Staff Scientist and RIC.

4.4 Emergency kit respirator inspection

4.4.1 Verify respiratory equipment in emergency kits is acceptable for use.

- Ensure there is no physical damage or deformation of respiratory masks.
- Ensure minimum of twenty-two particulate masks, some of each size, are available in the Emergency Kit Storage Room.
- Ensure minimum of twenty-two GMRI canisters or equivalent, not exceeding expiration date, are available in designated emergency Kits.

4.4.2 Order replacement GMRI canisters prior to the expiration date (e.g., normally a procurement order is placed within two months of expiration date).

4.4.3 Ensure a minimum of ten particulate masks, some of each size, and GMRI canisters or equivalent not exceeding expiration date, are available in Operations Support Center Kit.

NOTE: KI tablets are normally shipped in bottles with a label that has a factory lot number and expiration date.

4.5 Inspection and replacement of Potassium Iodide (KI) tablets in emergency kits

4.5.1 Inspect bottles of KI tablets for expiration date.

4.5.2 Maintain a minimum of 1000 bottles (14 tablets per bottle) of KI onsite.

- Store in a low humidity location (avoid direct exposure to liquids).
- Store in a location protected from exposure to light.

4.5.3 Order replacement tablets prior to expiration date; (e.g., normally a procurement order is placed within two months of expiration date).

4.5.4 Upon receipt of a shipment of new KI tablets:

A. Open boxes as soon as practical and inspect contents.

B. Exchange existing supplies of KI tablets to ensure adequate supply of new KI tablets.

C. Discard KI tablets after they have exceeded the factory expiration date.

4.6 Emergency kit inventory record

4.6.1 Maintain Enclosure 5.14 (Emergency Kit Inventory Record) with each respective emergency kit, as necessary.

NOTE: Enclosure(s) 5.14 removed from kits are maintained in Emergency Equipment Inventory Logbook.

4.6.2 Maintain Enclosure 5.14 with each respective emergency kit as a record of the kit inventory.

4.6.3 Complete and sign Enclosure 5.14 after each kit inventory.

Information Use

4.7 Emergency kit deviations

4.7.1 Document emergency kit deviations on Enclosure 5.16 (Emergency Equipment Deviation Notification Record).

NOTE: An emergency kit deviation may be equipment that does not meet inspection criteria; and/or items that cannot be restocked within twenty four hours, and/or any condition that degrades equipment reliability or compromises operable condition of a kit or its contents.

4.7.2 Re-inventory emergency kits found with items missing and/or seals removed to ensure that all kit contents are restored to operable requirements.

4.7.3 Use Enclosure 5.16 to document corrective action(s) that remedy a deviation.

4.7.4 Route Enclosure 5.16 to emergency response support RP Staff Scientist and Radiation Protection Manager (RPM) or designee, for signature.

- Retain completed Enclosure(s) 5.16 in Emergency Equipment Inventory Logbook.

Reference Use

4.8 Field Monitor Team (FMT) radio check

4.8.1 Perform quarterly check of Field Monitor Team (FMT) radios and Technical Support Center (TSC) base station radio in accordance with HP/0/B/1009/019 (Emergency Radio System Operations, Maintenance and Communication).

NOTE:
- A radio identifier call sign for high band radio frequency is automatically transmitted when keying a high band FMT radio.
- Onsite portable radio-to-radio check may be used to verify operability after repair of radio equipment; (e.g., prior to returning FMT radios into service).

4.8.2 Check FMT sample van radios and portable radios at a distance approximately five to ten miles from the plant.

4.8.3 Verify each FMT radio transmits and receives a message.

- Communicate from TSC base station to each portable radio.

- Communicate from each portable radio to base station.

4.8.4 Remove inoperable radios from service.

- IF replacement and/or repair of FMT radios is necessary contact Catawba communications Single Point Of Contact (SPOC).

4.8.5 Record results of radio check in comments section of Enclosure 5.17 (Quarterly Field Team Radio / Cellular Phone Check Record).

- Use radio identifier number engraved on hand held portable radios

4.9 Operability check of FMT cellular telephone

4.9.1 Verify telephones are acceptable for use by initiating a phone call.

- Test each telephone by receiving a call.

4.9.2 Charge cellular telephone battery(s).

- Plug battery into the charger for at least twelve hours.
- Remove battery after charge.
- Store battery(s) and portable cellular telephones in Emergency Kit Room.

4.9.3 Remove inoperable cellular phones from service.

- IF replacement or repair of FMT cellular telephone equipment is necessary contact Catawba Emergency Planning.

4.9.4 Record results of cellular phone check in comments section of Enclosure 5.17.

4.10 Retention requirement for emergency kit enclosures and records

- Retain Enclosure 5.14 with each kit for at least one year.
- Retain Enclosures 5.2, 5.3, 5.16, and 5.17 in Emergency Equipment Inventory Logbook for at least one year.
- Forward emergency kit inspection records to Document Management for microfilming in accordance with Nuclear Policy Manual-Nuclear Site Directive 702 Records Management.

5. Enclosures

5.1 Emergency Kit Storage Location

5.2 Emergency Kit Inspection Record

5.3 Emergency Kit Procedure Record

5.4 Recovery Kit List of Contents

5.5 Emergency Sample Van Survey Kit List of Contents

5.6 Emergency Survey Teams Vehicle Survey Kit List of Contents

5.7 Personnel Survey Kit List of Contents (Security PAP Area)

5.8 Personnel Survey Kit List of Contents (Evacuation Facility)

5.9 Emergency Medical Kit List of Contents (First Aid Room)

5.10 Emergency Medical Kit List of Contents Piedmont Medical Center (PMC)

5.11 Operations Support Center Kit List of Contents

5.12 Technical Support Center Kit List of Contents

5.13 Fuel Transfer Kit List of Contents

5.14 Emergency Kit Inventory Record

5.15 Recommended Shelf-life for Protective Clothing

5.16 Emergency Equipment Deviation Notification Record

5.17 Quarterly Field Team Radio / Cellular Phone Check Record

Enclosure 5.1

Emergency Kit Storage Location

Information Use

NOTE:
1. Emergency Sample Van kits containing battery operated equipment are stored in the Emergency Kit Room in Administration Building Room 148.
2. Recovery Kits for Newport (Evacuation Site Alpha) and Plant Allen (Evacuation Site Bravo) are stored in the Emergency Kit Room in Administration Building Room 148.
3. **IF** required, assemble and inventory Fuel Transfer Kit on an as needed basis.

Type of Emergency Kit	**(Number of Kits)**	**Emergency Kit storage location**
Emergency Sample Van & kit room trunk (NOTE 1)	(2 kits):	Admin. assigned parking space
Emergency Survey Team Vehicle Survey Kit	(2 kits):	Admin. Building Rm. 148
Recovery Kit Evacuation Facilities Alpha (NOTE 2)	(1 kit):	Admin. Building Rm. 148
Recovery Kit Evacuation Facilities Bravo (NOTE 2)	(1 kit):	Admin. Building Rm. 148
Recovery Kit Security Pap Area	(1 kit):	Admin. Building Rm. 148
Fuel Transfer Kit (NOTE 3)	(1 kit):	Admin. Building Rm. 148
Personnel Survey Kit Security Pap Area	(1 kit):	Admin. Building Rm. 148
Personnel Survey Kit Evacuation Facilities Alpha	(1 kit):	Newport
Personnel Survey Kit Evacuation Facilities Bravo	(1 kit):	Plan Allen
Emergency Medical Kit (PMC)	(1 kit):	Piedmont Medical Center
Emergency Medical Kit (CNS)	(1 kit):	Auxiliary Building First Aid Room
Operations Support Center Kit (OSC)	1 kit):	Operations Support Center
Technical Support Center Kit (TSC)	(1 kit):	Technical Support Center

Enclosure 5.2

Emergency Kit Inspection Record

Information Use

LOCATION	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
	Complete Kit Inventory Yes/No	Date of Inventory	Complete Kit Inventory Yes/No	Date of Inventory	Complete Kit Inventory Yes/No	Date of Inventory	Complete Kit Inventory Yes/No	Date of Inventory
Sample Van 1 & (**Kit Rm.** Trunk) ESP-2 Ba133 MCA check 1st. Qtr.			**Yes**					
Sample Van 2 & (**Kit Rm.** Trunk) ESP-2 Ba133 MCA check 1st. Qtr.			**Yes**					
Emergency Vehicle Survey Team Kit – Alpha (**Kit Rm.**)	**Yes**							
Emergency Vehicle Survey Team Kit – Bravo (**Kit Rm.**)	**Yes**							
Recovery Kit Alpha – Newport (**Kit Rm.**)					**Yes**			
Recovery Kit Bravo – Plant Allen (**Kit Rm.**)					**Yes**			
Recovery Kit – Security PAP Area (**Kit Rm.**)					**Yes**			
Personnel Survey Kit - **(Plant Allen)**							**Yes**	
Personnel Survey Kit - **(Newport)**							**Yes**	
Personnel Survey Kit - Security PAP Area (**Kit Rm.**)							**Yes**	
Emergency Medical Kit - **(CNS First Aid Room)**					**Yes**			
Emergency Medical Kit - Piedmont Medical Center (**PMC**)	**Yes**							
Operation Support Center Kit - (**OSC**)			**Yes**					
Technical Support Center Kit - (**TSC**)			**Yes**					
Fuel Transfer Kit - (**Kit Rm.**)								
SIGNATURE FOR INVENTORY PERFORMED BY: INITIAL, DATE AND TIME REQUIRED FOR CONTROL COPY COMPARISONS	SIGNATURE: THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT. INITIAL ________ DATE ________ TIME ______		SIGNATURE: THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT. INITIAL ________ DATE ________ TIME ______		SIGNATURE: THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT. INITIAL ________ DATE ________ TIME ______		SIGNATURE: THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT. INITIAL ________ DATE ________ TIME ______	

Enclosure 5.3

Emergency Kit Procedure Record

Information Use

SAMPLE VANS	HP/0/B/1000/006	HP/0/B/1009/004	HP/0/B/1009/016	HP/0/B/1009/019
Sample Van 1				
Sample Van 2				
SURVEY TEAM KITS	HP/0/B/1000/006	HP/0/B/1009/004	HP/0/B/1009/016	HP/0/B/1009/019
Alpha Vehicle				
Bravo Vehicle				
RECOVERY KITS	HP/0/B/1000/006	HP/0/B/1009/016		
Allen				
Newport				
Security PAP				
PERSONNEL SURVEY KIT	HP/0/B/1000/006	HP/0/B/1009/005	HP/0/B/1009/016	SH/0/B/2001/003
Allen				
Newport				
Security PAP				
MEDICAL KITS	HP/0/B/1000/006	HP/0/B/1009/008	SH/0/B/2001/003	
First Aid Room CNS				
Piedmont Medical PMC				
SUPPORT KITS	HP/0/B/1000/006	HP/0/B/1009/016	HP/0/B/1009/019	SH/0/B/2001/003
TSC				
OSC				
Fuel Transfer Kit				

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

Enclosure 5.4

Recovery Kit List of Contents

Continuous Use

Document any deviations on Emergency Equipment Deviation Notification Record (Enclosure 5.16).

ITEM	MINIMUM AMOUNT
List of Contents	1
Eberline E-520 with/HP-270 Probe	1
Exempt Source	1
Pocket Dosimeters: Low Range (500 mR)	2
High Range (5 r)	2
Dosecards	10
TLD Badges	6
Dosimeter Charger	1
Boundary Ribbon or Rope (50 yd. Roll)	1
Masking Tape (roll)	1
Rain Suits (set)	2
Full Face Respirator with GMRI canister (or equivalent) (Note 1)	2
Cotton Coveralls	2
Hoods	2
Gloves: Cotton (pair)	2
Rubber (pair)	2
Shoe Covers: Disposable (pair)	2
Rubber (pair)	2
Poly Bags (various sizes)	6
Caution Signs with Inserts	2
Legal Pad	1
Radioactive Material Tags	5

ITEM	MINIMUM AMOUNT
Pens	2
Grease Pencil and Refills	1
Instrument/Smear Survey Sheets	10
KI Tablets:	
Newport	275 bottles
Security PAP	150 bottles
Allen Station	275 bottles
KI Tablet Distribution Data Sheet	100
Smears (box)	1
NuCon Smears	10
Flashlight	1
Batteries (size D)	6
Scissors	1
Medication Envelopes:	
Newport	100
Security PAP	60
Allen	100
Crisis Management Team Phone Directory (Note 2)	1
Road Block Passes (Note 2)	100
Emergency Planning Zone Maps (Note 2)	3
HP/0/B/1000/006	1
HP/0/B/1009/016	1

NOTE: 1. Respiratory equipment is stored in Emergency Kit Room and GMRI canisters are stored in kits.

2. Items for Recovery Kits used for Plant Allen and Newport.

Enclosure 5.5

Emergency Sample Van Survey Kit List of Contents

Continuous Use

Document any deviations on Emergency Equipment Deviation Notification Record (Enclosure 5.16).

ITEM	MINIMUM AMOUNT	ITEM	MINIMUM AMOUNT
List of Contents	1	NuCon Smears	10
Rain Suits (sets)	2	Instrument/Smear Survey Sheets	10
Cotton Coveralls	4	Map of Ten Mile Zone Sectors	1
Disposable Sacksuits	4	Legal Pad	1
Hoods	4	Pen	2
Gloves: Cotton (pair)	8	Permanent Marker	1
Rubber (pair)	8	Dosecards	10
Shoe Covers: Disposable (pair)	4	Hand Spade	1
Rubber (pair)	4	Grease Pencil and Refills	1
Sandwich Bags (box)	1	Scissors	1
Poly Bags (various sizes)	6	Field Monitoring Data Sheet	4
Masking Tape (roll)	1	KI Tablet Distribution Data Sheet	1
Tweezers	1	Radio Operator Manual	1
Limnological Sampler	1	CPD1 Key	1
Cubitainers	4	Road Block Passes	4
1 Liter Wide Mouth Bottles	4	Reflective Safety Vests	2
Stopwatch	1	Funnel	1
Silver Zeolite Filter Cartridges	10	Tygon Tubing	~ 4 ft
Particulate Filters	10	Fuses (Misc. Sizes)	box
Filter Cartridges Labels & Bags	20	Extension Cord	1
Smears (box)	1	Shears	1

Enclosure 5.5

Emergency Sample Van Survey Kit List of Contents

Continuous Use

Document any deviations on Emergency Equipment Deviation Notification Record (Enclosure 5.16).

ITEM	MINIMUM AMOUNT	ITEM	MINIMUM AMOUNT
Eberline E-520 with/HP-270 Probe	1	Battery Operated Lantern (with 6 volt battery)	1
Eberline E-140N with/HP-210 Tungsten Probe (or equivalent)	1	Batteries (C size)	12
Eberline RO-20	1	Batteries (D size)	6
Exempt Source	1	Flashlight	1
Eberline ESP-2 with/NaI detector	1	Dosimeter Charger	1
Ba-133 exempt source	1	Calculator	1
Medication Envelopes (or small sample bottles)	2	Sample Van Keys	1
KI Tablets (bottle)	2	Portable radio and/or cellular telephone (Note 2)	1
Pocket Dosimeters: Low Range (500 mR)	4	HP/0/B/1000/006	1
High Range (5 r)	4	HP/0/B/1009/004	1
TLD Badge	6	HP/0/B/1009/016	1
Full Face Respirator with GMRI Canister (or equivalent) (NOTE 1).	4	HP/0/B/1009/019	1

NOTE: 1. Respiratory equipment is stored in Emergency Kit Room and GMRI canisters are stored in vans.

