APPENDIX C

FORMS

NOTICE TO EMPLOYEES

**STANDARDS FOR PROTECTION AGAINST RADIATION
IN SOUTH CAROLINA REGULATIONS FOR CONTROL OF RADIATION
SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL HAS
ESTABLISHED STANDARDS FOR YOUR PROTECTION AGAINST RADIATION HAZARDS**

YOUR EMPLOYER'S RESPONSIBILITY

Your employer is required to:

1. Apply these regulations to work involving sources of radiation.
2. Post or otherwise make available to you a copy of the South Carolina Department of Health & Environmental Control regulations, licenses, and operating procedures which apply to the work you are engaged in, and explain their provisions to you.

YOUR RESPONSIBILITY AS A WORKER

You should familiarize yourself with those provisions of the South Carolina Department of Health & Environmental Control regulations, and the operating procedures which apply to the work you are engaged in. You should observe their provisions for your own protection and the protection of your co-workers.

WHAT IS COVERED BY THESE REGULATIONS

1. Limits on exposure to radiation and radioactive material in restricted and unrestricted areas;

2. Measures to be taken after accidental exposure;

3. Personnel monitoring, surveys and equipment;

4. Caution signs, labels, and safety interlock equipment;

5. Exposure records and reports; and,

6. Related matters.

POSTING REQUIREMENTS

COPIES OF THIS NOTICE MUST BE POSTED IN A SUFFICIENT NUMBER OF PLACES IN EVERY ESTABLISHMENT WHERE EMPLOYEES ARE EMPLOYED IN ACTIVITIES LICENSED OR REGISTERED, PURSUANT TO TITLES A, B, AND C, BY THE SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL TO PERMIT EMPLOYEES WORKING IN OR FREQUENTING ANY PORTION OF A RESTRICTED AREA TO OBSERVE A COPY ON THE WAY TO OR FROM THEIR PLACE OF EMPLOYMENT.

REPORTS ON YOUR RADIATION EXPOSURE HISTORY

1. The South Carolina Department of Health & Environmental Control regulations require that your employer give you a written report if you receive an exposure in excess of any applicable limit as set forth in the regulations or in the license. The basic limits for exposure to employees are set forth in the regulations or in the license. The basic limits for exposure to employees are set forth in Sections RHA 3.5 and RHB 3.2 and 3.3, RHC 2.2 and 2.3 of the regulations. These sections specify limits on exposure to radiation and exposure to concentrations of radioactive material in air and water.

2. If you work where personnel monitoring is required, and if you request information on your radiation exposure:

   (a) Your employer must give you a written report, upon termination of your employment, of your radiation exposures, and

   (b) Your employer must advise you annually of your exposure to radiation.

INSPECTIONS

All licensed or registered activities are subject to inspections by representatives of the South Carolina Department of Health & Environmental Control.

INQUIRIES

Inquiries dealing with the matters outlined above can be sent to:

South Carolina Department of Health & Environmental Control
Bureau of Radiological Health
2600 Bull Street
Columbia, South Carolina 29201
(803) 545-4400

PACKAGE LABELS

RADIOACTIVE - WHITE I Each package not exceeding 1.3×10^{-7} C kg^{-1} h^{-1} (0.5 mR/hr) at any point on the external surface of the package.

RADIOACTIVE - YELLOW II 1.3×10^{-7} C kg^{-1} h^{-1} (0.5 mR/hr) to 1.3×10^{-6} C kg^{-1} h^{-1} on the surface. Not over 1.0 mR/hr at 1meter.

RADIOACTIVE - YELLOW III** 1.3×10^{-5} C kg^{-1} h^{-1} (>50 mR/hr) on surface but 5.2×10^{-5} C kg^{-1}: 2.58×10^{-7} C kg^{-1} at 1 meter but 2.58×10^{-6} C kg^{-1}.

Each package must be labeled with two labels, affixed to opposite sides of the package.

The radionuclide, activity GBq, and transportation index (TI) should be properly marked on each label.

The transportation index (TI) represents the maximum dose rate at 1 meter (units of C kg^{-1}/hr).

Labels must be removed or defaced prior to discarding empty containers.

More detailed explanation if found in Part 49 Code of Federal Regulations Section 172.403.

**REQUIRES VEHICLE PLACARDING (173.399)

NUCLEAR MEDICINE DIVISION

INVENTORY MAINTENANCE (SAMPLE)

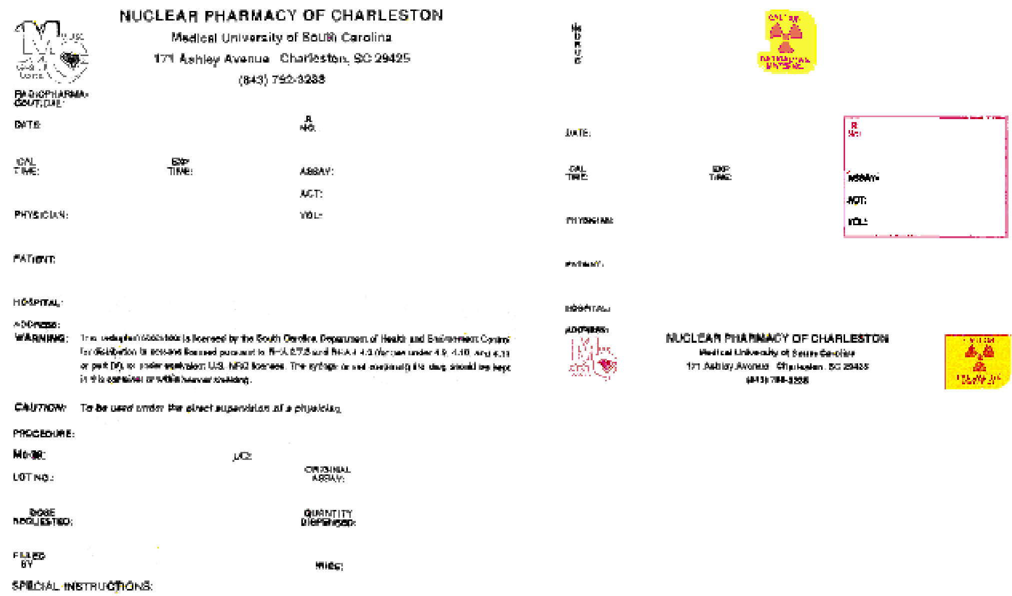
01/11/95 Inventory Maintenance - Select An Item To Edit
10:33:00

Drug #	Description	Calibration	Current Activity	Volume	Match Draw
0101-000	TC99M NA TC04-EL	01/09 @ 5:30	0.0000 mCi	0.00 ml	
0101-000	TC99M NA TC04-EL	01/09 @ 5:30	2.2590 mCi	8.70 ml	
0101-000	TC99M NA TC04-EL	01/09 @ 10:07	0.0000 mCi	0.00 ml	
0101-000	TC99M NA TC04-EL	01/09 @ 12:00	0.0000 mCi	0.00 ml	
0101-000	TC99M NA TC04-EL	01/10 @ 6:25	0.0000 mCi	0.00 ml	
0101-000	TC99M NA TC04-EL	01/10 @ 5:30	23.3957 mCi	16.13 ml	
0101-000	TC99M NA TC04-EL	01/10 @ 5:30	16.4655 mCi	10.00 ml	
0101-000	TC99M NA TC04-EL	01/10 @ 5:30	5.8022 mCi	2.01 ml	
0101-000	TC99M NA TC04-EL	01/10 @ 11:00	0.0000 mCi	0.00 ml	
0101-000	TC99M NA TC04-EL	01/11 @ 5:05	119.2635 mCi	1.25 ml	
0101-000	TC99M NA TC04-EL	01/11 @ 5:05	177.2601 mCi	10.00 ml	
0101-000	TC99M NA TC04-EL	01/11 @ 5:05	1001.2178 mCi	5.65 ml	
0101-000	TC99M NA TC04-EL	01/11 @ 7:54	250.5585 mCi	3.32 ml	
0102-000	TC99M NA TC04-	01/09 @ 10:07	0.0000 mCi	0.00 ml	
0102-000	TC99M NA TC04-	01/09 @ 10:57	0.6682 mCi	0.71 ml	
0102-000	TC99M NA TC04-	01/09 @ 12:00	8.2393 mCi	10.00 ml	

PgUp Pg Dn +/- Esc: Exit

F5 - Find Align Pointer To Selection and Press Enter

LABELS FOR RADIOPHARMACEUTICALS (SAMPLE)



NUCLEAR PHARMACY OF CHARLESTON
Medical University of South Carolina
171 Ashley Avenue Charleston, SC 29425
(843) 792-3288

RADIOPHARMACEUTICAL:

DATE: R NO.