2. Portable radios and cellular telephones with antennas are stored in Emergency Kit Room.

Enclosure 5.6

Emergency Survey Teams Vehicle Survey Kit List of Contents

Continuous Use

Document any deviations on Emergency Equipment Deviation Notification Record (Enclosure 5.16).

ITEM	MINIMUM AMOUNT	ITEM	MINIMUM AMOUNT
List of Contents	1	Shoe Covers: Disposable (pair)	2
Eberline E-140N with/HP-210 Tungsten Probe (or equivalent)	1	Rubber (pair)	2
Eberline E-520 with/HP-270 Probe	1	KI Tablets (bottle)	2
Eberline RO-20	1	KI Tablet Distribution Data Sheet	1
Exempt Source	1	Medication Envelopes (or small sample bottles)	2
Dosimeter Charger	1	Batteries (D size)	6
Field Monitoring Data Sheet	4	Batteries (C size)	6
Flashlight	1	Map of Ten Mile Zone Sectors	1
Pocket Dosimeters: Low Range (500 mR)	2	Legal Pad	1
High Range (5 r)	2	Pens	2
TLD's	6	Portable Radio and/or cellular telephone (Note 2)	1
Dosecards	10	Radio Operators Manual	1
Full Face Respirator with GMRI Canister (or equivalent) (NOTE 1)	2	Road Block Passes	2
Cotton Coveralls	2	Tape (roll)	1
Disposable Sacksuits	2	HP/0/B/1000/006	1
Hoods	2	HP/0/B/1009/004	1
Gloves: Cotton (pair)	4	HP/0/B/1009/016	1
Rubber (pair)	4	HP/0/B/1009/019	1

NOTE: 1. Respiratory equipment is stored in Emergency Kit Room and GMRI canisters are stored in kits.

2. Portable radios and cellular telephones with antennas are stored in Emergency Kit Room.

Enclosure 5.7

Personnel Survey Kit List of Contents (Security PAP Area)

Continuous Use

Document any deviations on Emergency Equipment Deviation Notification Record (Enclosure 5.16).

ITEM	MINIMUM AMOUNT
List of Contents	1
Eberline E-140N with/HP-210 Tungsten Probe (or equivalent)	2
Exempt Source	1
Radio Operator Manual	1
Pocket Dosimeters: Low Range (500 mR)	2
High Range (5 r)	2
Dosecards	10
TLDs	2
Dosimeter Charger	1
KI Tablets (bottle)	2
KI Tablet Distribution Data Sheet	1
Medication Envelopes (or small sample bottles)	2
Rain Suits	2
Cotton Coveralls	2
Hoods	2
Gloves: Cotton (pair)	2
Rubber (pair)	2
Shoe Covers: Disposable (pair)	2
Rubber (pair)	2
Boundary Ribbon or Rope (50 yd. Roll)	1
Caution Signs with Inserts	4
Masking Tape (roll)	1
Radioactive Material Tags	5

ITEM	MINIMUM AMOUNT
Roll of Radioactive Material Tape	1
Step Off Pads	5
Poly Bags (various sizes)	6
Smears (box)	1
NuCon Smears	10
Instrument/Smear Survey Sheets	10
Pens	2
Grease Pencil and Refills	1
Legal Pad	1
Scissors	1
Decon Supplies	1
• Shop Cloths	
• Mild, Liquid Soap	
• Scrub Brush	
• Cotton Swabs	
• Fingernail Clippers	
• Personnel Decontamination Forms (HP/0/B/1009/008)	
Batteries (size D)	6
Full Face Respirator with GMRI (or equivalent) (Note 1)	2
HP/0/B/1000/006	1
HP/0/B/1009/005	1
HP/0/B/1009/016	1
SH/0/B/2001/003	1

NOTE: 1. Respiratory equipment is stored in Emergency Kit Room and GMRI canisters are stored in kits.

Enclosure 5.8

Personnel Survey Kit List of Contents (Evacuation Facility)

Continuous Use

Document any deviations on Emergency Equipment Deviation Notification Record (Enclosure 5.16).

ITEM	MINIMUM AMOUNT
List of Contents	1
Eberline E-140N with/HP-210 Tungsten Probe (or equivalent)	2
Exempt Source	1
Pocket Dosimeters: Low Range (500 mR)	4
High Range (5 r)	4
Dosecards	10
TLD's	4
Dosimeter Charger	1
KI Tablets (bottle)	2
KI Tablet Distribution Data Sheet	1
Medication Envelopes (or small sample bottles)	2
Disposable Sacksuits	10
Gloves: Cotton (pair)	4
Rubber (pair)	4
Shoe Covers: Disposable (pair)	4
Rubber (pair)	4
Boundary Ribbon or Rope (50 yd. roll)	1
Caution Signs with Inserts	4
Step Off Pads	5
Masking Tape (roll)	1
Poly Bags (various sizes)	6
Smears (box)	1

ITEM	MINIMUM AMOUNT
Radioactive Material Tags	5
Roll of Radioactive Material Tape	1
Flashlight	1
Batteries (size D)	6
Pens	2
Grease Pencil and Refills	1
Legal Pad	1
Decon Supplies	1
• Shop Cloths	
• Mild, Liquid Soap	
• Scrub Brush	
• Cotton Swabs	
• Fingernail Clippers	
• Personnel Decontamination Forms (HP/0/B/1009/008)	
Scissors	1
Instrument/Smear Survey Sheets	10
Evacuation Personnel Dose Record	50
Catawba Nuclear Station Telephone Directory	1
HP/0/B/1000/006	1
HP/0/B/1009/005	1
HP/0/B/1009/016	1
SH/0/B/2001/003	1

Enclosure 5.9

Emergency Medical Kit List of Contents (First Aid Room)

Continuous Use

Document any deviations on Emergency Equipment Deviation Notification Record (Enclosure 5.16).

ITEM	MINIMUM AMOUNT
List of Contents	1
Eberline E-140N with/HP-210 Tungsten Probe (or equivalent)	1
Exempt Source	1
Poly Bags (various sizes)	6
Smears (box)	1
NuCon Smears	10
Rain Suits	2
Disposable Sacksuits	2
Hoods	2
Gloves: Cotton (pair)	2
Rubber (pair)	2
Shoe Covers: Disposable (pair)	2
Rubber (pair)	2
Tape, Radioactive Material	1
Tape, Masking 2″	1
Tape, Duct 2″	1
Instrument/Smear Survey Sheets	10
Pens	2
Legal Pad	1
Batteries (size D)	6

ITEM	MINIMUM AMOUNT
Dosimeter Charger	1
Flashlight	1
Caution Signs with Inserts	3
Radioactive Material Tags	5
Scissors	1
Pocket Dosimeters: Low Range (500 mR)	2
TLD's	2
Dose Cards	10
Step Off Pads	2
Decon Supplies	1
• Shop Cloths	
• Mild, Liquid Soap	
• Scrub Brush	
• Cotton Swabs	
• Fingernail Clippers	
• Personnel Decontamination Forms (HP/0/B/1009/008)	
HP/0/B/1000/006	1
HP/0/B/1009/008	1
SH/0/B/2001/003	1

Enclosure 5.10

Emergency Medical Kit List of Contents Piedmont Medical Center (PMC)

Continuous Use

Document any deviations on Emergency Equipment Deviation Notification Record (Enclosure 5.16).

ITEM	MINIMUM AMOUNT
List of Contents	1
Eberline E-520 with/HP-270 Probe	1
Eberline E-140N with/HP-210 Tungsten Probe (or equivalent)	1
Exempt Source	1
Poly Bags (various sizes)	12
Smears (box)	1
NuCon Smears	10
Tape, Radioactive Material	1
Tape, Masking 2"	2
Tape, Duct 2"	2
Step Off Pads	5
Instrument/Smear Survey Sheets	10
Caution Signs with Inserts	5
Roll of Rad Rope	1
TLD's	10
Low Range Dosimeters (0-500 mR)	10
Dosecards	20
Dosimeter Charger	1
Radioactive Material Tags	20
Floor Covering in trunk	1
Disposable Sacksuits	10
Hoods	10
Fluid Shield Mask (H)	4

ITEM	MINIMUM AMOUNT
Gloves: Cotton (pairs)	10
Surgeons gloves (vinyl or latex type)	20
Disposable Shoe Covers (pairs) (H)	10
Cubitainers	4
Culturettes (H)	4
Specimen Cups (H)	4
Blue Pads (H)	4
500 ml Saline (H)	1
Gauze Sponges 4"x4", 12 ply (H)	10
Betadine Solution (H)	1
Betadine Surgical Scrub (H)	1
Surgipad Combine Dressing (H)	4
Scrub Brush	1
Cotton Swabs	5
Fingernail Clippers	1
Personnel Decontamination Forms (HP/0/B/1009/008)	5
Batteries (size D)	6
Grease Pencil and refills	1
Stanchions	4
Trash Receptacle	2
Scissors	2
HP/0/B/1000/006	1
HP/0/B/1009/008	1
SH/0/B/2001/003	1

NOTE: (H) indicates the item is provided by the hospital.

PMC provides MSDS sheets for equipment provided by PMC and replacement items can be obtained from PMC supplies.

Enclosure 5.11

Operations Support Center Kit List of Contents

Continuous Use

Document any deviations on Emergency Equipment Deviation Notification Record (Enclosure 5.16).

ITEM	MINIMUM AMOUNT
List of Contents	1
Eberline E-520 with/HP-270 Probe	1
Eberline E140N with/HP-210 Tungsten Probe (or equivalent)	1
Exempt Source	1
Radeco H809V Air Sampler	3
Rain Suits	5
Cotton Coveralls	10
Hoods	10
Gloves: Cotton (pair)	20
Rubber (pair)	20
Shoe Covers: Disposable (pair)	20
Rubber (pair)	20
Gym Shorts Misc. Sizes	10
Modesty Tops Misc. Sizes	10
Flashlights	10
Large Lantern (with 6 volt battery)	4
Batteries (size D)	24
CNS Site Map	1
Masking Tape (roll)	2
Pocket Dosimeters: (500 mR)	100
(5 r)	5
(100 r)	5
Dosecards	100
Dosimeter Charger	1
Medication Envelopes (or small sample bottles)	10
KI Tablets (bottle)	20

ITEM	MINIMUM AMOUNT
Full Face Respirators with GMRI Canister (or equivalent)	10
KI Tablet Distribution Data Sheets	10
Particulate Filters & Filter Cartridge Labels	30
Silver Zeolite Filter Cartridges	30
Poly Bags (various sizes)	12
Decon Supplies	1
• Shop Cloths	
• Mild, Liquid Soap	
• Scrub Brush	
• Cotton Swabs	
• Fingernail Clippers	
• Personnel Decontamination Forms (HP/0/B/1009/008)	
Instrument/Smear Survey Sheets	10
Pens (box)	1
Grease Pencil and Refills	1
Extension Cords	3
Stopwatch	2
Electric Shaver	1
Beard Trimmer	1
Smears (box)	1
Step Off Pads	5
OSC Dose Records Forms	125
HP/0/B/1000/006	1
HP/0/B/1009/016	1
HP/0/B/1009/019	1
SH/0/B/2001/003	1

Enclosure 5.12

Technical Support Center Kit List of Contents

Continuous Use

Document any Deviations on Emergency Equipment Deviation Notification Record (Enclosure 5.16).

ITEM	MINIMUM AMOUNT
List of Contents	1
Eberline E-520 with/HP-270 Probe	1
Eberline E-140N with/HP-210 Tungsten Probe (or equivalent)	1
Exempt Source	1
Radeco H809V Air Sampler	1
Extension Cord	1
Low Range Pocket Dosimeters (500 mR)	100
Dosecards	100
Dosimeter Charger	1
Silver Zeolite Filter Cartridges	10
Particulate Filters	10
Filter Cartridge Labels	10
KI Tablets (bottle)	25
KI Tablet Distribution Data Sheet	10
Boundary Ribbon or Rope (50 yd. roll)	1
Caution Signs with Inserts	3
Roll of Rad Tape	2
Smears (box)	1
Poly Bags (various sizes)	6
Masking Tape (roll)	1
Step Off Pads	5

ITEM	MINIMUM AMOUNT
Pen	2
Legal Pad	1
Grease Pencil and Refills	1
Flashlights	6
Batteries (size D)	12
Small Sample Bottles or Medication Envelopes	10
Decon Supplies	1
• Shop Cloths	
• Mild, Liquid Soap	
• Scrub Brush	
• Cotton Swabs	
• Fingernail Clippers	
• Personnel Decontamination Forms (HP/0/B/1009/008)	
Vinyl or latex type gloves	10
Disposable Shoe Covers	10
Disposable Sacksuits	5
Instrument/Smear Survey Sheets	10
HP/0/B/1000/006	1
HP/0/B/1009/016	1
HP/0/B/1009/019	1
SH/0/B/2001/003	1

Enclosure 5.13

Fuel Transfer Kit List of Contents

Continuous Use

THIS KIT IS ASSEMBLED ON AS NEEDED BASIS. KIT ITEMS ARE LOCATED IN EMERGENCY EQUIPMENT STORAGE ROOM (ADMIN. BUILDING Room 148)

Document any deviations on Emergency Equipment Deviation Notification Record (Enclosure 5.16).

ITEM	MINIMUM AMOUNT
List of Contents	1
Eberline E-140N with/HP-210 Tungsten Probe (or equivalent)	1
Eberline E-520 with/HP-270 Probe	1
Exempt Source	1
Radeco H809V Air Sampler	1
Full Face Respirators with GMRI Canister (or equivalent) (Note 1)	2
Rain Suit	2
Cotton Coveralls	5
Disposable Sacksuits	5
Hoods	5
Gloves: Cotton (pair)	5
Surgeons gloves (vinyl or latex type)	10
Rubber (pair)	5
Shoe Covers: Disposable (pair)	5
Rubber (pair)	5
Hard Hats	2
Silver Zeolite Cartridges	10
Particulate Filters	10
Bags and Labels for filter/cartridges	10
KI Tablets (bottle)	30
Plastic Sample Bottles or Medication Envelopes	10
KI Tablet Distribution Data Sheet	1
TLD's	5
Pocket Dosimeters: Low Range (500 mR)	5
High Range (5 r)	5
Dose Cards	10
Weather-Proof Caution Signs with Inserts	4
Radioactive Waste Signs (4″ x 6″)	10
Caution: Radiation/Radioactive Material Tags	10

ITEM	MINIMUM AMOUNT
50 yd. Roll of Barricade Tape (Magenta & Yellow)	4
Step Off Pads	5
Poly Bags (various sizes)	6
Hand Gardening Spade	1
Wide Mouth Sample Bottles	4
Smears (box)	1
Kimwipes (box)	2
NuCon Smears	10
Copy of NAC-1 Drawings (prints)	1
Copy of Loading and Unloading Instructions	1
Duct Tape (roll)	2
Tape, Masking 1″	1
Tape, Masking 2″	1
Contact Pyrometer with Probe	2
Safety Glasses	5
Binoculars	1
Tool Kit	1
Batteries (size D)	6
Batteries (size C)	6
Flashlights	1
Dosimeter Charger	1
Steno Pad	1
Mechanical Lead Pencil and refills	2
Grease Pencils	1
All Purpose Marker	1
Scotch Tape Roll and Dispenser	1
Quarters	4
Instrument/Smear Survey Sheets	10
HP/0/B/1000/006	1

NOTE: 1. Respiratory equipment is stored in Emergency Kit Room and GMRI canisters are stored in kits.

Enclosure 5.14

Emergency Kit Inventory Record

Information Use

Type and Location of Emergency Kit: ____________________

WAS KIT TAMPER SEAL INTACT? **YES / NO**	COMPLETE INVENTORY OF KIT CONTENTS? **YES / NO**	MINIMUM INVENTORY? (Drill / Quarterly Inventory) **YES / NO**	DEVIATION ENCLOSURE 5.16 REQUIRED? **YES / NO**	INVENTORY COMMENTS (e.g., Kit inventory following drill use or quarterly inventory)	KIT INVENTORY DATE	SIGNATURE FOR INVENTORY Initial, date and time is required for CONTROL COPY COMPARISON
						Signature: THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT. INITIAL ______ DATE _______ TIME ______
						Signature: THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT. INITIAL ______ DATE _______ TIME ______
						Signature: THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT. INITIAL ______ DATE _______ TIME ______
						Signature: THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT. INITIAL ______ DATE _______ TIME ______
						Signature: THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT. INITIAL ______ DATE _______ TIME ______
						Signature: THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT. INITIAL ______ DATE _______ TIME ______
						Signature: THIS COPY HAS BEEN COMPARED WITH THE CONTROL COPY AND IS VERIFIED CORRECT. INITIAL ______ DATE _______ TIME ______

Enclosure 5.15

Recommended Shelf-Life for Protective Clothing

Information Use

NOTE: **IF** the date recorded on a protective clothing package exceeds the allowable shelf-life, remove and replace appropriate protective clothing in the emergency kit.

Rubber Shoe Covers	-	2 yrs
Rubber Gloves	-	2 yrs
Cotton PCs	-	5 yrs
Cotton Liners	-	5 yrs
Sacksuits	-	5 yrs
Disposable Shoe Covers	-	2 yrs
Vinyl gloves	-	5 yrs

Enclosure 5.16

Emergency Equipment Deviation Notification Record

Information Use

EMERGENCY KIT _____

Description of kit deviation:

_____

_____

_____

_____

_____

_____

_____

_____

_____

Action taken to remedy deviation:

_____

_____

_____

_____

_____

_____

_____

_____

_____

Individual identifying deviation: _____ Date:_____
Signature

Date Kit deviation was identified: _____/ _____/ _____

Date Kit deviation was resolved: _____/ _____/ _____

Emergency Response Staff Scientist: _____ Date:_____
Signature

Radiation Protection Manager: _____ Date:_____
Signature

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

Enclosure 5.17

Quarterly Field Team Radio / Cellular Phone Check Record

Information Use

RADIO / PHONE IDENTIFIER	COMMENTS	PERFORMED AT		DATE OF RADIO or PHONE CHECK
		5-10 MILE	ONSITE	

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

Radio / Phone check performed by: _____ Date _____

(R06-97)

Duke Power Company
PROCEDURE PROCESS RECORD

(1) ID No. HP/0/B/1009/004
Revision No. 027

PREPARATION

(2) Station Catawba

(3) Procedure Title Environmental Monitoring for Emergency Conditions Within the Ten Mile Radius of CNS

(4) Prepared By D W Baysinger Date 12/21/1999

(5) Requires 10CFR50.59 evaluation?

☑ Yes (New procedure or revision with major changes)

☐ No (Revision with minor changes)

☐ No (To incorporate previously approved changes)

(6) Reviewed By W Faulkner (QR) Date 12/21/99

Cross-Disciplinary Review By [signature] (QR) NA _____ Date 12/27/99

Reactivity Mgmt. Review By _____ (QR) NA WA Date 12/21/99

(7) Additional Reviews

Reviewed By _____ Date _____

Reviewed By _____ Date _____

(8) Temporary Approval (*if necessary*)

By _____ (SRO/QR) Date _____

By _____ (QR) Date _____

(9) Approved By M Boyle for T Schlise Date 12-27-99

PERFORMANCE (Compare with Control Copy every 14 calendar days while work is being performed.)

(10) Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

Compared with Control Copy _____ Date _____

(11) Date(s) Performed _____

Work Order Number (WO#) _____

COMPLETION

(12) Procedure Completion Verification

☐ Yes ☐ NA Check lists and/or blanks initialed, signed, dated, or filled in NA, as appropriate?

☐ Yes ☐ NA Listed enclosures attached?

☐ Yes ☐ NA Data sheets attached, completed, dated, and signed?

☐ Yes ☐ NA Charts, graphs, etc. attached, dated, identified, and marked?

☐ Yes ☐ NA Procedure requirements met?

Verified By _____ Date _____

(13) Procedure Completion Approved _____ Date _____

(14) Remarks (*Attach additional pages, if necessary.*)

Duke Power Company Catawba Nuclear Station	Procedure No. **HP0/B/1009/004**
Environmental Monitoring for Emergency Conditions Within the Ten Mile Radius of CNS	Revision No. 027
Reference Use	Electronic Reference No. CN005CV8

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

1. Purpose

To describe field methods for sampling and identifying airborne plumes and liquid effluent releases that may have resulted from an uncontrolled release of radioactive material that could cause radiation exposure to the general public.

2. References

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

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

2.3 HP/0/B/1003/31 - Operation and Calibration: Eberline Model E-14ON Portable Count Rate Meter

2.4 HP/0/B/1003/41 - Operation and Calibration Bicron Model RSO-5/RSO-50

2.5 HP/0/B/1003/57 - Operation and Calibration of Eberline Model ESP-2

2.6 HP/0/B/1009/09 - Guidelines for Accident and Emergency Response

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

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

2.9 Catawba Nuclear Station (CNS) Site Directive 2.2.1 - Procedure for Records Management

2.10 PIP# 0-C93-0503 - Radio Transmissions provides corrective action for mobile radio operators use of the FCC call sign driving communications from mobile unit to another mobile unit.

2.11 PIP# 0-C93-0512 - Annual Exercise FMT provides instruction and guidance for all RP Support personnel including FMT Drivers to assemble at assigned assembly locations then report to the OSC for FMT assignment and dispatch.

2.12 PIP# 0-C94-0903 - Provide Guidance for FMT and FMC Documentation of Offsite Survey Results

2.13 PIP# 0-C95-0828 - Emergency Drill Action Items

2.14 PIP# 0-C96-0805 - Annual Emergency Response Organization (ERO) Exercise

3. Limits and Precautions

3.1 Station personnel not having emergency response training, may assist trained Radiation Protection (RP) technicians, e.g. (perform surveys, drive a vehicle and/or perform radio communications) to support Field Monitoring Team (FMT) duties during drills or exercises, and during an actual emergency response.

3.2 Potassium Iodide (KI) tablets used for reducing radioiodine thyroid uptake are MOST effective if taken approximately two hours BEFORE exposure occurs. If any member(s) of a FMT is likely to receive in excess of 25 rem thyroid dose; e.g. (such as being in a 10 rem/hr Iodine dose rate for 2.5 hours without a GMRI respirator) the Radiation Protection Manager (RPM) may direct the member(s) to ingest one KI tablet. This should concur with notification of Duke Power medical authority that KI is prescribed for emergency response individuals.

3.3 FMT environmental sampling performed during emergency conditions does not replace or substitute for required CNS Environmental Monitoring.

3.4 During maneuvers, drills or training exercises, personnel safety and safe vehicle operation is of primary concern.

- FMT's and drivers <u>are usually not</u> required to wear respirators; but respirators may be worn during an actual release per RP FMT/FMC discretionary guidance.

4. Procedure

4.1 Activation of Operations Support Center (OSC), Technical Support Center (TSC), and Emergency Facility (EOF) that require Field Monitoring Team's (FMT's) support.

- Request for FMT's is usually initiated by RP Support in the TSC or by the Field Monitor Coordinator in the EOF, through notification to RP management in the OSC, that FMT's should be dispatched.

- Field Monitoring Coordinator (FMC) in EOF is the primary position for directing FMT's.

- FMC directs FMT's after EOF activation and appropriate turnover from RP Support; with RP Support continuing to provide radio monitoring and support as necessary.

- FMC at EOF directs FMT's and reports significant field measurements to the EOF Dose Assessors and Radiological Assessment Manager (RAM).

4.1.1 Assignment of FMT members should be from available RP personnel assembled in the OSC.

- FMT drivers should report to their respectively assigned work group site assembly locations and then proceed to OSC for assignment. **{Reference 2.11}**.

4.1.2 After assignment and dispatch by OSC RP Supervisor (designee or RP Duty Shift) FMT members proceed to the Emergency Kit Room (RM148) in the Administration Building.

NOTE: Procedure steps may be performed out of sequence appropriate to FMT response.

- Form as many FMT survey and sample van teams as practical; e.g. (usually one RP technician and one driver) based upon the number of personnel available in the OSC and as appropriate to field monitoring teams required.

Team Call Signs	No. of Members	Transportation
Sample Van 1	2	Emergency Van
Sample Van 2	2	Emergency Van
Alpha	2	Station Vehicle
Bravo	2	Station Vehicle
Charlie *	2	Land Vehicle
Delta *	2	Land Vehicle

* Form additional teams Charlie and Delta if necessary.

4.1.3 FMT Technicians and drivers access the Emergency Kit Room.

NOTE: If access cannot be gained using the combination lock on the Administration Building inner door to the Emergency Kit Room contact Security to open the exterior door to the room.

- Obtain appropriate FMT response kit and perform the following:
- Obtain Field Monitoring Team Checklist (Enclosure 5.2).
- Complete the checklist with signature and date after all steps have been reviewed and/or performed.

4.2 Radio Communications for FMT's

4.2.1 Maintain open radio communications with EOF FMC and TSC RP Support.

- If a radio becomes inoperable notify FMC or RP Support by using the telephone.

- RP Support (radio operator) in TSC at 831-8182 (Lake Wylie/Charlotte).

- RP Support at extension 5882 through CNS Station Operator: (831-3700 or 831-3000 from Lake Wylie, York, Clover, Charlotte), (861-5155 from Gaston County), or (324-3128, 324-5235, 324-5236 Rock Hill/Fort Mill).

- FMC in EOF (GO) at (704) 382-0735 or (704) 382-0736.

4.2.2 During a drill or exercise, repeat "THIS IS A DRILL, THIS IS A DRILL" with each radio transmission.

4.2.3 Use TSC, EOF and FMT (high band frequency 800 MHz) radios.

- Each high band frequency radio is assigned Duke Power system unit identifier; engraved on each radio.

- Using these radios does not require the user to transmit a call sign; the identifier is sent automatically; however users should begin with FMT identification; e.g. (Catawba Sample Van 1) to inform listeners that the conversation is to begin; and to end conversations with Sample Van 1 "clear".

4.2.3.1 If necessary; use TSC and EOF and FMT (low band frequency 48.50 MHz) radios.

4.2.3.2 Low band frequency Base Radio Call Sign is KNHB778 which is stated during sign on of low band FMT radio communication.

- Portable radio call sign and FMT team identification is to be transmitted whenever low band frequency portable mobile to mobile communication is established per Reference 2.8. **{Reference 2.10}**.

4.2.4 Repeat back radio transmissions; e.g. (FMC instruction and directions) whenever practical to ensure correct information is received and accurate information is transmitted.

4.2.5 Radio operators follow radio guidance per Reference 2.8 and provide only pertinent field monitoring and/or plant information when transmitting information.

- Do NOT transmit excessive messages with detailed information; e.g. (abnormal plant conditions with excess detail or excess field information).

4.2.6 Field Monitoring radio is a back-up means of providing emergency notification information to the states and counties.

- State/county communications take precedence over field monitoring communications.
- Maintain radio silence until state/county communications are complete.

4.3 Radiation Surveys

4.3.1 Obtain FMT radiation surveys per direction of FMC.

- Use SRWP-98 (Enclosure 5.1) a procedure example for protective clothing, dosimetry, and respiratory equipment requirements for field teams.
- Ensure count rate meters are turned **On** and are monitored during FMT transport to sample locations.
- Report FMT instrument gamma readings of ≥ 2 mrem/hr to the FMC (EOF) or RP Support (TSC) and proceed with caution. **{Reference 2.14}**
- Retreat to Low Exposure Waiting Area of < 2 mrem/hr whenever practical.
- Set up and count collected samples in as low as practical background.
- Notify FMC as soon as practical if any FMT equipment becomes inoperable.
- Report all FMT results to FMC and await further instructions.

4.4 Locating and Tracking the Plume

4.4.1 Dispatched FMT's in communication with EOF/TSC are under direction of FMC or RP Support with teams being generally dispatched as follows:

- Alpha, Bravo Teams: Perform gamma radiation surveys at the outer Security area boundary fence at the estimated plume location and as directed perform gamma radiation surveys on the edges of the suspected area to determine plume area.
- Sample Vans 1 and 2: To perform I-131 air sample analysis, gamma radiation surveys at or beyond site boundary fence.

4.4.2 Utilize quadrants, major roads, and/or predetermined sampling locations to perform surveys.

4.4.2.1 Each quadrant consists of a four square mile area (two miles each side). This area is sub-divided into four sub-quadrants of one square mile each.

A. A quadrant on Environmental Protection Zone (EPZ) map is identified by:

- Letter depicting the column (Letter "I" has been omitted to eliminate possible confusion with the number "1".).
- Number depicting the row; e.g. (For example: B-6,D-7,H-12,etc.)

B. A sub-quadrant is described as either:

- Upper left (UL)
- Upper right (UR)
- Lower left (LL)
- Lower right (LR)

4.4.2.2 Major roadways delineate major territories surrounding the plant. Either all or a portion of these sections would be expected to be affected to some degree by the radioactivity released from the plant. Therefore, major roadways are utilized to provide access to suspected regions (outer edge(s), centerline) of the plume, as necessary.

A. Major roadways on EPZ map are identified by numerical designations and responsibility level (federal, state, county or city) designations.

B. Selected roadways on EPZ map are identified by a specific name, rather than a numerical responsibility designation.

4.4.2.3 Each predetermined sampling location is denoted by a red colored dot on the map.

- Sample point designator define locations in protective action zones and approximate radial mileage from CNS.

A. FMC should use designated points as reference landmarks when directing FMT teams to field locations.

B. Point locations can be read directly from the map or from the directions in Predetermined Environmental Sampling Locations (Enclosure 5.3).

4.4.3 Report significant radiation level(s) to FMC; when traveling to locations or when providing sample data obtained from plume sampling.

4.4.4 FMT sample locations or other information relevant to offsite data should be communicated by radio or telephone (faxed if necessary) to EOF or TSC upon request by FMC or RP Support.