CAL TIME: EXP TIME: ASSAY:

ACT:

PHYSICIAN: VOL:

PATIENT:

HOSPITAL:

ADDRESS:

WARNING: This radiopharmaceutical is licensed by the South Carolina Department of Health and Environmental Control for distribution to persons licensed pursuant to RHA [illegible] and RHA [illegible] under [illegible] or part [illegible], or under equivalent U.S. NRC licenses. The syringe or vial containing this drug should be kept in this container or within [illegible] shielding.

CAUTION: To be used under the direct supervision of a physician.

PROCEDURE:

Mo-99: µCi:

LOT NO.: ORIGINAL ASSAY:

DOSE REQUESTED: QUANTITY DISPENSED:

FILLED BY: [illegible]

SPECIAL INSTRUCTIONS:

DATE: R No.

CAL TIME: EXP TIME: ASSAY:

ACT:

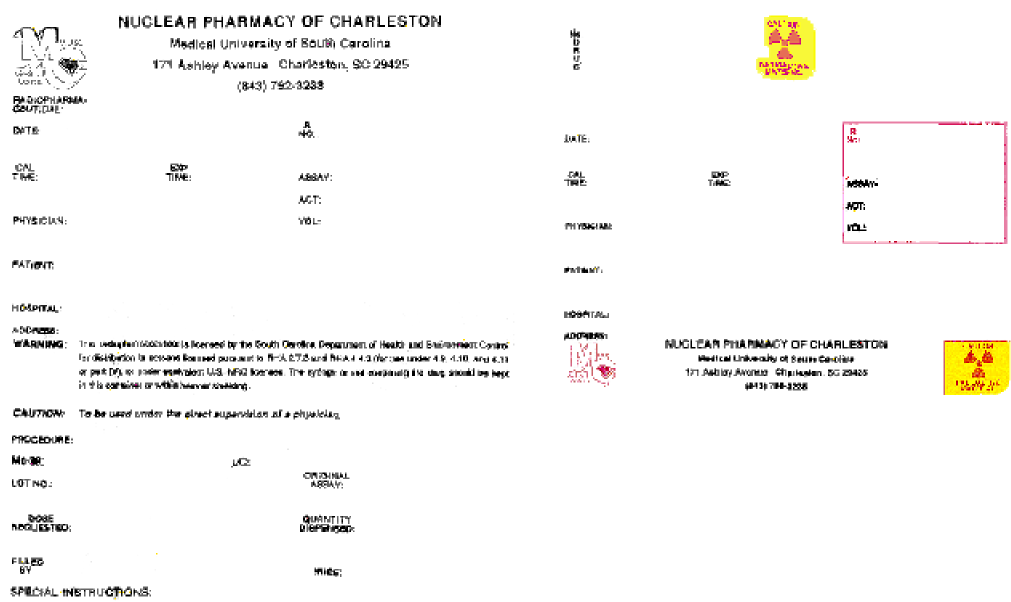
PHYSICIAN: VOL:

PATIENT:

HOSPITAL:

ADDRESS:

NUCLEAR PHARMACY OF CHARLESTON
Medical University of South Carolina
171 Ashley Avenue Charleston, SC 29425
(843) 792-3288



NUCLEAR PHARMACY OF CHARLESTON
Medical University of South Carolina
171 Ashley Avenue Charleston, SC 29425
(843) 792-3288

RADIOPHARMACEUTICAL:

DATE: R NO.

CAL TIME: EXP TIME: ASSAY:

ACT:

PHYSICIAN: VOL:

PATIENT:

HOSPITAL:

ADDRESS:

WARNING: This radiopharmaceutical is licensed by the South Carolina Department of Health and Environmental Control for distribution to persons licensed pursuant to RHA [illegible] and RHA [illegible] under [illegible] or part [illegible], or under equivalent U.S. NRC licenses. The syringe or vial containing this drug should be kept in this container or within [illegible] shielding.

CAUTION: To be used under the direct supervision of a physician.

PROCEDURE:

Mo-99: µCi:

LOT NO.: ORIGINAL ASSAY:

DOSE REQUESTED: QUANTITY DISPENSED:

FILLED BY: [illegible]

SPECIAL INSTRUCTIONS:

DATE: R No.

CAL TIME: EXP TIME: ASSAY:

ACT:

PHYSICIAN: VOL:

PATIENT:

HOSPITAL:

ADDRESS:

NUCLEAR PHARMACY OF CHARLESTON
Medical University of South Carolina
171 Ashley Avenue Charleston, SC 29425
(843) 792-3288

NUCLEAR PHARMACY RADIOPHARMACEUTICAL (Sample)
NUCLEAR MEDICINE REQUEST

MUSC Medical Center
DEPARTMENT OF RADIOLOGY
Nuclear Medicine

CC 45 1-2	PAT. NO. 3-14	SERV. DATE 16-21	SERV. CODE 22-29	QTY. 30	SERV. CODE 31-38	QTY. 39	SERV. CODE 40-47	QTY. 48	SERV. CODE 49-56	QTY. 57	SERV. CODE 58-65	QTY. 66	SERV. CODE 67-74	QTY 75

Clinical Problem: (Any contraindication to sedation or contrast examination must be discussed directly with the Radiologist).
Provisional Diagnosis:

Send Report To: Name _____ **Address**_____
Sign _____ **Print** _____ **Beeper #**_____