4.5 Use Field Monitoring Data Sheets (Enclosure 5.4) or a copy from the ten mile EPZ map showing affected area, to record data; e.g. (FMT locations, field data results, beta/gamma surveys, air samples, and/or special samples).

- FMC, RP Support and FMT's may use Enclosure 5.4 or any appropriate sectional copies of ten mile EPZ map to record data.

- Provide EOF/TSC Dose Assessors updated FMT information as soon as practical and whenever significant changes are reported by FMT's. **{Reference 2.12}**

4.5.1 FMC continues to provide FMT directions and instructions using Periodic Status Update For Field Monitoring Teams (Enclosure 5.5), as necessary, and periodically provides information to FMT's such as:

- Current Emergency Classification
- Wind speed
- Wind direction
- Zones affected
- Any other pertinent field meteorological information
- Obtain air samples, gamma (closed window) and beta/gama (open window) measurements as conditions warrant.
- Open window Beta/Gamma readings greater than closed window Gamma readings are indicators of plume exposure.
- Systematically survey plume direction and suspected contaminated areas in a transversal continuous path.

- Whenever a known radiological release has occurred it is a good practice to keep vehicle windows closed and vehicle ventilation **OFF** or placed on **RECIRC** to minimize internal vehicle contamination.

NOTE: Typically; information is provided to the FMT's that is obtained from EOF or TSC Dose Assessors and/or information that has been provided by either EOF or TSC Director during EOF or TSC public address announcements.

4.5.2 FMC should periodically check FMT's radiation exposure.

- If radiation exposure is significant for integrated dose over a period of time (> 500 mrem for any individual) use Field Monitor Team Radiation Exposure Record (Enclosure 5.6) to track FMT exposure.

4.6 FMT Sampling

4.6.1 Collect additional special samples, as requested by the FMC. These samples include but are not limited to the following:

- Smears of surrounding areas
- Sediment
- Water
- Milk
- Retrieve and replace environmental air samplers and/or TLDs

4.6.2 When collecting samples away from vehicle, turn up FMT radio volume, or carry portable radio.

- Park vehicles completely off the road when sampling.
- Use emergency flashers and cones (vans and trucks).
- Notify FMC of any hazardous condition and move to safe location as necessary.
- To prevent low battery condition in a sample van always leave the engine running when operating electrical equipment and using the vehicle 12 volt to 110 volt power supply; e.g. (vehicle power invertor).

4.6.3 Use Environmental Fixed Air Sampler, TLD, Milk and Water Sample Locations (Enclosure 5.7) as field guidance for collecting samples and use (Enclosure 5.3) for directions to designated sample locations.

4.6.4 To collect vegetation samples, use shears to cut sufficient broad leaf vegetation from approximately one square meter, to fill a 12" X 12" poly bag.

4.6.5 To collect a soil sample, estimate one square, 12" X 12" area of soil, digging to approximately one inch depth and place in appropriate container.

4.6.6 To collect a water sample, use appropriate container to fill a one gallon cubitainer.

4.6.7 Take smears on stationary, horizontal surfaces; e.g. (mailboxes, gas pumps, etc.); except Do Not Smear Automobiles.

- Field count smears using a count rate meter; e.g. Eberline E-14ON.

4.6.8 Collect air sample(s):

4.6.8.1 Use silver zeolite cartridge and insert cartridge with arrow pointing towards sampler.

4.6.8.2 Insert filter paper with recognizable collection side facing out.

4.6.8.3 Determine appropriate sample time for field sampling using guideline for minimum FMT air sample volume:

- Minimum field air sample volume should be ~ 2.25×10^5 ml; (e.g., portable air sampler at 2 cfm X 4 minute sample = 2.26×10^5 ml).

- FMC may authorize reduced sampling times during periods of high airborne radioactivity.

4.6.8.4 Turn vehicle electric power supply switch to **ON** position and turn air sample power cord to **ON** position.

4.6.8.5 When air sampling is complete, place cartridge in a thin plastic bag (baggie) for analysis using the ESP-2.

- Place filter in a separate plastic bag.

4.6.9 Use Eberline Model ESP-2 Air Sample Analysis (Enclosure 5.8) to source check and set up ESP-2 instrument.

- Use ESP-2 for Iodine-131 equivalent analysis of air samples collected.
- Analyze air samples in as low as practical background count area.
- Report Iodine 131 Equivalent field dose results to FMC or RP Support.

4.6.10 Retain field collected samples for further count room analysis.

4.6.11 Label all field collected sample containers with field sample information.

- Date
- Time
- Sample location
- Sample volume

4.7 FMT Turnover

4.7.1 FMT's are relieved by direction of FMC.

4.7.2 Provide turnover to relieving FMT's and include as a minimum the following information:

- Hazardous field conditions
- Plume centerline dose rates and other sample data from areas previously surveyed
- Sampling Van emergency supplies or emergency kit inventory consumed
- FMT equipment problems or sampling problems
- Emergency classification
- Wind speed and direction
- Zones affected

4.7.3 Turn collected data sheets over to FMC or designee.

4.7.4 By direction of FMC all FMT members report as appropriate to a designated Body Burden Analysis (BBA) counting facility for post-job BBA.

4.8 Record Retention

4.8.1 Enclosures 5.2, 5.4, 5.5, 5.6, and 5.8 Worksheets used during Drills are to be provided to Emergency Planning personnel.

4.8.2 Retain Enclosures used for recording an actual event in Satellite File in RP Office area 594 elevation of Service Building for minimum time specified below:

- Enclosure 5.2 - Present six months
- Enclosure 5.4 - Present six months
- Enclosure 5.5 - Present six months
- Enclosure 5.6 - Present six months
- Enclosure 5.8 - Present six months

4.8.3 Once retention requirements are met send Enclosures to Document Control to be microfilmed per Reference 2.9.

5. Enclosure

5.1 SRWP #98

5.2 Field Monitoring Team Checklist for Initial Response (Sampling Vans, Survey Teams)

5.3 Predetermined Environmental Sampling Locations

5.4 Field Monitoring Data Sheets

5.5 Periodic Status Update For Field Monitoring Teams

5.6 Field Monitoring Team Radiation Exposure Record

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

5.8 Eberline Model ESP-2 Air Sample Analysis

RADIATION WORK PERMIT # 98 REV: DATE/TIME: 05/27/96 08:14
CATAWBA NUCLEAR STATION: ACTIVATION DATE: 01/13/95 07:00

Job Title: FIELD MONITORING TEAM EMERGENCY RESPONSE ACTIVITIES

STANDING REQUIREMENTS FOR USE OF THIS RWP
EACH RADIATION WORKER IS RESPONSIBLE FOR:

- KNOWING THEIR WORK AREA DOSE RATES.
- FOLLOWING REQUIREMENTS OF THIS RWP.
- BEING ALARA.
- HOUSEKEEPING.
- WEARING A POCKET OR ELECTRONIC DOSIMETER AND A TLD.
- FOLLOWING POSTED REQUIREMENTS.
- REVIEWING AREA RADIOLOGICAL PLAN VIEW WHEN AVAILABLE PRIOR TO ENTRY.
- NOTIFYING RADIATION PROTECTION PRIOR TO SWEEPING, BRUSHING, GRINDING, WELDING, OR USE OF COMPRESSED AIR IN CONTAMINATED AREAS.
- FOLLOWING POSTED DRESS CATEGORY REQUIREMENTS.
- WEARING MODESTY GARMENTS WHEN NOT WEARING PERSONAL OUTER CLOTHING.
- MONITORING PERSONNEL/TOOL/EQUIPMENT REQUIRED WHEN LEAVING RCA/RCZ.

DRESS CATEGORY AND TASK DESCRIPTION

A 1. NO RELEASE OCCURRING (WITH OR WITHOUT CORE DAMAGE)
D 2. NO CORE DAMAGE AND RELEASE OCCURRING
G 3. CORE DAMAGE AND RELEASE OCCURRING
G 4. IF RESPIRATORY PROTECTION REQUIRED (PER FMC)

SPECIAL DOSIMETRY	
TASK DESCRIPTION	
< 1,2,3,4	> HIGH RANGE PD

RESPIRATORY	
TASK DESCRIPTION	
<4	> FULL FACE PART (ADD HOOD)

COMMENTS

NOTE 1: NOTIFY THE FMC PRIOR TO START OF WORK OR CHANGING LOCATIONS.
NOTE 2: POST-JOB BBA AND/OR DEBRIEFING IF DIRECTED BY FMC.
NOTE 3: ONLY IF DIRECTED BY FMC, INGEST POTASSIUM IODIDE (KI) TABLET.
NOTE 4: DRESS REQUIREMENTS ONLY APPLY IF CONTAMINATION LEVELS ARE ≥ 450 CCPM WITH A HP210 DETECTOR ON AN E14ON METER AND/OR AS DIRECTED BY THE FMC.
NOTE 5: DRESS REQUIREMENTS ONLY APPLY FOR EXITING THE VEHICLE UNLESS INSIDE OF VEHICLE IS CONTAMINATED.
NOTE 6: AS A MINIMUM, WEAR SURGEONS GLOVES FOR HANDLING SAMPLES.
NOTE 7: IF DRESS OUT REQUIRED, UTILIZE RCZ AND WASTE CONTAINERS.
NOTE 8: UTILIZE HP/0/B/1009/04 FOR ALL ACTIVITIES.

MG SET POINTS:
DOSE ALARM: 25 MREM
DOSE RATE ALARM: 50 MREM/HR

APPROVED BY: CMM7337	TERMINATED BY:
DATE/TIME: 01/12/95 10:58	DATE/TIME:

STANDARDIZED CATEGORIES

DRESS CATEGORY	PROTECTIVE CLOTHING
A	None.
B	Surgical gloves.
C	Cotton and rubber gloves.
D	Cotton and rubber gloves, booties and shoecovers.
E	Labcoat, cotton and rubber or surgical gloves.
F	Labcoat, cotton and rubber gloves, booties and shoecovers.
G	Cloth hood, disposable coveralls, cotton and rubber gloves, booties and shoecovers, tape.
H	Cloth hood, cloth coverall, cotton and rubber gloves, booties and shoecovers, tape, no personal outer clothing.
I	Cloth hood, cloth coverall, cotton gloves, 2 pair Rubber gloves, booties and shoecovers, tape, no personal outer clothing.
J	Cloth hood, cloth coverall, cotton gloves, 2 pair rubber gloves, booties, shoecovers, tape, no personal outer clothing.
K	Cloth hood, cloth coverall, disposable coveralls, cotton gloves, rubber gloves, booties and shoecovers, tape, no personal outer clothing.
L	Cloth hood, cloth coverall, disposable coveralls, cotton gloves, 2 pair rubber gloves, booties and shoecovers, tape, no personal outer clothing and additional outer booties or shoecovers.
M	Cloth hood, 2 pair cloth coveralls, cotton gloves, 2 pair rubber gloves, 2 pair booties and shoecovers, tape, no personal outer clothing.
N	Cloth hood, cloth coverall, wetsuit, cotton gloves, 2 pair rubber gloves, booties and shoecovers, tape, no personal outer clothing.
O	Cloth hood, cloth coverall, bubble suit, cotton gloves, 2 pair rubber gloves, booties, shoecovers, tape, no personal outer clothing and additional shoecovers or jump boots.
Z	Special dress as required by Radiation Protection.

Enclosure 5.2
Field Monitoring Team Checklist for Initial Response
(Sampling Vans, Survey Teams)

The following actions shall be performed as appropriate to radiological conditions and in accordance with TSC RP Support or EOF Field Monitor Coordination instruction. All actions are not required to be performed and actions may be performed out of sequential order.

INITIAL RESPONSE

- Receive directions from TSC or EOF appropriate to radiological/meteorological conditions.
- Open Sample Van Kit or Emergency Survey kit (ALPHA/BRAVO) per assigned Field Monitor Team.
- Obtain Dosimetry and Self Reading Pocket Dosimeter (SRD) and complete a required dose card; (Electronic Dosimetry may be worn in lieu of SRD).
- Obtain respiratory protection equipment, verify qualifications and complete the respirator card as appropriate to use. Respiratory should be worn appropriate to radiological conditions.

PERFORM THE FOLLOWING

FMT Driver

- Obtain keys for Emergency Sample Vans from Emergency Kits; notify CNS garage if additional vehicles are necessary.
- Start vehicle, check fuel level in tank and allow inside sample van temperature to stabilize.
- Assist RP FMT in setting up portable radio antennas, portable car phones, as necessary; and assist completing radio sign on.
- Ensure that vehicles are refilled with fuel and that mechanical problems are reported to the CNS garage or EP Staff.
- Return radios, antennas and ensure equipment is returned to storage and recharged as appropriate.

FMT Driver _____
Signature

FMT RP

- Turn on and source check survey instruments in order to obtain dose rate readings at appropriate times during FMT response.
- Assemble Emergency Kit contents, and load vehicle. Obtain respiratory equipment from kit room as necessary.
- Ensure that the radio equipment is placed in vehicle and complete the radio check/sign on with the TSC and/or EOF.
- Sample van FMT'S source Check ESP-2 with Nal detector using the Ba133 source, and verify that the detector number matches instrument used.
- Inventory Emergency Kits, restock items and return all equipment to the appropriate storage location when complete.

FMT RP _____ Date_____
Signature

Enclosure 5.3
Predetermined Environmental Sampling Locations

PROTECTIVE ACTION ZONE	RADIUS FROM CNS (in miles)	SAMPLE LOCATION	BRIEF DESCRIPTION AND TRAVEL INSTRUCTIONS FROM CNS TO THE LOCATION
A0	1	1	Hwy 274-N for 0.5 miles. Right on Liberty Hill Road for 0.4 miles to fork in road. Right at fork for 1.1 miles to end of road. (TLD & Air CNS # 200, need key)
A0	1	2	Hwy 274-N for 2.2 miles. Right on Lake Wylie Road (1099) for 2.2 miles to fork in road. Right at fork onto Commodore Place for 0.2 miles. Left on Tioga Road for 0.3 miles to end of road.
A0	1	5	Left exiting Power Generation Group entrance on Concord Road for 1.2 miles. Left on Old Concord Road for 0.3 miles. Right on Acacia Road for 0.3 miles. Left on Crepe Myrtle Road for 0.7 miles. Left on Blue Bird Lane for 0.1 miles to end. (TLD & Air CNS #201, need key).
A0	1	6	Hwy 49-N for 6.5 miles. Right on Pleasant Hill Road (1109) for 0.5 miles. Right on Youngblood Road (1102) for 2.8 miles. Left on Snug Harbor Road (1357) for 0.5 miles. Right on Kalabash Road for 0.3 miles. Right on Cozy Cove Road (1434) for 0.5 miles to end.
A0	1	8	Left exiting Power Generation Group entrance on Concord Road for 1.2 miles. Left on Old Concord Road for 0.3 miles. Right on Acacia Road for 0.3 miles. Left on Crepe Myrtle Road. Go 0.3 miles to first drive on right past Paradise. Place TLD across road. (TLD CNS #202)
A0	1	9	Hwy 49-N for 6.5 miles. Right on Pleasant Hill Road (1109) for 0.5 miles. Right on Youngblood Road (1102) for 2.3 miles. Left on Snug Harbor Road (1357) for 1.3 miles to end of road.
A0	1	11	Left exiting Power Generation Group entrance on Concord Road for 1.2 miles. Left on Old Concord Road for 0.3 miles. Right on Acacia Road for 0.3 miles. Left on Crepe Myrtle Road for 0.2 miles. TLD is on left in curve. (TLD CNS #223)

Enclosure 5.3
Predetermined Environmental Sampling Locations

ZONE	RADIUS DISTANCE	LOCATION	DESCRIPTION
A0	1	12	Hwy 49-N for 6.5 miles. Right on Pleasant Hill Road (1109) for 0.5 miles. Right on Youngblood Road (1102) for 1.6 miles. Left on McKee Road (1100) for 1.2 miles. Right on Bankhead Road for 1.2 miles to end of road.
A0	1	14	Left exiting Power Generation Group entrance on Concord Road for 1.2 miles. Left on Old Concord Road for 0.3 miles. Right on Acacia Road for 0.2 miles. TLD is on right side of road. (TLD CNS #224)
A0	1	15	Left exiting Power Generation Group entrance on Concord Road for 1.3 miles. Left on Kingfisher Drive for 0.4 miles to Commodore Yacht Club.
A0	1	16	Left exiting Power Generation Group entrance on Concord Road for 1.3 miles where pavement ends.
A0	1	17	Left exiting Power Generation Group entrance on Concord Road for 1.1 miles to first transmission tower on left after bridge. (TLD CNS #225)
A0	1	18	Left exiting Power Generation Group entrance on Concord Rd. for 1.7 miles. Right on Sandlapper Road for 0.2 miles. Stop at transmission tower.
A0	1	20	Left exiting Power Generation Group entrance on Concord Road for 0.7 miles. TLD on left just past fence. (TLD CNS #226)
A0	1	21	Hwy 274-S for 1.6 miles. Left on Allison Creek Road (1081) for 1.7 miles. Left on Spratt Road to end. (Beware of dogs).
A0	1	23	Left exiting Power Generation Group entrance on Concord Road for 0.4 miles. TLD on left at beginning of guard rail posts. (TLD CNS #204).
A0	1	24	Hwy 274-S for 1.6 miles. Left on Allison Creek Road (1081) for 1.7 miles. Left at Spratt Road for 0.1 miles. Left on Morrison Road. Right at first 2 forks. Left at next fork to end for a total of 0.5 miles.

Enclosure 5.3
Predetermined Environmental Sampling Locations

ZONE	RADIUS DISTANCE	LOCATION	DESCRIPTION
A0	1	26	Location at the base of Catawba Nuclear Station Meteorological Tower. (TLD & Air CNS #205, need key)
A0	1	27	Right exiting Power Generation Group entrance on Concord Road for 0.1 miles. Left on Valelake Road for 0.1 miles to fork in road. Left at fork for 0.5 miles to end of road.
A0	1	29	Left exiting Power Generation Group entrance on Concord Road for 0.1 miles. TLD at Shady Shore Drive on right corner of Bethel Community Clubhouse sign. (TLD CNS #227)
A0	1	30	Right exiting Power Generation Group entrance on Concord Road for 0.1 miles. Left on Valelake Road for 0.1 miles to fork in road. Right at fork for 0.5 miles to end of road.
A0	1	32	Right exiting Power Generation Group entrance on Concord Road for 0.1 miles. TLD is on right side of entrance to Valelake Rd. (TLD CNS #228)
A0	1	33	Right exiting Power Generation Group entrance on Concord Road for 1 mile. Left on Pine Point Drive for 0.5 miles.
A0	1	35	Right exiting Power Generation Group entrance on Concord Road for 0.4 miles. TLD on top of hill on right at the intersection of CNS Construction entrance. (TLD CNS #206)
A0	1	36	Right exiting Power Generation Group entrance on Concord Road for 0.9 miles. Stop at entrance to transmission lines.
A0	1	38	Hwy 274-N Right at Liberty Hill Road. Right at fork to third power line on right. Walk ~ 200 yards along boundary fence. TLD on fence. (TLD CNS #229)
A0	1	39	Hwy 274-N for 0.5 miles. Right on Liberty Hill Road for 0.4 miles to fork in road. Right at fork for 0.3 miles to third transmission tower on right.

Enclosure 5.3
Predetermined Environmental Sampling Locations

ZONE	RADIUS DISTANCE	LOCATION	DESCRIPTION
A0	1	41	Hwy 274-N for 0.5 miles. Right on Liberty Hill Road for 0.4 miles to fork in road. Right at fork for 0.4 miles. TLD on fence on right. (TLD CNS #207)
A0	1	42	Hwy 274-N for 0.5 miles. Right on Liberty Hill Road for 0.4 miles to fork in road. Right at fork for 0.8 miles to softball field entrance.
A0	1	44	Hwy 274-N for 0.5 miles. Right on Liberty Hill Road for 0.4 miles to fork in road. Right at fork for 1 mile to large rock pile at fence. TLD is on fence. (TLD CNS #222)
A0	1	45	Left exiting Power Generation Group entrance on Concord Road for 1.2 miles. Left on Old Concord Road for 1.4 miles to end of road. TLD is on fence on the left side. (TLD CNS #203)
A0	1	46	Left exiting Power Generation Group entrance on Concord Road for 0.7 miles. Turn left just after canal bridge. Go to pier. (Water CNS #208, need key)
A0	2	3	Hwy 274-N for 2.2 miles. Right on Lake Wylie Road (1099) for 2.2 miles to fork in road. Left on Hudson Rd.
A0	2	4	Hwy 49-N for 6.5 miles. Right on Pleasant Hill Road (1109) for 0.5 miles. Right on Youngblood Road (1102) for 3 miles to fork in road. Left at fork for 0.6 miles to end at Catawba Yacht Club.
A0	2	7	Hwy 49-N for 6.5 miles. Right on Pleasant Hill Road (1109) for 0.5 miles. Right on Youngblood Road (1102) for 2.8 miles to the intersection of Snug Harbor Road (1357).
A0	2	10	Hwy 49-N for 6.5 miles. Right on Pleasant Hill Road (1109) for 0.5 miles. Right on Youngblood Road (1102) for 2.8 miles. Left on Snug Harbor Road (1357) for 1.3 miles. Left on Crosshavens Drive for 0.3 miles to end of road.
A0	2	13	Hwy 49-N for 6.5 miles. Right on Pleasant Hill Road (1109) for 0.5 miles. Right on Youngblood Road (1102) for 1.6 miles. Left on McKee Road.(1100) for 1.2 miles. Right on Bankhead Road for 0.4 miles to the intersection of Bessbrook Road.

Enclosure 5.3
Predetermined Environmental Sampling Locations

ZONE	RADIUS DISTANCE	LOCATION	DESCRIPTION
A0	2	19	Hwy 274-S for 1.6 miles. Left on Allison Creek Road (1081) for 3 miles to end of pavement.
A0	2	22	Hwy. 274-S for 1.6 miles. Left on Allison Creek Road (1081) for 1.6 miles to intersection of Bardale Road.
A0	2	25	Hwy 274-S for 1.6 miles. Left on Allison Creek Road (1081) for 1.7 miles to intersection of Spratt Road.
A0	2	28	Hwy 274-S for 1.6 miles. Left on Allison Creek Road (1081) for 1 mile to intersection of Colina Road.
A0	2	31	Hwy 274-S for 1.2 miles to the intersection of Campbell Road. (80)
A0	2	34	Hwy 274-S for 0.7 miles to Big Allison Creek Bridge.
A0	2	37	Hwy 274-N for 0.5 miles. Left on Liberty Hill Road for 0.3 miles. Left on Fremont Road for 0.2 miles to end of road.
A0	2	40	Right exiting Power Generation Group entrance on Concord Road for 1.3 miles. Right on Hwy. 274-N for 1 mile.
A0	2	43	Hwy 274-N for 2.2 miles. Right on Lake Wylie Road (1099) for 1.9 miles. Right on Beaver Creek Trail for 0.3 miles to end of road.
A1	3	1	Hwy 49-N for 4.8 miles to the NC side of Buster Boyd Bridge.
A1	4	2	Hwy 49-N for 6.5 miles to the intersection of Pleasant Hill Road (1109). TLD is on the transmission tower on left. (TLD CNS #232)
A1	4	4	Hwy 49-N for 6.5 miles. Right on Pleasant Hill Road (1109) for 0.5 miles. Right on Youngblood Road (1102) for 0.6 miles. Left on Zoar Road (1105) for 0.4 miles. Right on Thomas Road (1104) for 0.1 miles. TLD is behind second house on right in pines. (TLD CNS #233)
A1	4	6	Hwy 49-N for 5.6 miles. Left at Camp Steere sign after crossing Buster Boyd Bridge for 0.7 miles to end of road. (Water CNS #215)

Enclosure 5.3
Predetermined Environmental Sampling Locations

ZONE	RADIUS DISTANCE	LOCATION	DESCRIPTION
A1	5	3	Hwy 49-N for 7.8 miles to Steele Creek Volunteer Fire Department on right.
A1	5	5	Hwy 49-N for 6.5 miles. Right on Pleasant Hill Road (1109) for 0.5 miles. Right on Youngblood Road (1102) for 0.3 miles. Left on Hamilton Road (1106) for 0.7 miles to the intersection of Hwy 160.
A2	10	1	Hwy 49-N for 11.4 miles to Westinghouse Blvd. Go 1 mile past Westinghouse Blvd to Roberts Systems 8500 on left.
A3	10	1	Hwy 49-N for 10 miles. Right on Carowinds Blvd (1441) for 3 miles. Left on Hwy 51 for 2.1 miles to Sugar Creek Bridge.
B1	2	2	Hwy 49-N for 6.7 miles. Right on Pleasant Hill Road (1109) for 0.6 miles. Right on Youngblood Road (1102) for 1.8 miles, bear off to right and follow Bankhead Road for 0.4 miles, Left on Bessbrook Road for 0.9 miles to end of road.
B1	2	4	Hwy 49-N for 8 miles. Right on Hwy 160 for 2.8 miles. Right on Gold Hill Road (98) at Tega Cay sign. Enter Tega Cay following Tega Cay Drive for 2.6 miles. Right on Windjammer Drive for 0.6 miles to circle. Right at circle for 0.2 miles. Left on Kiwi Point for 0.2 miles to end of road.
B1	3	1	Hwy 49-N for 8 miles. Right on Hwy 160 for 2.8 miles. Right on Gold Hill Road (98) at Tega Cay sign for 1.2 miles. Right on gravel road into DPC substation. (TLD & Air CNS #212, need key)
B1	4	3	Hwy 49-N for 8 miles. Right on Hwy 160 for 3.9 miles. Right on Dam Road (99) for 1.9 miles to last gravel road on right in sharp curve before Lake Wylie Dam. Left through fence for 0.2 miles to substation. TLD on right of inner substation. (TLD CNS #235)
B1	4	5	Hwy 49-N for 8 miles. Right on Hwy. 160 for 3.9 miles. Right on Dam Rd. (99) for 1.6 miles. Left on Gray Rock Road (251) for 0.7 miles to Lake Wylie Dam. Walk through plant to upstream side of the dam. (Water CNS #211)

Enclosure 5.3
Predetermined Environmental Sampling Locations

ZONE	RADIUS DISTANCE	LOCATION	DESCRIPTION
B1	4	6	Hwy 49-N for 8 miles. Right on Hwy 160 for 3.9 miles. Right on Dam Road (99) for 1.6 miles. Left on Gray Rock Road (251) for 0.7 miles to Lake Wylie Dam. Go to river access on downstream side of dam.
B2	4	2	Hwy 49-N for 8 miles. Right on Hwy 160 for 2.8 miles to the Home Federal Savings and Loan on left side of road. TLD on barbed wire fence approximately 50 yards behind bank. (TLD CNS #234)
B2	5	3	Hwy 49-N for 8 miles. Right on Hwy 160 for 2.8 miles. Left on Gold Hill Road (98) for 1 mile. Stop at the intersection of Whitley Road.
B2	5	5	Hwy 49-N for 8 miles. Right on Hwy 160 for 5.6 miles. Right on Sutton Road (49) for 1.1 miles to the intersection of Gray Rock Road (251).
B2	7	6	Hwy 49-N for 8.4 miles. Right on Hwy 160 for 7.1 miles. Right on Sidney Jackson street (at Fort Mill Park) for 0.1 miles. Left on Self Street for 0.1 miles and turn in to Fort Mill Municipal Water Supply. (TLD CNS #247, Water CNS #213)
B2	8	1	Hwy 49-N for 10 miles. Right on Carowinds Blvd (1441) for 1.3 miles. Left on Choate Circle for 0.3 miles. TLD is on the inside of fence left of the guardhouse. (TLD CNS #246)
B2	10	4	Hwy 49-N for 10 miles. Right on Carowinds Blvd (1441) for 3 miles. Left on Hwy. 51 for 3 miles, right on Hwy 521 (Polk Street) for 2.9 miles. Right on Dorman Road for 1.1 miles. Stop at the state line.
B2	10	7	Hwy 49-N for 8 miles. Right on Hwy 160 for 10 miles through Fort Mill to the Sugar Creek Bridge.
C1	4	1	Hwy 274-S for 3.8 miles. Left on Mt. Gallant Road (195) for 5.2 miles. Left on India Hook Road (30) for 0.9 miles to the SC Wildlife Resources Dept. on left. (TLD CNS #236)

Enclosure 5.3
Predetermined Environmental Sampling Locations

ZONE	RADIUS DISTANCE	LOCATION	DESCRIPTION
C1	4	3	Hwy 274-S for 3.8 miles. Left on Mt. Gallant Road (195) for 3 miles. Right on Homestead Road (657) for 2.5 miles to end of road. TLD is straight across at intersection of Twin Lake Road. (TLD CNS #237)
C1	4	5	Hwy 274-S for 3.8 miles. Left on Mt. Gallant Road (195) for 1.3 miles. Right on West Oak Drive (962) for 1.2 miles to end at fork. TLD on left at fence. (TLD CNS #238)
C1	5	2	Hwy 274-S for 3.8 miles. Left on Mt. Gallant Road (195) for 5.6 miles to Red Burketts Body Shop on right.
C1	5	4	Hwy 274-S for 3.8 miles. Left on Mt. Gallant Road (195) for 3 miles. Right on Homestead Road (657) for 2.5 miles to end of road.
C1	5	6	Hwy 274-S for 5.1 miles. Left on Hwy 161 for 2.2 miles to fork in road. Left at fork for 0.1 miles. SC National Guard Armory on left side of road.
C1	5	7	Hwy 274-S for 5 miles to Carter Lumber Company.
C2	7	2	Hwy 274-S for 3.8 miles. Left on Mt. Gallant Road (195) for 8.5 miles to the intersection of Cherry Road. Go to Rock Hill Municipal Water Supply across intersection on left. (Water CNS #214)
C2	7	3	Hwy 274-S for 9.2 miles. Right on Herlong Avenue for 0.3 miles 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	7	8	Hwy 274-S for 3.8 miles. Left on Mt. Gallant Road (195) for 7.6 miles. Left on Hwy 161 for 1.1 miles. Left on Hwy 21 for 0.4 miles. Left on Grier McGuire Road for 0.5 miles to end of road.
C2	8	6	Hwy 274-S for 5.1 miles. Left on Hwy 161 for 1.3 miles. Right on Rawlinson Road (56) for 1.8 miles, left on Hwy. 5 for .5 miles to Rock Hill Career Development Center on right. TLD on transmission tower in front of building (TLD CNS #249).