DESCRIPTION	CODE	QTY	FEE	DESCRIPTION	CODE	QTY	FEE	DESCRIPTION	CODE	QTY	FEE	DESCRIPTION	CODE	QTY	FEE
adrenal	44400018			Emergency	44400562			Myocard Infarction	44400406			Salivary Gland	44400539		
Blood Volume	44400695			Esonageal Transit	44401016			Myocard SPECT	44401040			Saliv GIC Function	44401081		
Bone (infection)	44400422			Ga Organ (abscess)	44400414			Parathyroid	44400869			Schilling's	44400299		
Bone (Mets)	44400042			GA WB (abscess)	44400893			Per-Ven Shunt	44400794			Schilling's cIF	44400935		
Bone Density	44400877			Ga Organ (tumor)	44400885			Plasma Volume	44400224			Spleen Trauma	44400307		
Bone Marrow (LSC)	44400836			GA WB (tumor)	44400109			Portable	44400943			Testicular	44400216		
Bone marrow (WB)	44400463			Gastric Emorying	44400786			Ractionuc Angio	44400489			Tallium:			
Bone Spect	44400976			GE Reflux	44400778			RBC Survival	44400257			Rest	44401115		
Brain Scan	44400059			GI bleed	44400760			RBC sequestration	44401057			Rest. SPECT	44401099		
Brain Scan & flow	44400620			Hemangoma	44400828			RBC Surv & Sequest	44400927			Stress	44400653		
Brain Spect	44400984			Hepatic system	44400521			Red cell mass	44400240			Stress. SPECT	44401107		
Cardiac Shunt	44400620			hepatic funtion	44400901			Renal	44400497			Thyroid scan	44400315		
Cerebral Angio	44400026			Ind Leukocytes	44400844			C GFR	44400471			Thy. N/T Ratio	44401198		
Cisterno (Flow)	44400067			Ind Platelets	44400810			Lasix	44400133			Thyroid Uptake	44400125		
Cisterno (Leak)	44400679			inter outside film	44401024			Triple Renal	44400075			Thy.Upt & Scan	44400349		
Cisterno (SPECT)	44401008			Liver/spleen	44400141			transplant	44400505			thyroid function SP	44400570		
Cisterno (Shunt)	44400992			Liver SPECT	44401032			RotcCapto	44401065			Total Body I-131	44400380		
Como.Anal (30')	44401164			Lung Leak Study	44400802			Renal SPECT	44401073			Tumor Loc.(SPECT)	44401123		
Como.Anal (60')	44401172			Lung:				Therapy:				Venogram			
Cystogram	44400661			Perfusion	44400182			Consul hyperthy				Unilateral	44400950		
Dacrocystogram	44400323			Ventilation	44401156			Consul thyroid ca				Bilateral	44400448		
Diag.Dose Oniv	44401180			Vent/perfusion	44400364			consul abl thy-Ca							
EKG:				Lymonoscintigraphy	44400851			Consul Thy-Card							
Rout Adult	41220005			Mecker Scan	44400398			Consul P32-PV							
Stress Adult	41220070			MUGA: Rest	44400729			Consul P32 intracav							
Rout Ped	41320003			Ex or Dr	44400745			Dose				Completed by:_____			
Stress Ped	41320078			Ex & Dr	44400745			I-131 therapy	44400083			Date:_____			
				First Pass	44400919			P32 therapy	44400091						

Diagnosis: (Required for insurance billing)
Primary:

Secondary: | **ICD9CM DX Code**

(Pg 2) **DOSE CALCULATION - NUCLEAR MEDICINE** (Sample)

For Department Use Only

DOSE CALCULATION		
Date ____________ Dose ____________mCi/:Ci Perchlorate Radiopharmaceutical ____________ yesG noG Time of Given By _________ Injection ________AM/PM ______________________________ M.D.	Lot No. _____________ Volume Dispensed _______mi Drawn By ___________________________________	Time _________ AM/PM Activity Dispensed______mCi/:Ci

DOSE CALCULATION		
Date ____________ Dose ____________mCi/:Ci Perchlorate Radiopharmaceutical ____________ yesG noG Time of Given By _________ Injection ________AM/PM ______________________________ M.D.	Lot No. _____________ Volume Dispensed _______mi Drawn By ___________________________________	Time _________ AM/PM Activity Dispensed______mCi/:Ci

DOSE CALCULATION		
Date ____________ Dose ____________mCi/:Ci Perchlorate Radiopharmaceutical ____________ yesG noG Time of Given By _________ Injection ________AM/PM ______________________________ M.D.	Lot No. _____________ Volume Dispensed _______mi Drawn By ___________________________________	Time _________ AM/PM Activity Dispensed______mCi/:Ci

DOSE CALCULATION		
Date ____________ Dose ____________mCi/:Ci Perchlorate Radiopharmaceutical ____________ yesG noG Time of Given By _________ Injection ________AM/PM ______________________________ M.D.	Lot No. _____________ Volume Dispensed _______mi Drawn By ___________________________________	Time _________ AM/PM Activity Dispensed______mCi/:Ci

DOSE CALCULATION		
Date ____________ Dose ____________mCi/:Ci Perchlorate Radiopharmaceutical ____________ yesG noG Time of Given By _________ Injection ________AM/PM ______________________________ M.D.	Lot No. _____________ Volume Dispensed _______mi Drawn By ___________________________________	Time _________ AM/PM Activity Dispensed______mCi/:Ci

RADIOPHARMACEUTICAL SHIPPING CERTIFICATE

SAMPLE

Date: 01/11/95 >>SHIPPERS DECLARATION FOR DANGEROUS GOODS<<

Run Number 1 Box #1

112476

CARRIER: SAME AS SHIPPER ORIGIN: 01/11/95@ 7:30 SHIPPER #: SC1-24242

SHIPPER

MEDICAL UNIV. HOSPITAL
169 ASHLEY AVE.
CHARLESTON, SC 29425
Emergency Contact: 1-803-792-4296

CONSIGNEE NAME AND ADDRESS

TRIDENT REG. MED. CTR.
9330 MEDICAL PLAZA DRIVE
CHARLESTON, SC 29418
1-803-797-4907

PROPER SHIPPING NAME/CLASSIFICATION
RADIOACTIVE MATERIAL N.O.S. UN 2982

# PIECES	ISOTOPE	CHEMICAL FORM/PHYSICAL STATE	ACTIVITY-GBq
	TC-99m	INORGANIC SALT/LIQUID	1.3697 (37.02 mCi)
			1.3697 (37.02 mCi)

LABEL CATEGORY (RADIOACTIVE WHITE-I/YELLOW-_____) TRANS INDEX_____
This document does not conform to ICAO TI/IATA regulations for transportation by aircraft
METER SURVEY INSTRUMENT: C Mod #: RM21-3 Make: EBERLINE Ser #: 433 Last Cal: 04/02/92
WIPE SURVEY INSTRUMENT: A Mod #: 05-578 Make: VICTOREEN Ser #: 083018171 Action level of: 1056 Cpm (Based On 6600 Dpm/300 cm^2 area) LATE CAL: 01/10/92

BACKGROUND _____Cpm SOURCE CONTAINER _____ Cpm PACKAGE _____Cpm

PKG SURFACE _____mR/hr

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to applicable regulations for the Department of Transportation. This shipment contains radioactive material intended for use in, or incidental to, research, or medical diagnosis or treatment.

Performed By:		Courier Signature:		Consignee Signature:	
Date 01/11/95	Time	Date 01/11/95	Time	Date 01/11/95	Time

NUCLEAR PHARMACY
GENERATOR LOG

@TIME	ELUTION CONTROL NUMBER	CALIBRATION DATE @TIME	TOTAL ACTIVITY & ASSAY	ELUTION VOLUME IN #1'S	SOURCE GENERATOR CONTROL #	MO-99 ACTIVITY	Mo99/Tc99a RATIO @ASSAY	STATUS Mo99 TEST	MO-99 ASSAY PERSON	STATUS AL+++ TEST	EXPIRATION DATE @TIME	CURRENT VOLUME IN #1'S
08/24/95 @ 5:28	9-08/24/95	08/24/95 @ 5:28	3618.0000mCi	10.00	1-08/22/95	0.050:Ci	0.0000:Ci/mCi	PASS	VD	NA	08/25/95 @ 5:28	0.00
08/24/95 @ 5:29	11-08/24/95 12-	08/24/95 @ 5:29	1801.0000mCi	10.00	3-08/18/95	0.007:Ci	0.0000:Ci/mCi	PASS	VD	NA	08/25/95 @ 5:29	0.74
08/24/95 @ 5:29	08/24/95	08/24/95 @ 5:29	.327.0000mCi	10.00	1-08/15/95	0.010:Ci	0.0000:Ci/mCi	PASS	VD	NA	08/25/95 @ 5:29	0.00
08/25/95 @ 5:31	11-08/25/95	08/25/95 @ 5:31	2248.0000mCi	5.00	1-08/22/95	0.001:Ci	0.0000:Ci/mCi	PASS	AA	NA	08/26/95 @ 5:31	0.25
08/25/95 @ 5:32	12-08/25/95	08/25/95 @ 5:32	1137.0000mCi	10.00	3-08/18/95	0.001:Ci	0.0000:Ci/mCi	PASS	AA	NA	08/26/95 @ 5:32	0.88
08/25/95 @ 5:32	13-08/25/95	08/25/95 @ 5:32	197.0000mCi	10.00	1-08/15/95	0.001:Ci	0.0000:Ci/mCi	PASS	AA	NA	08/26/95 @ 5:32	4.62
08/25/95 @13:20	24-08/25/95	08/25/95 @13:20	1311.0000mCi	5.00	1-08/22/95	1.000:Ci	0.0008:Ci/mCi	PASS	VJ	NA	08/26/95 @13:20	0.00