Enclosure 5.3
Predetermined Environmental Sampling Locations

ZONE	RADIUS DISTANCE	LOCATION	DESCRIPTION
C2	10	1	Hwy 274-S for 5.1 miles. Left on Hwy 161 for 2.2 miles to fork in road. Left at fork on Celanese Road (50) for 8.2 miles to the intersection of Springdale Road.
C2	10	4	Hwy 274-S for 5.1 miles. Left on Hwy 161 for 5.7 miles. Right on Mt. Gallant Road (195) for 1.5 miles. Right on Hwy 21-121 Bypass for 2 miles to the Fast Fare on left at the intersection of Springsteen Road.
C2	10	5	Hwy 274-S for 5.1 miles. Left on Hwy 161 for 1.3 miles. Right on Rawlinson Road (56) for 1.8 miles. Left on Hwy 5 for 1.6 miles. Right on Heckle Blvd (901) for 3.3 miles to end of road. Left on Hwy 72 for 1.2 miles. Right on dirt road across from Wayne's Auto Service. Go 0.1 miles to DPC substation on left. (TLD & Air CNS #217, need key)
C2	10	7	Hwy 274-S for 5.1 miles. Left on Hwy 161 for 0.1 miles. Right on Adnah Church Road (81) for 2.9 miles. Right on Hwy 5 for 0.2 miles. Left on Eastview Road (102) for 3.2 miles. Right on Hwy 322 for 0.1 miles. Left on Falls Road for 0.9 miles to the intersection of Oak Park Road (103).
D1	4	2	Hwy 274-S for 1.2 miles. Right on Campbell Road (80) for 2.3 miles. Left on Paraham Road (54) for 1.5 miles to transmission tower on right. TLD on power pole. (TLD CNS #240)
D1	5	1	Hwy 274-S for 5 miles to Carter Lumber Company. TLD on fence near gate. (TLD CNS #239)
D1	5	3	Hwy 274-S for 1.2 miles. Right on Campbell Road (80) for 2.3 miles. Left on Paraham Road (54) for 0.6 miles. Right on Harper Road (815) for 1.4 miles to Allison Creek Bridge.
D1	5	4	Hwy 274-S for 1.2 miles. Right on Campbell Road (80) for 3 miles. TLD on left at beginning of fence. (TLD CNS #241).
D1	6	M	Hwy 274-S for 5.1 miles. Right on Hwy 161 for 2.1 miles. Left on Road 1080 for 0.5 miles to Pursley Dairy.

Enclosure 5.3
Predetermined Environmental Sampling Locations

ZONE	RADIUS DISTANCE	LOCATION	DESCRIPTION
D1	7	M	Hwy 274-S for 5.1 miles. Left on Hwy 161 for 0.1 miles. Right on Adnah Church Road (81) for 1.4 miles. Woods Dairy is on the left.
D2	8	M	Sample location has been deleted.
D2	10	1	Hwy 274-S for 5.1 miles. Left on Hwy 161 for 0.1 miles. Right on Adnah Church Road (81) for 2.9 miles. Right on Hwy 5 for 0.2 miles. Left on Eastview Road (102) for 1 mile. Right on Holland Road (157) for 0.7 miles. Right on Turkey Farm Road (1172) for 1.2 miles. Left on Russell Road (536) for 0.2 miles.
D2	10	2	Hwy 274-S for 5.1 miles. Left on Hwy 161 for 0.1 miles. Right on Adnah Church Road (81) for 2.9 miles. Right on Hwy 5 for 0.3 miles. Left on Billy Wilson Road (1451) for 2.2 miles. Right on Turkey Farm Road (1172) for 0.8 miles. Left on Benfield Road for 0.3 miles to Fishing Creek Bridge.
D2	10	3	Hwy 274-S for 1.2 miles. Right on Campbell Road (80) for 3.4 miles. Left on Hwy 49-S for 5 miles. Stop at Pantry on left.
D2	10	4	Hwy 274-S for 1.2 miles. Right on Campbell Road (80) for 3.4 miles. Left on Hwy 49-S for 5.2 miles. Left on North Congress Street (64) for 0.7 miles. Left on Hwy 5 for 0.2 miles to DPC Appliance Center on left. TLD on fence in back. (TLD CNS #250)
D2	10	5	Hwy 274-S for 1.2 miles. Right on Campbell Road (80) for 3.4 miles. Left on Hwy 49-S for 1.7 miles. Right on Old Limestone Road (172) for 4.3 miles to end of road.
E1	5	1	Hwy 274-S for 1.2 miles. Right on Campbell Road (80) for 3.4 miles to the intersection of Hwy 49.
E1	5	2	Hwy 49-S for 3 miles. Right on Paraham Road (54) for 0.7 miles to transmission tower on left after bridge. (TLD CNS #242)
E1	5	3	Hwy 274-N for 2.1 miles. Left on Hwy 55 for 2.3 miles. Left on Kingsburry Road (114) for 0.4 miles to transmission tower on left. (TLD CNS #243)

Enclosure 5.3
Predetermined Environmental Sampling Locations

ZONE	RADIUS DISTANCE	LOCATION	DESCRIPTION
E1	5	4	Hwy 274-N for 2.1 miles. Left on Hwy 55 for 2.3 miles to the intersection of Kingsburry Rd. (114)
E2	5	1	Hwy 274-S for 1.2 miles. Right on Campbell Road (80) for 2.3 miles. Right on Paraham Road (54) for 0.9 miles to the intersection of Dr. Nichols Rd. (819)
E2	6	M	Sample location has been deleted.
E2	10	2	Hwy 274-N for 2.1 miles. Left on Hwy 55 for 7.4 miles to DPC Appliance Center on left. TLD on fence in back of building. (TLD CNS #251)
E2	10	3	Hwy 274-N for 2.1 miles. Left on Hwy 55 for 7.3 miles to the Pantry on left at the intersection of Hwy 321 (behind Pantry).
F1	3	M	Hwy 274-N for 2.2 miles. Right on Lake Wylie Road (1099) for 0.1 miles to first house on left (Ingram Richmond residence).
F1	4	1	Hwy 274-N for 2.1 miles. Left on Hwy 55 for 1.5 miles to Bethel School. TLD on side of small building in back. (TLD CNS #244)
F1	4	3	Hwy 274-N for 3.4 miles. Left on Glenvista Road to Crowders Creek boat landing. TLD to east of parking lot. (TLD CNS #245)
F1	4	4	Hwy 274-N for 3.1 miles to River Hills Plantation rear entrance at Hamilton's Ferry Rd. TLD behind green building on right corner (TLD CNS #230).
F1	4	6	Hwy. 49-N for 4.1 miles to River Hills Plantation entrance guardhouse. (TLD CNS #231)
F1	5	2	Hwy 274-N for 2.1 miles. Left on Hwy 55 for 1.5 miles. Right on Bethel School Rd. (152) for 1 mile to the intersection of Holland Drive.
F1	5	5	Hwy 49-N for 2.9 miles to Sherer Memorial Presbyterian Church parking lot on left.
F1	5	7	Hwy 49-N for 3.6 miles. Left on Montgomery Road for 1 mile. Stop in horseshoe curve near lake.

Enclosure 5.3
Predetermined Environmental Sampling Locations

ZONE	RADIUS DISTANCE	LOCATION	DESCRIPTION
F2	5	2	Hwy 274-N for 4.2 miles. Left on Hwy 557 for 0.6 miles to Pine Grove Baptist Church.
F2	7	M	Sample location has been deleted.
F2	10	1	Hwy 274-N for 4.2 miles. Left on Hwy 557 for 2.2 miles. Right on Ridge Road (27) for 5 miles to Bowling Green Presbyterian Church.
F2	13	M	Hwy 274-N for 2.1 miles. Left on Hwy 55 for 9.5 miles through Clover, SC. Right on Lloyd White Road (148) for 2.3 miles. Left on Crowders Creek Road (1103) for 1.3 miles. Right on Sparrow Springs Road (1125) for 0.5 miles. Oates Dairy is on the left.
F3	10	1	Hwy 274-N for 4.2 miles. Left on Hwy 557 for 0.9 miles. Right on Oakridge Road (435) at Bethel Fire Dept for 5.4 miles to the intersection of Hwy 274 (in NC).
F3	10	2	Hwy 274-N for 5 miles. Right on Pole Branch Rd. (279) for 5.8 miles to Friendship Baptist Church on left.
F3	10	3	Hwy 274-N for 5 miles. Right on Pole Branch Road (279) for 2.8 miles. Right on Hwy 273 for 3 miles to Allen Steam Plant Bridge.
F3	14	4	Hwy 274-N for 5 miles. Right on Pole Branch Road (279) for 2.8 miles. Right on Hwy 273 for 7.2 miles into Belmont. Right on Catawba Street for 0.6 miles. Left at next light for 0.2 miles to Belmont Municipal Water Supply. (Water CNS #218)

Enclosure 5.4

Field Monitoring Data Sheets

TEAM ☐ Sample Van 1 ☐ Sample Van 2 ☐ Alpha

☐ Bravo ☐ _____

LOCATION: _____

_____

INSTRUCTIONS / RESULTS:

☐ Gamma Survey_____mrem/hr ☐ Smear Survey_____ccpm

☐ Air Sample I-131_____mrem/hr ☐ Beta Survey_____mrem/hr

☐ Water Sample ☐ Vegetation Sample

☐ Soil Sample

☐ Copy of affected area 10 mile EPZ map

DISPATCH INSTRUCTIONS / INFORMATION: _____

_____

_____

_____

DISPATCHED TIME: _____ **RESULTS TIME:**_____

RESULTS / INFORMATION:_____

_____

_____

_____

_____

TEAM ☐ Sample Van 1 ☐ Sample Van 2 ☐ Alpha

☐ Bravo ☐ _____

LOCATION:_____

_____

INSTRUCTIONS / RESULTS:

☐ Gamma Survey_____mrem/hr ☐ Smear Survey_____ccpm

☐ Air Sample I-131____mrem/hr ☐ Beta Survey_____rem/hr

☐ Water Sample ☐ Vegetation Sample

☐ Soil Sample ☐

☐ Copy of affected area 10 mile EPZ map

DISPATCH INSTRUCTIONS / INFORMATION:_____

_____

_____

_____

DISPATCHED TIME:_____ **RESULTS TIME:**_____

RESULTS / INFORMATION:_____

_____

_____

_____

_____

Enclosure 5.5

Periodic Status Update for Field Monitoring Teams

Time : _____ hours

Classification: _____

Wind Speed: _____mph

Wind Direction: from _____°

Zones Affected: _____

_____

Other: _____

_____

_____

_____

_____

Time : _____ hours

Classification: _____

Wind Speed: _____mph

Wind Direction: from _____°

Zones Affected: _____

_____

Other: _____

_____

_____

_____

_____

Time : _____ hours

Classification: _____

Wind Speed: _____mph

Wind Direction: from _____°

Zones Affected: _____

_____

Other: _____

_____

_____

_____

_____

Time : _____ hours

Classification: _____

Wind Speed: _____mph

Wind Direction: from _____°

Zones Affected: _____

_____

Other: _____

_____

_____

_____

_____

Enclosure 5.6

Field Monitoring Team Radiation Exposure Record

TEAM NAME	Sample Van 1		Sample Van 2		Alpha FMT		Bravo FMT		OTHER FMT's	
Individual's Name										
TLD #										
Time_____ Current Deep Dose Equivalent (SRD Reading)										
Time_____ Subsequent Deep Dose Equivalent (SRD Reading)										
Cumulative Deep Dose at Time_____										
Time_____ Subsequent Deep Dose Equivalent (SRD Reading)										
Cumulative Deep Dose at Time_____										
Total Deep Dose Equivalent For FMT member										
(Total Deep Dose Equivalent) X (Committed Dose Equivalent SRD Correction Factor) = Total Effective Dose Equivalent										

Enclosure 5.7

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

SOME SAMPLE LOCATIONS MAY NEED (CPD-1) KEY FOR ACCESS

LOCATION			SAMPLE
A0	1	1	(TLD & Air CNS #200, need key)
A0	1	5	(TLD & Air CNS #201, need key)
A0	1	8	(TLD & Air CNS #202)
A0	1	11	(TLD CNS #223)
A0	1	14	(TLD CNS #224)
A0	1	17	(TLD CNS #225)
A0	1	20	(TLD CNS #226)
A0	1	23	(TLD CNS #204)
A0	1	26	(TLD & Air CNS #205, need key)
A0	1	29	(TLD CNS #227)
A0	1	32	(TLD CNS #228)
A0	1	35	(TLD CNS #206)
A0	1	38	(TLD CNS #229)
A0	1	41	(TLD CNS #207)
A0	1	44	(TLD CNS #222)
A0	1	45	(TLD CNS #203)
A0	1	46	(Water CNS #208, need key)
A0	4	2	(TLD CNS #232)
A1	4	4	(TLD CNS #233)
A1	4	6	(Water CNS #215)
B1	3	1	(TLD & Air CNS #212, need key)
B1	4	3	(TLD CNS #235)
B1	4	5	(Water CNS #211)
B1	4	6	(Lake Wylie dam downstream)
B2	4	2	(TLD CNS #234)
B2	7	6	(TLD CNS #247, Water CNS #213)
B2	8	1	(TLD CNS #246)
C1	4	1	(TLD CNS #236)
C1	4	3	(TLD CNS #237)
C1	4	5	(TLD CNS #238)
C2	7	2	(Water CNS #214)
C2	7	3	(TLD CNS #248)
C2	8	6	(TLD CNS #249)
C2	10	5	(TLD & Air CNS #217, need key)
D1	4	2	(TLD CNS #240)
D1	5	1	(TLD CNS #239)
D1	6	M	Milk
D1	7	M	Milk
D2	8	M	Milk (deleted)
D2	10	4	(TLD CNS #250)
E1	5	2	(TLD CNS #242)
E1	5	3	(TLD CNS #243)
E2	6	M	(deleted)
E2	10	2	(TLD CNS #251)
F1	3	M	Milk
F1	4	1	(TLD CNS #244)
F1	4	3	(TLD CNS #245)
F1	4	4	(TLD CNS #230)
F1	4	6	(TLD CNS #231)
F2	7	M	Milk (deleted)
F2	13	M	Milk
F3	14	4	(Water CNS #218)

5.8.1 ESP-2 Operation

5.8.1.1 ESP-2 is a lightweight, portable, single channel analyzer, used for air sample (Silver Zeolite or equivalent cartridge) analysis; e.g. FMT Iodine-131 Equivalent analysis during emergency conditions.

5.8.1.2 Verify appropriate restricted Sodium Iodide (Na-I) detector is used with respective ESP-2.

5.8.1.3 Verify calibration due date on ESP-2 instrument; if current date exceeds the calibration due date, remove instrument from service and notify Field Monitor Coordinator (FMC).

5.8.1.4 RP Staff Scientist or FMC may authorize ESP-2 use or operation outside scope and/or acceptance criteria stated in this enclosure; provided the reason is clearly documented on applicable paperwork, and if appropriate, a Memorandum for File is written.