All evaluations were within specified Contamination Limits For Mo-99 and Al+++

MEDICAL UNIV. HOSPITAL 08/25/95 ITEM# 1

Tc-99m SODIUM PERTECHNETATE
0102-000 TC99M NA TC04- INHOUSE PREP
CONTROL NUMBER: 10-08/24/95

ACTIVITY AT CALIBRATION	ORIGINAL & REMAINING VOLUME	CALIBRATION DATE @TIME EXPIRATION DATE @TIME
3618.0000mCi Prep By: VD	10.00 ml 5.11 ml	08/24/95 @ 5:28 08/25/95 @ 5:28

---COMPONENTS USED TO PREPARE INVENTORY LOT----

CONTROL#	DRUG#	DESCRIPTION	VENDOR	VOLUME
9-08/24/95	0101-000	TC99M NA TC04-ELUT INHOUSE PREP		10.00ml

----CUSTOMER ORDERS FILLED FROM LOT---- ----------

DATE	CUSTOMER	RX#/PATIENT	ACTIVITY	VOLUME

No Patient Studies Filled from Inventory Lot

MEDICAL UNIV. HOSPITAL 08/25/95 ITEM# 2

Tc-99m SODIUM PERTECHNETATE
0102-000 TC99M NA TC04- INHOUSE PREP
CONTROL NUMBER: 10-08/24/95

ACTIVITY AT CALIBRATION	ORIGINAL & REMAINING VOLUME	CALIBRATION DATE @TIME EXPIRATION DATE @TIME
327.0000mCi Prep By: VD	10.00 ml 0.00 ml	08/24/95 @ 5:29 08/25/95 @ 5:29

---COMPONENTS USED TO PREPARE INVENTORY LOT-------

CONTROL#	DRUG#	DESCRIPTION	VENDOR	VOLUME
12-08/24/95	0101-000	TC99M NA TC04-ELUT INHOUSE PREP		10.00ml

----CUSTOMER ORDERS FILLED FROM LOT---- ----------

DATE	CUSTOMER	RX#/PATIENT	ACTIVITY	VOLUME
08/24/95	SC1001 MED UNIVERSITY HOSPI	126809 KELLY	15.0000mCi	0.69ml
08/24/95	SC1001 MED UNIVERSITY HOSPI	126813 KELLY	15.0000mCi	0.80ml
08/24/95	SC1005 TRIDENT REG. MED. CT	126853 per Phys Order	65.8539mCi	8.51ml

MEDICAL UNIV. HOSPITAL 08/25/95 ITEM# 3

Tc-99m SODIUM PERTECHNETATE
0102-000 TC99M NA TC04- INHOUSE PREP
CONTROL NUMBER: 10-08/24/95

ACTIVITY AT	ORIGINAL &	CALIBRATION DATE @TIME

---COMPONENTS USED TO PREPARE INVENTORY LOT-------

--------CUSTOMER ORDERS FILLED FROM LOT------ ----------

MEDICAL UNIVERSITY OF SOUTH CAROLINA

CESIUM INVENTORY

MANUFACTURER:MANUFACTURER:		MANUFACTURER:	DATEMANUFACTURER:	
Type of container	Qty.	Content (mCi)	Filter (mm Pt.)	Total Activity

Total Activity of all sources _____mCi

_____
Cesium Curator

_____
Radiation Safety Officer S.C. License #

Remarks:

MEDICAL UNIVERSITY OF SOUTH CAROLINA
Radiation Oncology Department

CESIUM WARD RECEIPT

DATE: _____

TIME OF INSERTION: _____AM/PM

NUMBER OF HOURS: _____

TIME OF REMOVAL: _____AM/PM

APPLICATORS & LOADING

SOURCES, NUMBER & DESCRIPTION:

_____

_____

TOTAL NUMBER OF SOURCES: _____

REMOVAL OF CESIUM:

REMOVED BY: _____ DATE: _____ TIME: _____AM/PM

CHECKED BY: _____ DATE: _____ TIME: _____AM/PM

RECEIVED IN CESIUM ("RADIUM") ROOM: _____ AM/PM

SURVEY READINGS:

READING AT 1 METER (3 FEET): _____mR/hr

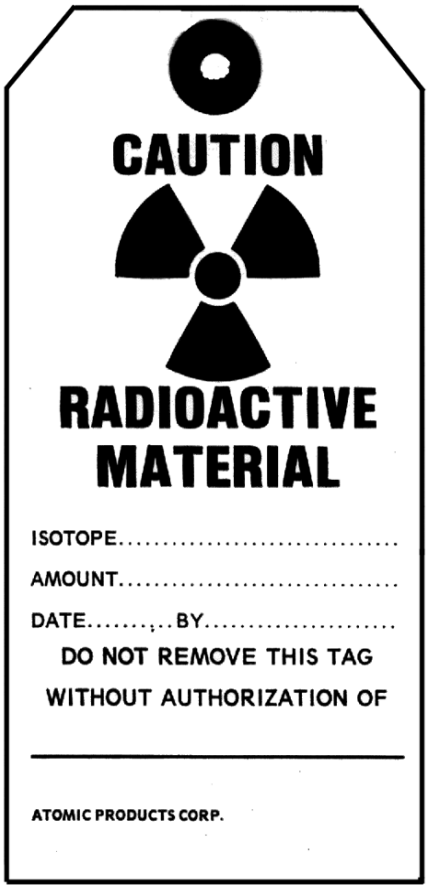
READING AT DOOR: _____mR/hr

READING AFTER CESIUM REMOVED FROM PATIENT AND

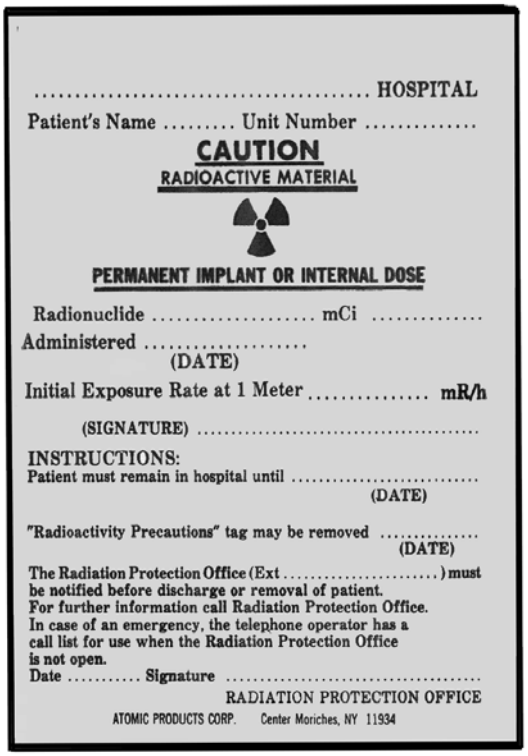
ROOM: _____mR/hr

WARNING LABELS

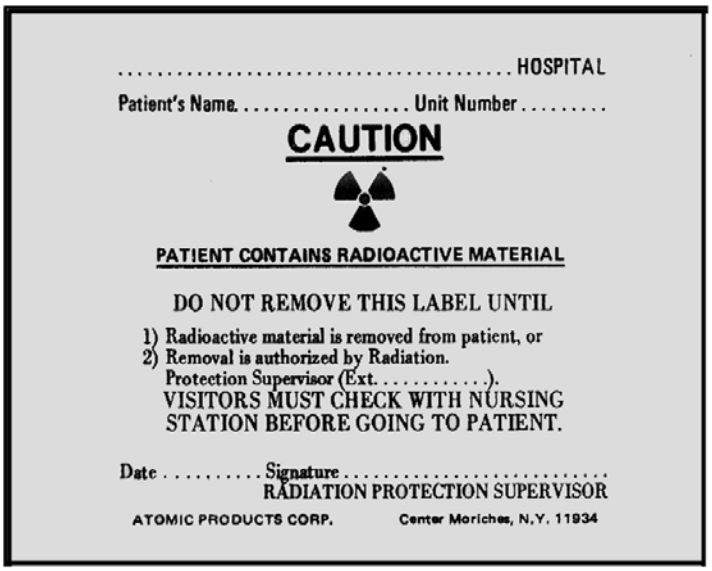
A. Label for Patient Waste, Linen, etc.



B. Label for Outside chart for Cesium seeds, I-131, P-32, Au-198, etc.



C. Label for Outside of Patient Chart for Cesium



REQUEST FOR USE OF STRONTIUM-90 BETA-RAY EYE APPLICATOR

Requesting Physician: _____Extension/Pager: _____

Physicians' Radioactive Materials User #: _____

Staff Privileges:_____

Date of Use: _____

Date of Return: _____

Location of Intermediate Source: _____

_____

Patient Name: _____

Checked out by: _____ Date:_____

Returned By: _____ Date:_____

NOTE:

THIS DEVICE EMITS DANGEROUS LEVELS OF BETA RADIATIONS. IT MAY ONLY BE USED BY PERSONNEL FAMILIAR WITH THE PROPER TECHNIQUES OF HANDLING AND STORAGE. USE OF THIS DEVICE IS RESTRICTED TO THE MEDICAL UNIVERSITY FACILITIES. THIS DEVICE MUST BE SECURED AGAINST UNAUTHORIZED USE AND REMOVAL FROM STORAGE.

Department of Radiation Oncology
Medical University of South Carolina

MEDICAL UNIVERSITY HOSPITAL

Radioactivity Precautions for Patients Containing Radioiodine

(Patient Name) _____ (Room No.)_____ was treated on _____, 20___ with _____ millicuries of radioiodine _____ in the form of _____.

Time of administration: _____ AM / PM By: _____

Radiation Survey:

By: _____

Date: _____ Time: _____ AM / PM

Maximum Exposure Rate:

@ 1 foot from patient _____ mR/hr.
@ 3 feet from patient _____ mR/hr.
@ 6 feet from patient _____ mR/hr.
@ door entry _____ mR/hr.
@ adjacent room (nearest patient) _____ mR/hr.

Time Restrictions:

Nursing and Hospital Staff: Maximum stay time of _____ minutes/day at beside,
_____ minutes/day at 3 feet

Visitors: Maximum stay time of _____ minutes/day outside of warning tape line,
or **NO VISITORS PERMITTED** _____.

Special Instructions: (applicable if checked)

_____ Patient must remain in room.

_____ Nursing staff must be badged with a radiation monitor.

_____ Nursing staff must wear disposable gloves and shoe covers in room.

_____ Disposable eating utensils only.

_____ Collect all urine in special containers for radioassays.

_____ Collect all stools in special containers for radioassays.

_____ Patient may not be discharged until approved by Radiation Safety.

_____ Room may not be released until approved by Radiation Safety.

Special Precautions:_____

Radiation Safety Officer _____ Date_____

Phone _____ in the event of emergency.

MEDICAL UNIVERSITY HOSPITAL

CHECKLIST FOR RADIOIODINE THERAPY PATIENTS

Patient: _____ Room Number: _____

was administered	_____	millicuries of I-131 on	_____	at	_____	**AM**
			month/day/year			**PM**

_____	Room approved for use
_____	Nursing instructions posted in chart
_____	Room posted with radiation signs
_____	Nursing staff instructed in patient care precautions

DAILY RADIATION SURVEYS:

DATE	**TIME**	**Radiation Readings in mR/hr**			
		1 ft.	**3 ft.**	**Door**	**By**
Discharge:					

_____ Patient consultation regarding radiation safety precautions

_____ Room released for reuse by: _____ Date: _____

Empty trash can readings _____ mR/hr

_____ mR/hr

_____ mR/hr

MEDICAL UNIVERSITY OF SOUTH CAROLINA
RADIATION MONITORING SERVICE - POLICIES & PROCEDURES

The Radiation Safety Office(r) of the Medical University of South Carolina shall determine which employees shall wear radiation badges to monitor occupational radiation exposure to ionizing radiation. In general, all employees working with, or around, x-ray machines and/or radioactive materials shall be required to wear badges. At his discretion, the Radiation Safety Office(r) may exempt from this requirement employees working with some radioactive materials, i.e. C-14, H-3. A Principal investigator will be notified on his/her Radioactive Materials or Ionizing Radiation Authorization if it is determined that he/she, assistants, technicians, etc., must wear badges. Supervisors in departments that require radiation monitoring badges are responsible for ensuring personnel are badged prior to beginning work. All individuals that may potentially enter a room where fluoroscopic x-rays are utilized (in use) must be badged prior to entering the room/facility (RHB 3.12.4.1.3.1).

The Medical University of South Carolina utilizes a commercial firm for badge service. The Radiation Safety Office handles all correspondence with the firm, therefore, send all requests, badges, etc. to **Radiation Safety**. The badges are changed on a monthly schedule and the reports are kept by the Radiation Safety Office(r) with individual files for each employee on badge service. However each department should keep on file copies of all their dosimetry reports. It is important that each investigator ensure that his/her employees change their badge(s) promptly each month and return the used badge(s) to the Radiation Safety Office. It is also very important that the Radiation Safety Office be notified promptly of any changes in badge service, i.e. water damage, heat, etc. Accidental exposure (splashing by radioactive material, leaving in room, etc.) should be reported immediately, keep the badge separate from others. In addition, please notify the Radiation Safety Office if a badge and/or holder is lost. Employees will be assigned a calculated dose based on current history for body badges and ring badges for the month when a badge/ring is not returned, lost, etc.

Each investigator/department needing badge service may copy the necessary forms from the Radiation Safety Manual, Appendix C. To add a new employee to the radiation monitoring service, complete the Request for Badge Service form and return it to the Radiation Safety Office. In an **emergency**, a badge can be issued the same day as requested. Allow 7-10 days delivery.

Please remember that it is a **LEGAL REQUIREMENT** that all persons required to wear badges do so, and that an up-to-date badge must be worn.

Each month a control badge will be sent with body and ring badges. The purpose of the control badge is to monitor shipment to and from the vendor, and the environment where the badges are stored or kept during off-duty hours. Each department should have a central area, free from radiation, where badge users can leave their badges. The control badge should be kept with these badges. Controls should be returned to Radiation Safety

with the badges at the end of the month. Control badges **are not** to be worn by employees. New radiation monitoring badges will be delivered to each department by the first working day of each month. **Outdated badges are to be replaced and shall be returned to the Radiation Safety Office NO LATER than the 10th of each month. If the previous month's badge is not returned by the 10th, a late fee will be charged.** Additional charges are incurred for individuals who abuse the radiation badge requirements. Changes to service (terminations, etc.) should be sent to Radiation Safety prior to the 10th of each month. Additions may be made at any time during the month, allow 7 - 10 days delivery.