- Perform any section of procedure, as necessary, to identify or correct instrument performance problems.

5.8.1.5 Depress **On/Off** button to turn instrument on.

- Turn instrument **off** and replace batteries if first character on ESP-2 display starts blinking.

CAUTION:
- High voltage exists in certain internal components. Exercise caution when opening ESP-2 case and/or adjusting internal components.
- Ensure ESP-2 instrument is turned **off** when connecting or disconnecting Sodium Iodide (NA-I) detector.
- Na-I detector is fragile and Na-I detector is temperature sensitive; therefore, handle the instrument and detector carefully and operate instrument after sample van inside air temperature has stabilized.

5.8.2 ESP-2 Source Check

5.8.2.1 Perform ESP-2 instrument source response check prior to using for I-131 equivalent field analysis operations.

5.8.2.2 Place Na-I detector in shielded pig in emergency sample van whenever practical.

- Use sample van shielded pig to provide consistent sample counting geometry and minimization of ESP-2 background fluctuations.

5.8.2.3 Ensure **PHA/Gross** toggle switch is set **PHA**.

5.8.2.4 Press **On/Off** button to turn instrument on (if necessary).

- Instrument display should read "**Count for 0:05:00 Reset to Start**".

5.8.2.5 With shielded pig closed, press **Reset** button to start a five minute background count.

NOTE: ESP-2 instrument is programmed for instrument counts to be internally averaged over counting period; therefore, ESP-2 results are displayed in counts per minute (cpm).

5.8.2.6 Record background count rate **(BKG cpm)** on Ba-133 Source Check Worksheet Decay Table (Enclosure 5.8; Page 6,7,8 or 9) appropriate to Ba-133 source being counted).

5.8.2.7 Record efficiency factor **(Eff. Factor)**, from ESP-2 instrument calibration sticker, on Ba-133 Source Check Worksheet Decay Table being used for source check.

NOTE: Ba-133 Source Decay Tables are provided for each respective source. Ba-133 source activity is verified by CNS count room analysis for those sources that may be used beyond manufacture expiration date to verify that Ba-133 source is valid for ESP-2 response check.

5.8.2.8 Place Ba-133 source on top of detector and close shielded pig.

5.8.2.9 Press **Reset** button to start a five minute source count.

5.8.2.10 Record source count **(Source cpm)** on Ba-133 Source Check Worksheet Decay Table.

5.8.2.11 Subtract background (**BKG cpm**) from (**Source cpm**) to obtain Source corrected count per minute (**Source ccpm**) and record results on Ba-133 Source Check Worksheet Decay Table.

5.8.2.12 Multiply (**Source ccpm**) by ESP-2 (**Eff. Factor**) dpm/cpm to determine Ba-133 source disintegration per minute (dpm) and record (**Source check dpm**) results on Ba-133 Source Check Worksheet Decay Table.

5.8.2.13 Compare (**Source check dpm**) value calculated on Ba-133 Source Check Worksheet Decay Table to expected **current month** Ba-133 decay source (dpm) value, **using current month**, from the Ba-133 Source Check Worksheet Decay Table (Enclosure 5.8; Page 6,7,8 or 9) appropriate to source counted.

5.8.2.13.1 ESP-2 source check **FAILS** if instrument response **DOES NOT** fall within ± 20% of current month decay value.

- Repeat ESP-2 source check one additional time.
- Notify FMC if ESP-2 fails two consecutive source checks and discontinue use of instrument.
- Complete Ba-133 Source Check Worksheet Decay Table

5.8.2.13.2 Source Check **PASSES** if instrument response **DOES** fall within ± 20% of current month decayed value.

- Complete Ba-133 Source Check Worksheet Decay Table
- Notify FMC of instrument status.
- Retain Ba-133 Source Check Worksheet Decay Table for FMC review.

5.8.3 I-131 Equivalent Field Analysis

5.8.3.1 Press **On/Off** button to turn **on** ESP-2; (if necessary).

- Instrument should read "**Count for 0:05:00 reset to start**".

5.8.3.2 With shielded pig closed, press **Reset** button to start five minute background count.

NOTE: Determining ESP-2 background (BKG) does not have to be repeated and may be omitted if multiple samples are counted in the same location, and ESP-2 background conditions have not and do not indicate BKG changes.

5.8.3.3 Record ESP-2 **BKG Count Rate (cpm)** on I-131 Equivalent Field Analysis Worksheet (Enclosure 5.8 page 10).

5.8.3.4 Place clean bagged sample (cartridge only) on top of detector and close shield.

5.8.3.5 Press **Reset** button to start five minute sample count.

5.8.3.6 Record **Sample Count Rate (cpm)** on I-131 Equivalent Field Analysis Worksheet.

5.8.3.7 Subtract **BKG Count Rate (cpm)** from **Sample Count Rate (cpm)** to obtain **(A) Corrected Sample Count (ccpm).**

5.8.3.8 Complete I-131 Equivalent Field Analysis Worksheet (Enclosure 5.8 page 10) by recording ESP-2 sample analysis data, performing calculations and completing sample information in appropriate spaces.

NOTE: Equation used to calculate I-131 Equivalent (uCi/ml) and Committed Dose Equivalent (CDE Thyroid mrem/hr) is derived from the following equation:

$$\frac{(ccpm)\ (Eff.\ Fac.)\ (4.505E\text{-}7)\ (1.19)\ (1.3E+9)}{(Sample\ Volume)} = \textbf{mrem/hr}$$

Where:

ccpm = Sample count cpm - BKG count cpm

Eff Factor = ESP-2 efficiency factor from instrument in use

4.505E-7 = Conversion from disintegration per minute to µCi

1.19 = Ba-133 to I-131 gamma yield factor

1.3E+9 = EPA 400-R-92-001 Dose Conversion Factor I-131 Equivalent of 1.3E+6 rem per cm^{-3}/µCi/hr and 1000 mrem per 1 rem equals result of 1.3E+9

Sample Volume = Field cartridge sample volume

5.8.3.8.1 Use I-131 Equivalent Field Analysis Worksheet to calculate and record sample volume in milliliters.

5.8.3.8.2 Use I-131 Equivalent Field Analysis Worksheet to calculate and record **(A) Corrected Sample Count (ccpm)**.

5.8.3.8.3 Use I-131 Equivalent field concentration **(B) (µci/ml)**.

Where:

$$\frac{\text{(sample ccpm) (Eff. Fac.) (5.36E-7)}}{\text{Sample Volume}} = \textbf{µci/ml}$$

5.8.3.8.4 Use I-131 Equivalent Field Analysis Worksheet to calculate I-131 equivalent Committed Dose Equivalent**(CDE Thyroid)** field dose rate **(mrem/hr)**.

Where: (µci/ml)(1.3E+9) = **I-131 CDE Thyroid mrem/hr**

5.8.4 Use additional copies of I-131 Equivalent Field Analysis Worksheet (Enclosure 5.8 page 10) as necessary for recording and calculating additional samples.

- Retain I-131 Equivalent Field Analysis Worksheet for FMC review.

5.8.5 Repeat Steps 5.8.3 through 5.8.5 for each additional sample.

- Report I-131 Field analysis results to **FMC**.
- Save sample cartridge and particulate filter for additional count room analysis.

5.8.6 Turn ESP-2 **off** when **Not in use**.

5.8.7 Return ESP-2 instrument and Ba-133 source to appropriate emergency equipment storage location after use.

Enclosure 5.8

Eberline Model ESP-2 Air Sample Analysis
(BA-133 SOURCE CHECK WORKSHEET AND DECAY TABLE)

Source #: 43508-85
Source Type: Cartridge
Isotope: Ba-133
Half-Life 10.5
Reference Date: 5/20/92
Reference Activity (uCi): 1.495
First Decay Date: 12/1/99

Source cpm	- BKG cpm	= Source ccpm	x	*Eff. Factor (dpm/cpm)	= Source Check Result dpm
			X		
			X		

*Eff. Factor from ESP-2 Instrument Calibration Sticker

ESP-2 Source Check_____Passed Failed_____ (source check) (Mark Pass or Fail and notify FMC)

Signature _____ Date _____

Month Beginning Date		Month Ending Date	Decay of Activity dpm	Minus 20% dpm	Plus 20% dpm
12/01/99	-	12/31/99	2.01E+06	1.61E+06	2.41E+06
01/01/00	-	01/31/00	2.00E+06	1.60E+06	2.39E+06
02/01/00	-	02/29/00	1.99E+06	1.59E+06	2.38E+06
03/01/00	-	03/31/00	1.97E+06	1.58E+06	2.37E+06
04/01/00	-	04/30/00	1.96E+06	1.57E+06	2.36E+06
05/01/00	-	05/31/00	1.95E+06	1.56E+06	2.34E+06
06/01/00	-	06/30/00	1.94E+06	1.55E+06	2.33E+06
07/01/00	-	07/31/00	1.93E+06	1.54E+06	2.32E+06
08/01/00	-	08/31/00	1.92E+06	1.54E+06	2.30E+06
09/01/00	-	09/30/00	1.91E+06	1.53E+06	2.29E+06
10/01/00	-	10/31/00	1.90E+06	1.52E+06	2.28E+06
11/01/00	-	11/30/00	1.89E+06	1.51E+06	2.27E+06
12/01/00	-	12/31/00	1.88E+06	1.50E+06	2.25E+06
01/01/01	-	01/31/01	1.87E+06	1.49E+06	2.24E+06
02/01/01	-	02/28/01	1.86E+06	1.49E+06	2.23E+06
03/01/01	-	03/31/01	1.85E+06	1.48E+06	2.22E+06
04/01/01	-	04/30/01	1.84E+06	1.47E+06	2.21E+06
05/01/01	-	05/31/01	1.83E+06	1.46E+06	2.19E+06
06/01/01	-	06/30/01	1.82E+06	1.45E+06	2.18E+06
07/01/01	-	07/31/01	1.81E+06	1.45E+06	2.17E+06
08/01/01	-	08/31/01	1.80E+06	1.44E+06	2.16E+06
09/01/01	-	09/30/01	1.79E+06	1.43E+06	2.15E+06
10/01/01	-	10/31/01	1.78E+06	1.42E+06	2.13E+06
11/01/01	-	11/30/01	1.77E+06	1.41E+06	2.12E+06

Month Beginning Date		Month Ending Date	Decay of Activity dpm	Minus 20% dpm	Plus 20% dpm
12/01/01	-	12/31/01	1.77E+06	1.41E+06	2.12E+06
01/01/02	-	01/31/02	1.76E+06	1.41E+06	2.11E+06
02/01/02	-	02/28/02	1.75E+06	1.40E+06	2.10E+06
03/01/02	-	03/31/02	1.74E+06	1.39E+06	2.09E+06
04/01/02	-	04/30/02	1.73E+06	1.38E+06	2.08E+06
05/01/02	-	05/31/02	1.72E+06	1.38E+06	2.06E+06
06/01/02	-	06/30/02	1.71E+06	1.37E+06	2.05E+06
07/01/02	-	07/31/02	1.70E+06	1.36E+06	2.04E+06
08/01/02	-	08/31/02	1.69E+06	1.35E+06	2.03E+06
09/01/02	-	09/30/02	1.68E+06	1.35E+06	2.02E+06
10/01/02	-	10/31/02	1.67E+06	1.34E+06	2.01E+06
11/01/02	-	11/30/02	1.66E+06	1.33E+06	2.00E+06
12/01/02	-	12/31/02	1.66E+06	1.32E+06	1.99E+06
01/01/03	-	01/31/03	1.65E+06	1.32E+06	1.98E+06
02/01/03	-	02/28/03	1.64E+06	1.31E+06	1.96E+06
03/01/03	-	03/31/03	1.63E+06	1.30E+06	1.95E+06
04/01/03	-	04/30/03	1.62E+06	1.30E+06	1.94E+06
05/01/03	-	05/31/03	1.61E+06	1.29E+06	1.93E+06
06/01/03	-	06/30/03	1.60E+06	1.28E+06	1.92E+06
07/01/03	-	07/31/03	1.59E+06	1.27E+06	1.91E+06
08/01/03	-	08/31/03	1.58E+06	1.27E+06	1.90E+06
09/01/03	-	09/30/03	1.58E+06	1.26E+06	1.89E+06
10/01/03	-	10/31/03	1.57E+06	1.25E+06	1.88E+06
11/01/03	-	11/30/03	1.56E+06	1.25E+06	1.87E+06

Enclosure 5.8

Eberline Model ESP-2 Air Sample Analysis
(BA-133 SOURCE CHECK WORKSHEET AND DECAY TABLE)

Source #: 43509-85
Source Type: Cartridge
Isotope: Ba-133
Half-Life 10.5
Reference Date: 5/20/92
Reference Activity (uCi): 1.489
First Decay Date: 12/1/99

Source cpm	- BKG cpm	= Source ccpm	x	*Eff. Factor (dpm/cpm)	= Source Check Result dpm
			X		
			X		

*Eff. Factor from ESP-2 Instrument Calibration Sticker

ESP-2 Source Check_____Passed Failed_____ (source check) (Mark Pass or Fail and notify FMC)