Reports of exposure will be sent to each department. Reports should be kept and posted for employees to review. **PLEASE NOTE THAT REPORTS ARE NOT COMPLETE**. Complete histories are available by contacting Radiation Safety, extension 2-4255.

Your department is charged for the following.

Body Badges	Additions to Service
Ring Badges	Deletions from Service
Holders	Changes in Service
Lost/Damaged Badges, Rings, Holders	Late Badges
Emergency Readings	Abuse of Service

The Radiation Safety Office will invoice each department or investigator for badge service on a quarterly basis. Prices are subject to change without notice (please call Radiation Safety, 2-4255, for current prices). Please follow the instructions attached to the invoice. Please contact the Radiation Safety Office if you have any questions.

Spare # _____ Part # _____ Series Code _____
(RSO use only)

REQUEST FOR BADGE SERVICE

Name
(☐ M)_____ _____ _____ _____
(☐ F) LAST FIRST MIDDLE MAIDEN

Employee ID # _____ Date of Birth: _____

Department: _____ Division/Lab/Floor: _____

Supervisor: _____ Bldg: _____ Room #: _____ Ext: _____

Has your supervisor briefed you on radiation safety procedures?
☐ Yes ☐ No
Have you read and understood the information on radiation monitors?
☐ Yes ☐ No

Occupation: ___ Researcher ___ Rad Tech ___ Nurse ___ Physician

___ Interventional Radiologist ___ Cardiologist

___ Other (please specify)_____

Check as needed: (Waist Badge is for Double Badge Participants only)

____ COLLAR Badge (worn outside lead apron)

____ WAIST Badge (worn inside lead apron)

____ RING Badge (☐ Lg/ ☐ Med/ ☐ Sm)

List previous employment including employment at MUSC only if you wore a badge or were monitored in any way for Occupational Radiation Exposure. If you were a student and were monitored complete this information. Please give your full name at the time of previous employment. Please make sure addresses are legible and complete.

EMPLOYER	DEPARTMENT	COMPLETE ADDRESS & ZIP CODE	DATES

I hereby authorize the release of my former occupational radiation exposure records to the Medical University of South Carolina.

Signature: _____ Date: _____

Please return this completed form to the Radiation Safety Office. Allow 7-10 days for delivery. You may FAX this request to extension 2-5099; however, the original must be sent through campus mail. Call ext. 2-4255 if you have any questions.

MEDICAL UNIVERSITY OF SOUTH CAROLINA
RADIATION DOSIMETRY MONITOR AND ITS USE

Radiation dosimetry badges are furnished in accordance with existing State and Federal regulations regarding monitoring of personnel exposed to ionizing radiation. The Radiation Safety Office will determine eligibility for participation in the Dosimetry Badge Program. The monthly Radiation Dosimetry Reports regarding your exposure become a part of your permanent records and are available for your review. If you leave MUSC for other employment, please request a copy of your exposure record to be sent to your new employer.

In order to utilize the badge most effectively, and to have the most accurate record possible, the following requirements must be observed:

1. Always wear your badge when working in radiation areas.

2. Wear the badge on the trunk portion of your body, i.e., on your collar, belt, pocket, etc. Rings shall be worn on the index finger, underneath gloves, facing toward inside of hand.

3. When wearing a lead apron, wear the collar badge on the outside of the lead apron.

4. Be sure that the badge is firmly attached. Loss of a badge requires that your permanent record be posted with a calculated dose for that month.

5. Be sure that you are wearing a current badge; the month appears on the face of the badge with your name and assigned number. If you are required to wear a badge and do not receive it, notify Radiation Safety immediately. All badges must be returned to the Radiation Safety Office no later than the 10th of each month. Return the badge to the Radiation Safety Office at 301 HOT so that it can be processed promptly.

6. Protect your badge from moisture, i.e., rain, washing machines, accidental splashing, etc. Moisture damage cannot be read properly and your record will be posted with a calculated exposure for that month. Immediately contact Radiation Safety for another badge to wear for the remainder of that month.

7. Accidental exposure (splashing with radioactive material, leaving in room, etc.) should be reported immediately to Radiation Safety. Keep the badge separate from others.

8. Your department is charged for all damaged, lost, and/or late badges and holders. Additional charges are incurred for misuse and/or abuse of service.

9. Notify the Radiation Safety Office of any change in status; termination of employment, leave of absence, pregnancy, name change due to marriage/divorce, change of departments, etc.

IMPORTANT - SEE NEXT PAGE

NEVER ALLOW ANYONE ELSE TO WEAR YOUR BADGE!

NEVER WEAR A BADGE WHICH IS NOT ASSIGNED TO YOU!! DO NOT WEAR THE BADGE MARKED "CONTROL", CALL RADIATION SAFETY FOR A BADGE!

NEVER INTENTIONALLY EXPOSE YOUR BADGE TO RADIATION. TO DO SO MAY RESULT IN SUSPENSION FROM YOUR DUTIES.

NEVER WEAR YOUR BADGE WHEN YOU ARE BEING X-RAYED (INCLUDING DENTAL X-RAYS), OR FLUOROSCOPY. THE BADGE MONITORS OCCUPATIONAL EXPOSURE, NOT MEDICAL EXPOSURE.

NEVER TAKE YOUR BADGE HOME WITH YOU. LEAVE IT IN A SAFE PLACE, AWAY FROM ANY SOURCE OF RADIATION AT YOUR PLACE OFWORK.

LEAVE THE MONITOR IN THE HOLDER EXCEPT TO CHANGE IT FOR THE NEXT MONTH'S BADGE.

KEEP THE MONITOR AND RINGS INTACT - DO NOT REMOVE ANY LABELS!!
IF ACCIDENTALLY WASHED/DRIED ASK FOR IMMEDIATE REPLACEMENT.

Any questions regarding badge service, radiation safety, etc. should be directed to the Radiation Safety Office(r), ext. 4255.

MEDICAL UNIVERSITY OF SOUTH CAROLINA

RADIATION MONITOR TERMINATION/CHANGE FORM

Use this form to report any terminations or changes in your badge service. If more than one person is listed, please note type of change beside each name. This form must reach the Radiation Safety Office no later than the FIRST FRIDAY of the month.

Date:_____

Department:_____
(use series code)

Name(s):

_____

_____

_____

TYPE OF CHANGE:

Terminate from badge service

Name change (marriage/divorce, etc.)

Transferred to other department (name department)

Lost Badge or Holder

Damage to Badge (specify - if splashed with radioactive material - KEEP SEPARATE)

Other (specify)

Fetal monitor:

Conception date _____
Declaration date _____
Due date _____

Signature of Mother_____

_____ _____ _____
(Signature of person making this report) (Extension) (Date)

MEDICAL UNIVERSITY OF SOUTH CAROLINA
RADIATION SAFETY OFFICE
DOUBLE BADGE PROGRAM GUIDELINES

Individuals who participate in the Double Badge Program must sign this form indicating they understand these guidelines and return it to the Radiation Safety Office.

1. The Radiation Safety Office will determine eligibility for participation in the double badge program.

2. All employees present during fluoroscopic procedures shall wear a lead apron and a personal monitoring device (life threatening medical emergencies take precedence over this policy). All Double Badge Program Participants shall wear a thyroid shield in addition to a lead apron. The double badge system accounts for the reduction in the actual dose an individual receives while wearing a lead apron. The effective dose equivalent (EDE) that is posted to a double badge program participant's permanent record will be calculated as follows:

   EDE = 0.04(collar badge) + 1.5(waist badge)

3. Double Badge Program Participants shall wear the collar badge (red body figure) outside the lead apron at the collar and the waist badge (yellow body figure) under the lead apron at the waist. Ring badges shall be worn on the index finger.