Signature _____ Date _____

Month Beginning Date		Month Ending Date	Decay of Activity dpm	Minus 20% dpm	Plus 20% dpm	Month Beginning Date		Month Ending Date	Decay of Activity dpm	Minus 20% dpm	Plus 20% dpm
12/01/99	-	12/31/99	2.00E+06	1.60E+06	2.40E+06	12/01/01	-	12/31/01	1.76E+06	1.41E+06	2.11E+06
01/01/00	-	01/31/00	1.99E+06	1.59E+06	2.39E+06	01/01/02	-	01/31/02	1.75E+06	1.40E+06	2.10E+06
02/01/00	-	02/29/00	1.98E+06	1.58E+06	2.37E+06	02/01/02	-	02/28/02	1.74E+06	1.39E+06	2.09E+06
03/01/00	-	03/31/00	1.97E+06	1.57E+06	2.36E+06	03/01/02	-	03/31/02	1.73E+06	1.39E+06	2.08E+06
04/01/00	-	04/30/00	1.96E+06	1.56E+06	2.35E+06	04/01/02	-	04/30/02	1.72E+06	1.38E+06	2.07E+06
05/01/00	-	05/31/00	1.94E+06	1.56E+06	2.33E+06	05/01/02	-	05/31/02	1.71E+06	1.37E+06	2.06E+06
06/01/00	-	06/30/00	1.93E+06	1.55E+06	2.32E+06	06/01/02	-	06/30/02	1.70E+06	1.36E+06	2.04E+06
07/01/00	-	07/31/00	1.92E+06	1.54E+06	2.31E+06	07/01/02	-	07/31/02	1.69E+06	1.36E+06	2.03E+06
08/01/00	-	08/31/00	1.91E+06	1.53E+06	2.30E+06	08/01/02	-	08/31/02	1.69E+06	1.35E+06	2.02E+06
09/01/00	-	09/30/00	1.90E+06	1.52E+06	2.28E+06	09/01/02	-	09/30/02	1.68E+06	1.34E+06	2.01E+06
10/01/00	-	10/31/00	1.89E+06	1.51E+06	2.27E+06	10/01/02	-	10/31/02	1.67E+06	1.33E+06	2.00E+06
11/01/00	-	11/30/00	1.88E+06	1.51E+06	2.26E+06	11/01/02	-	11/30/02	1.66E+06	1.33E+06	1.99E+06
12/01/00	-	12/31/00	1.87E+06	1.50E+06	2.25E+06	12/01/02	-	12/31/02	1.65E+06	1.32E+06	1.98E+06
01/01/01	-	01/31/01	1.86E+06	1.49E+06	2.23E+06	01/01/03	-	01/31/03	1.64E+06	1.31E+06	1.97E+06
02/01/01	-	02/28/01	1.85E+06	1.48E+06	2.22E+06	02/01/03	-	02/28/03	1.63E+06	1.30E+06	1.96E+06
03/01/01	-	03/31/01	1.84E+06	1.47E+06	2.21E+06	03/01/03	-	03/31/03	1.62E+06	1.30E+06	1.95E+06
04/01/01	-	04/30/01	1.83E+06	1.46E+06	2.20E+06	04/01/03	-	04/30/03	1.61E+06	1.29E+06	1.94E+06
05/01/01	-	05/31/01	1.82E+06	1.46E+06	2.18E+06	05/01/03	-	05/31/03	1.60E+06	1.28E+06	1.92E+06
06/01/01	-	06/30/01	1.81E+06	1.45E+06	2.17E+06	06/01/03	-	06/30/03	1.60E+06	1.28E+06	1.91E+06
07/01/01	-	07/31/01	1.80E+06	1.44E+06	2.16E+06	07/01/03	-	07/31/03	1.59E+06	1.27E+06	1.90E+06
08/01/01	-	08/31/01	1.79E+06	1.43E+06	2.15E+06	08/01/03	-	08/31/03	1.58E+06	1.26E+06	1.89E+06
09/01/01	-	09/30/01	1.78E+06	1.42E+06	2.14E+06	09/01/03	-	09/30/03	1.57E+06	1.26E+06	1.88E+06
10/01/01	-	10/31/01	1.77E+06	1.42E+06	2.13E+06	10/01/03	-	10/31/03	1.56E+06	1.25E+06	1.87E+06
11/01/01	-	11/30/01	1.76E+06	1.41E+06	2.11E+06	11/01/03	-	11/30/03	1.55E+06	1.24E+06	1.86E+06

Enclosure 5.8

Eberline Model ESP-2 Air Sample Analysis
(BA-133 SOURCE CHECK WORKSHEET AND DECAY TABLE)

Source #: 49855-85
Source Type: Cartridge
Isotope: Ba-133
Half-Life 10.5
Reference Date: 3/8/95
Reference Activity (uCi): 1.497
First Decay Date: 12/1/99

Source cpm	- BKG cpm	= Source ccpm	x	*Eff. Factor (dpm/cpm)	= Source Check dpm
			x		
			x		

*Eff. Factor from ESP-2 Instrument Calibration Sticker
ESP-2 Source Check_____Passed Failed_____ (source check) (Mark Pass or Fail and notify FMC)

Signature _____ Date _____

Month Beginning Date		Month Ending Date	Decay of Activity dpm	Minus 20% dpm	Plus 20% dpm	Month Beginning Date		Month Ending Date	Decay of Activity dpm	Minus 20% dpm	Plus 20% dpm
12/01/99	-	12/31/99	2.42E+06	1.93E+06	2.90E+06	12/01/01	-	12/31/01	2.13E+06	1.70E+06	2.56E+06
01/01/00	-	01/31/00	2.40E+06	1.92E+06	2.88E+06	01/01/02	-	01/31/02	2.12E+06	1.69E+06	2.54E+06
02/01/00	-	02/29/00	2.39E+06	1.91E+06	2.87E+06	02/01/02	-	02/28/02	2.11E+06	1.68E+06	2.53E+06
03/01/00	-	03/31/00	2.38E+06	1.90E+06	2.85E+06	03/01/02	-	03/31/02	2.10E+06	1.68E+06	2.51E+06
04/01/00	-	04/30/00	2.37E+06	1.89E+06	2.84E+06	04/01/02	-	04/30/02	2.08E+06	1.67E+06	2.50E+06
05/01/00	-	05/31/00	2.35E+06	1.88E+06	2.82E+06	05/01/02	-	05/31/02	2.07E+06	1.66E+06	2.49E+06
06/01/00	-	06/30/00	2.34E+06	1.87E+06	2.81E+06	06/01/02	-	06/30/02	2.06E+06	1.65E+06	2.47E+06
07/01/00	-	07/31/00	2.33E+06	1.86E+06	2.79E+06	07/01/02	-	07/31/02	2.05E+06	1.64E+06	2.46E+06
08/01/00	-	08/31/00	2.31E+06	1.85E+06	2.78E+06	08/01/02	-	08/31/02	2.04E+06	1.63E+06	2.45E+06
09/01/00	-	09/30/00	2.30E+06	1.84E+06	2.76E+06	09/01/02	-	09/30/02	2.03E+06	1.62E+06	2.43E+06
10/01/00	-	10/31/00	2.29E+06	1.83E+06	2.75E+06	10/01/02	-	10/31/02	2.02E+06	1.61E+06	2.42E+06
11/01/00	-	11/30/00	2.28E+06	1.82E+06	2.73E+06	11/01/02	-	11/30/02	2.00E+06	1.60E+06	2.41E+06
12/01/00	-	12/31/00	2.26E+06	1.81E+06	2.72E+06	12/01/02	-	12/31/02	1.99E+06	1.60E+06	2.39E+06
01/01/01	-	01/31/01	2.25E+06	1.80E+06	2.70E+06	01/01/03	-	01/31/03	1.98E+06	1.59E+06	2.38E+06
02/01/01	-	02/28/01	2.24E+06	1.79E+06	2.69E+06	02/01/03	-	02/28/03	1.97E+06	1.58E+06	2.37E+06
03/01/01	-	03/31/01	2.23E+06	1.78E+06	2.67E+06	03/01/03	-	03/31/03	1.96E+06	1.57E+06	2.35E+06
04/01/01	-	04/30/01	2.21E+06	1.77E+06	2.66E+06	04/01/03	-	04/30/03	1.95E+06	1.56E+06	2.34E+06
05/01/01	-	05/31/01	2.20E+06	1.76E+06	2.64E+06	05/01/03	-	05/31/03	1.94E+06	1.55E+06	2.33E+06
06/01/01	-	06/30/01	2.19E+06	1.75E+06	2.63E+06	06/01/03	-	06/30/03	1.93E+06	1.54E+06	2.32E+06
07/01/01	-	07/31/01	2.18E+06	1.74E+06	2.61E+06	07/01/03	-	07/31/03	1.92E+06	1.54E+06	2.30E+06
08/01/01	-	08/31/01	2.17E+06	1.73E+06	2.60E+06	08/01/03	-	08/31/03	1.91E+06	1.53E+06	2.29E+06
09/01/01	-	09/30/01	2.15E+06	1.72E+06	2.58E+06	09/01/03	-	09/30/03	1.90E+06	1.52E+06	2.28E+06
10/01/01	-	10/31/01	2.14E+06	1.71E+06	2.57E+06	10/01/03	-	10/31/03	1.89E+06	1.51E+06	2.26E+06
11/01/01	-	11/30/01	2.13E+06	1.70E+06	2.56E+06	11/01/03	-	11/30/03	1.88E+06	1.50E+06	2.25E+06

Enclosure 5.8

Eberline Model ESP-2 Air Sample Analysis
(BA-133 SOURCE CHECK WORKSHEET AND DECAY TABLE)

Source #: 49856-85
Source Type: Cartridge
Isotope: Ba-133
Half-Life 10.5
Reference Date: 3/8/95
Reference Activity (uCi): 1.502
First Decay Date: 12/1/99

Source cpm	- BKG cpm	= Source ccpm	x	*Eff. Factor (dpm/cpm)	= Source Check dpm
			x		
			x		

*Eff. Factor from ESP-2 Instrument Calibration Sticker

ESP-2 Source Check_____Passed Failed_____ (source check) (Mark Pass or Fail and notify FMC)

Signature _____ Date _____

Month Beginning Date		Month Ending Date	Decay of Activity dpm	Minus 20% dpm	Plus 20% dpm	Month Beginning Date		Month Ending Date	Decay of Activity dpm	Minus 20% dpm	Plus 20% dpm
12/01/99	-	12/31/99	2.43E+06	1.94E+06	2.91E+06	12/01/01	-	12/31/01	2.14E+06	1.71E+06	2.56E+06
01/01/00	-	01/31/00	2.41E+06	1.93E+06	2.89E+06	01/01/02	-	01/31/02	2.12E+06	1.70E+06	2.55E+06
02/01/00	-	02/29/00	2.40E+06	1.92E+06	2.88E+06	02/01/02	-	02/28/02	2.11E+06	1.69E+06	2.54E+06
03/01/00	-	03/31/00	2.39E+06	1.91E+06	2.86E+06	03/01/02	-	03/31/02	2.10E+06	1.68E+06	2.52E+06
04/01/00	-	04/30/00	2.37E+06	1.90E+06	2.85E+06	04/01/02	-	04/30/02	2.09E+06	1.67E+06	2.51E+06
05/01/00	-	05/31/00	2.36E+06	1.89E+06	2.83E+06	05/01/02	-	05/31/02	2.08E+06	1.66E+06	2.50E+06
06/01/00	-	06/30/00	2.35E+06	1.88E+06	2.82E+06	06/01/02	-	06/30/02	2.07E+06	1.65E+06	2.48E+06
07/01/00	-	07/31/00	2.33E+06	1.87E+06	2.80E+06	07/01/02	-	07/31/02	2.06E+06	1.65E+06	2.47E+06
08/01/00	-	08/31/00	2.32E+06	1.86E+06	2.79E+06	08/01/02	-	08/31/02	2.05E+06	1.64E+06	2.45E+06
09/01/00	-	09/30/00	2.31E+06	1.85E+06	2.77E+06	09/01/02	-	09/30/02	2.03E+06	1.63E+06	2.44E+06
10/01/00	-	10/31/00	2.30E+06	1.84E+06	2.75E+06	10/01/02	-	10/31/02	2.02E+06	1.62E+06	2.43E+06
11/01/00	-	11/30/00	2.28E+06	1.83E+06	2.74E+06	11/01/02	-	11/30/02	2.01E+06	1.61E+06	2.41E+06
12/01/00	-	12/31/00	2.27E+06	1.82E+06	2.72E+06	12/01/02	-	12/31/02	2.00E+06	1.60E+06	2.40E+06
01/01/01	-	01/31/01	2.26E+06	1.81E+06	2.71E+06	01/01/03	-	01/31/03	1.99E+06	1.59E+06	2.39E+06
02/01/01	-	02/28/01	2.25E+06	1.80E+06	2.70E+06	02/01/03	-	02/28/03	1.98E+06	1.58E+06	2.37E+06
03/01/01	-	03/31/01	2.23E+06	1.79E+06	2.68E+06	03/01/03	-	03/31/03	1.97E+06	1.57E+06	2.36E+06
04/01/01	-	04/30/01	2.22E+06	1.78E+06	2.67E+06	04/01/03	-	04/30/03	1.96E+06	1.57E+06	2.35E+06
05/01/01	-	05/31/01	2.21E+06	1.77E+06	2.65E+06	05/01/03	-	05/31/03	1.95E+06	1.56E+06	2.34E+06
06/01/01	-	06/30/01	2.20E+06	1.76E+06	2.64E+06	06/01/03	-	06/30/03	1.94E+06	1.55E+06	2.32E+06
07/01/01	-	07/31/01	2.18E+06	1.75E+06	2.62E+06	07/01/03	-	07/31/03	1.93E+06	1.54E+06	2.31E+06
08/01/01	-	08/31/01	2.17E+06	1.74E+06	2.61E+06	08/01/03	-	08/31/03	1.91E+06	1.53E+06	2.30E+06
09/01/01	-	09/30/01	2.16E+06	1.73E+06	2.59E+06	09/01/03	-	09/30/03	1.90E+06	1.52E+06	2.28E+06
10/01/01	-	10/31/01	2.15E+06	1.72E+06	2.58E+06	10/01/03	-	10/31/03	1.89E+06	1.51E+06	2.27E+06
11/01/01	-	11/30/01	2.14E+06	1.71E+06	2.56E+06	11/01/03	-	11/30/03	1.88E+06	1.51E+06	2.26E+06

Enclosure 5.8

Eberline Model ESP-2 Air Sample Analysis
(I-131 Equivalent Field Analysis Worksheet)

ESP-2 Instrument # _____ Efficiency Factor (**Eff. Fac.**): _____ dpm/cpm (From the calibration sticker on ESP-2)

Sample # _____ **Sample Location** _____ **Date** _____ **Time** _____

2 cfm x $\frac{28.32 \text{ liter}}{1 \text{ ft}^3}$ x $\frac{1000 \text{ ml}}{1 \text{ liter}}$ = 56640 ml/min 56640 ml/min x _____ minutes = _____ ml
(sample run time) (sample volume *)

* Minimum volume obtained for field air samples is 2.25 E+5 milliliters (ml) or approximately 4 minutes at 2 cfm

(A)

_____ cpm - _____ cpm = _____ **ccpm**
Sample Count Rate BKG Count Rate Corrected Sample Count

Use this equation to calculate the I-131 Equivalent concentration in (µCi/ml)

(A)

$$\frac{(\text{\_\_\_\_\_ ccpm}) \textbf{ X } (\text{\_\_\_\_\_ Eff. Fac.}) \textbf{ X (5.36E-7)}}{(\text{\_\_\_\_\_}) \text{ ml}} = \text{\_\_\_\_\_ µCi/ml}$$

sample volume **(B)**

Use this equation to calculate the I-131 Equivalent (CDE) dose rate in mrem/hr

(_____µCi/ml) **X (1.3E +9)** = _____ **mrem/hr**
(B)

Sample # _____ **Sample Location** _____ **Date** _____ **Time** _____

2 cfm x $\frac{28.32 \text{ liter}}{1 \text{ ft}^3}$ x $\frac{1000 \text{ ml}}{1 \text{ liter}}$ = 56640 ml/min 56640 ml/min x _____ minutes = _____ ml
(sample run time) (sample volume *)

* Minimum volume obtained for field air samples is 2.25 E+5 milliliters (ml) or approximately 4 minutes at 2 cfm

(A)

_____ cpm - _____ cpm = _____ **ccpm**
Sample Count Rate BKG Count Rate Corrected Sample Count

Use this equation to calculate the I-131 Equivalent concentration in (µCi/ml)

(A)

$$\frac{(\text{\_\_\_\_\_ ccpm}) \textbf{ X } (\text{\_\_\_\_\_ Eff. Fac.}) \textbf{ X (5.36E-7)}}{(\text{\_\_\_\_\_}) \text{ ml}} = \text{\_\_\_\_\_ µCi/ml}$$

sample volume **(B)**

Use this equation to calculate the I-131 Equivalent (CDE) dose rate in mrem/hr

(_____µCi/ml) **X (1.3E +9)** = _____ **mrem/hr**
(B)

Field Monitoring Team Technician Signature: _____ DATE: _____