4. The Radiation Safety Office recommends that double badge program participants use eye protection in addition to a lead apron and thyroid shield.

5. If your waist badge is not returned to the Radiation Safety Office, the reading on the collar badge worn outside the lead apron will be recorded as the dose of record. All doses will be posted in permanent records. All regulations concerning maximum permissible doses will be followed.

6. Your Permanent Lifetime Total is posted with 400mrem for each collar badge not returned and 4000mrem for each ring dosimeter not returned.

By my signature below, I understand that the calculated effective dose equivalent will be assigned as my permanent dose of record only if I wear my assigned collar badge outside my lead apron and my assigned waist badge under my lead apron.

Series	Department/Division	SSN	Date

Print Name	Signature

MEDICAL UNIVERSITY OF SOUTH CAROLINA

APPLICATION FOR HUMAN USE OF RADIOACTIVE MATERIALS

TYPE OF USE: HUMAN_____ANIMAL EXTENDED TO HUMAN_____

PRINCIPAL INVESTIGATOR:_____RADIONUCLIDES:_____

DEPT./DIV.:_____EXT._____

LAB#:_____BUILDING:_____

POSSESSION LIMITS REQUESTED:_____

CHEMICAL FORM OF RADIONUCLIDE:_____

OTHER PERSONS TO USE RADIONUCLIDE:_____

CRITICAL ORGAN:_____BIOLOGICAL HALF-LIFE:_____kBq DOSE:_____

WEIGHT CRITICAL ORGAN:_____% UPTAKE BY ORGAN:_____

SECONDARY BODY:_____% UPTAKE:_____

REPEAT STUDY IN RADIONUCLIDE ADMINISTRATION:_____

SOURCE OF SUPPLY OF RADIONUCLIDE:_____

PLEASE ATTACH PROTOCOL FOR YOUR USE OF THIS MATERIAL:

TRAINING AND EXPERIENCE OF PRINCIPAL INVESTIGATOR: List all levels and types of experience with radionuclides.

ADDITIONAL INFORMATION: Attach copies of pertinent literature references; list equipment available for routine monitoring of the area; show a floor plan of the use area which includes the storage area; describe plans for waste disposal; estimate the number of cases to be studied; list any unusual contamination hazards and control measures, include personnel monitoring program.

I CERTIFY that I have become familiar with the Radiation Safety Manual of the Medical University of South Carolina and its radiation safety procedures, and will implement the requirements contained therein in this study.

DATE:_____SIGNATURE:_____

PAGE 2: APPLICATION FOR HUMAN USE OF RADIOACTIVE MATERIALS

Experience of Principal Investigator is: Shown Below On File
(Circle one)

TYPE OF TRAINING	WHERE AND DURATION
a) Graduate of Radiology Residency Program approved by American Board of Radiology YES NO	
b) Principles & Practices of Radiation Protection YES NO	
c) Math & Calculations basic to the use and measurement of radiation YES NO	
d) Biological Effects of Radiation (Ionizing or Non-ionizing) YES NO	

Experience with Radiation (Actual Use)

Institution	Duration	Type of Use	# of Cases

RADIATION PROTECTION PROGRAM: Describe Radiation Protection measures to be used. Include survey meter to be used (include serial number)

QUALITY ASSURANCE PROGRAM: Describe procedures to be used

EXPERIENCE OF OTHER PERSONS NAMED ON PAGE 1. ATTACH CV

MEDICAL UNIVERSITY OF SOUTH CAROLINA

APPLICATION FOR THERAPEUTIC USE OF IONIZING OR NON-IONIZING RADIATION

TYPE OF USE: Human _____ Animal to Be Extended to Human _____

Animal Only _____ Other _____

PRINCIPAL INVESTIGATOR:_____EXT:_____

SOCIAL SECURITY NUMBER: _____

DEPARTMENT/DIVISION:_____BLDG:_____LAB #:_____

OTHER PERSONS TO DO PROCEDURE:_____

CV OF TECHNICAL STAFF IS ATTACHED:_____; OR ON FILE:_____

TYPE OF SOURCE TO BE USED: External:_____
Internal:_____

Radiation dose to be used:_____

Radionuclide(s):_____ (If so, attach protocol stating physical form and method of application, e.g., sealed source, etc.)

High Voltage Generator:_____ (If so, attach protocol stating physical form and method of application, e.g., sealed source,etc.)

Non-Ionizing Equipment:_____ (If so, attach protocol stating physical form and method of application, e.g., sealed source,etc.)

If internal use of radionuclide, complete the following:

Possession Limit required:_____Critical Organ:_____

Biological Half-Life:_____ % Uptake by Critical Organ:_____

Secondary Organ:_____ % Uptake:_____

Pharmaceutical Dose:_____ Becquerels

Method of Administration:_____

Supplier:_____ Material sterile, pyrogen free_____

PLEASE ATTACH A PROTOCOL to include when applicable; levels and types of experience with radionuclides, ionizing or non-ionizing radiation, pertinent literature references, list of equipment available for routine monitoring of the area, floor plan of use are, waste disposal plans, estimate of number of cases, any unusual contamination hazards, and control measures. Indicate if FDA IDE has been issued and attach copy.

DATE: _____ SIGNED: _____

PAGE 2: APPLICATION FOR THERAPEUTIC USE OF IONIZING OR NON-IONIZING RADIATION

Experience of Principal Investigator is: Shown Below On File (Circle One)

TYPE OF TRAINING	WHERE AND DURATION
a) Graduate of Radiology Residency Program approved by American Board of Radiology YES NO	
b) Principles & Practices of Radiation Protection YES NO	
c) Math & Calculations basic to the use and measurement of radiation YES NO	
d) Biological Effects of Radiation (Ionizing or Non-ionizing) YES NO	

Experience with Radiation (Actual Use)

Institution	Duration	Type of Use	# of Cases

RADIATION PROTECTION PROGRAM: Describe Radiation Protection measures to be used. Include survey meter to be used (include serial number)

QUALITY ASSURANCE PROGRAM: Describe procedures to be used

EXPERIENCE OF OTHER PERSONS NAMED ON PAGE 1. ATTACH CV

MEDICAL UNIVERSITY OF SOUTH CAROLINA

APPLICATION FOR DIAGNOSTIC USE OF IONIZING OR NON-IONIZING RADIATION EQUIPMENT AND PROCEDURES

TYPE OF USE: Human _____ Animal to Be Extended to Human _____

Animal Only _____ Other _____

PRINCIPAL INVESTIGATOR:_____EXT:_____

SOCIAL SECURITY NUMBER: _____

DEPARTMENT/DIVISION:_____BLDG:_____LAB #:_____

OTHER PERSONS TO DO PROCEDURE:_____

CV OF TECHNICAL STAFF IS ATTACHED:_____; OR ON FILE:_____

TYPE OF EQUIPMENT TO BE USED: External:_____

MANUFACTURER:_____ MODEL:_____ SN:_____

LOCATION:_____

PLEASE ATTACH A PROTOCOL to include when applicable; levels and types of experience with ionizing or non-ionizing radiation, previous training and education in the use of such radiation, pertinent literature references, list of equipment with which familiar, methods of implementation of a quality assurance program, radiation protection program, and purposes for which authorization is requested. If making an application for the purchase of new equipment, include complete description and a set of specifications including blueprint (drawing) of room to be used. Indicate if FDA IDE has been issued and attach a copy.

I CERTIFY that I have become familiar with the Radiation Safety Manual of the Medical University of South Carolina and its radiation safety procedures and Title B of the South Carolina Rules and Regulations for Radiation Control and will implement the requirements contained therein in this study and/or any future requirements that may be required by Federal, State or Local regulatory authorities.

DATE: _____ SIGNED: _____

PAGE 2: APPLICATION FOR DIAGNOSTIC USE OF IONIZING OR NON-IONIZING RADIATION EQUIPMENT AND PROCEDURES

Experience of Principal Investigator is: Shown Below On File
(Circle one)

TYPE OF TRAINING	WHERE AND DURATION
a) Graduate of Radiology Residency Program approved by American Board of Radiology YES NO	
b) Principles & Practices of Radiation Protection YES NO	
c) Math & Calculations basic to the use and measurement of radiation YES NO	
d) Biological Effects of Radiation (Ionizing or Non-ionizing) YES NO	

Experience with Radiation (Actual Use)

Institution	Duration	Type of use	# of Cases

RADIATION PROTECTION PROGRAM: Describe Radiation Protection measures to be used. Include survey meter to be used (include serial number)

QUALITY ASSURANCE PROGRAM: Describe procedures to be used

EXPERIENCE OF OTHER PERSONS NAMED ON PAGE 1. ATTACH CV

MEDICAL UNIVERSITY OF SOUTH CAROLINA

APPLICATION FOR NON-HUMAN USE OF RADIOACTIVE MATERIALS

PRINCIPAL INVESTIGATOR:_____

SOCIAL SECURITY NUMBER:_____ FACULTY RANK:_____

DEPARTMENT:_____ DIVISION:_____

PHONE NUMBER:_____

TYPE OF USE: ANIMAL_____ IN VITRO____

RADIONUCLIDE:	CHEMICAL FORM(S):	POSSESSION LIMIT (in MBq)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

OTHER PERSONS TO USE RADIONUCLIDES:_____

TIME OTHER PERSONS TO USE RADIONUCLIDES:_____

LABORATORY:_____ BUILDING:_____ EXTENSION:_____

kBq USED IN ONE EXPERIMENTAL RUN :_____
(for each radionuclide)

_____

_____

COMPLETE AND ATTACH PAGE 2 OF THIS APPLICATION (EXPERIENCE). See attached.

PLEASE ATTACH A PROTOCOL FOR YOUR USE OF THIS MATERIAL. See attached.

METHOD OF WASTE DISPOSAL:

I CERTIFY THAT I HAVE BECOME FAMILIAR WITH THE RADIATION SAFETY PROCEDURES FOR THE MEDICAL UNIVERSITY OF SOUTH CAROLINA AS OUTLINED IN THE RADIATION SAFETY MANUAL, AND I WILL IMPLEMENT THE REQUIREMENTS CONTAINED THEREIN.

DATE:_____ SIGNATURE:_____

PAGE 2: APPLICATION FOR NON-HUMAN USE OF RADIOACTIVE MATERIALS

Experience of Principal Investigator is: Shown Below On File
(Circle one)

TYPE OF TRAINING	WHERE AND DURATION	ON THE JOB	FORMAL COURSE
a) Principles and practices of Radiation Protection	YES NO	YES NO	
b) Radioactivity Measurements, standardization & monitoring techniques & instrumentation	YES NO	YES NO	
c) Math & calculations basic to the use & measurements of radioactivity	YES NO	YES NO	
c) Biological effects of radiation	YES NO	YES NO	

Experience with Radiation (Actual Use of radioactive materials or equivalent

Radionuclide	Max. Amt.	Institution	Duration	Type of Use

RADIATION DETECTION INSTRUMENTS: Describe previous experience. List serial numbers and type equipment to be used.

TYPE (make & model)	Radiation Detected	Sensitivity Range	Window	Use (monitoring Surveying, etc.)

FACILITIES AND EQUIPMENT: Describe lab facilities, storage area, shielding, fume hoods, etc.
Sketch of lab facilities is: attached on file

RADIATION PROTECTION PROGRAM: Describe protection measures, including decontamination control measures. Include personnel monitoring program.

EXPERIENCE OF OTHER PERSONS NAMED ON PAGE 1. MUSC Certificate of Training Required for ALL personnel working in the lab.

MUSC RADIOACTIVE INVENTORY/DISPOSAL RECORD (Sample)

INVESTIGATOR:_____DEPT:_____NUMBER:_____

1. Surveys	2. Material Disposal	3. Material Description
Wipe dpm _____ Pkg _____ Vial P kg Ckg^{1}h^{-} ^{1}(mR/hr)___Surface___1m Purchase Req _____ Order Date _____ PO # _____	Date Rec d _____ Date Ntfd _____ Person Ntfd _____ Extension _____ Rec d by & Date _____	R-N _____Vendor _____ Compound _____ Catalog # _____ Total Activity _____mBq (mCi) # Vials _____mBq (mCi) _____ Lot # _____

4. Usage Record						5. Disposal Record				
Date	Used By	Activity Used	Volume Used	Activity Remaining	Use	LSV	Solid	Sewer	Animal	Decay
6. Total					Totals					

Signed: _____ _____ _____
Investigator Date Radiation Safety

*See back of form for directions, call 792-4255 for additional information,
Return Completed Form to Radiation Safety*

MUSC RADIOACTIVE INVENTORY DISPOSAL RECORD DIRECTIONS (Sample)

SECTIONS 1,2, AND 3 will be completed by the Radiation Safety Office.

SECTION 4 - USAGE RECORD

DATE:	Usage Date
USED BY:	Initials of User
ACTIVITY USED:	Amount of radioactivity in Mbq (mCi) used for that particular assay or experiment. The subsequent disposal of this amount must be accounted for in the "Disposal Record" section by one or more of the five methods listed.
VOLUME USED:	Optional
ACTIVITY REMAINING:	Subtract the amount of activity used from the amount of activity in the vial.
USE:	Optional

SECTION 5 - DISPOSAL RECORD

Using the same amount of radioactivity that was used in the assay or experiment, fill in the appropriate means of disposal. Account for ALL radioactivity received, whether used or unused.

LSV:	Disposal through liquid scintillation vials.
SOLID:	Disposal of dry waste items such as absorbent pads, pipette tips, gauze pads, etc.
SEWER:	Amount of radioactive disposed of down the drain of a designated "Hot" sink.
ANIMAL:	Radioactivity disposed of in animal carcasses, and other organic waste materials.
DECAY:	Radioactivity that has been allowed to decay below background levels and then discarded as regular trash.

SECTION 6 - TOTALS

The "Disposal Record Totals" must equal the total activity used, which in turn will equal the activity originally received.

SI UNITS CONVERSION TABLE

A.	CONVERSION OF RADIOACTIVITY UNITS	1 Mbq = 27 mCi
B.	CONVERSION OF DOSE EQUIVALENT UNITS	1 :Sv = 100 :Rem (0.1 mRem)
C.	CONVERSION OF ABSORBED DOSE UNITS	1 :Gy = 100 :Rad (0.1 mRad)
D.	EXPOSURE UNIT	1 C kg^{-1} = 3.88 X 10^6 mRem (3.88 X 10^3 Roentgens)
		1 :C kg^{-1} = 3.88 mR

PLEASE CONTACT RADIATION SAFETY 792-4255 IF ADDITIONAL INFORMATION IS NEEDED TO COMPLETE THIS FORM

AFTER COMPLETING, INVESTIGATOR IS TO SIGN AND FORWARD TO RADIATION SAFETY

MONTHLY SEWER WASTE DISPOSAL

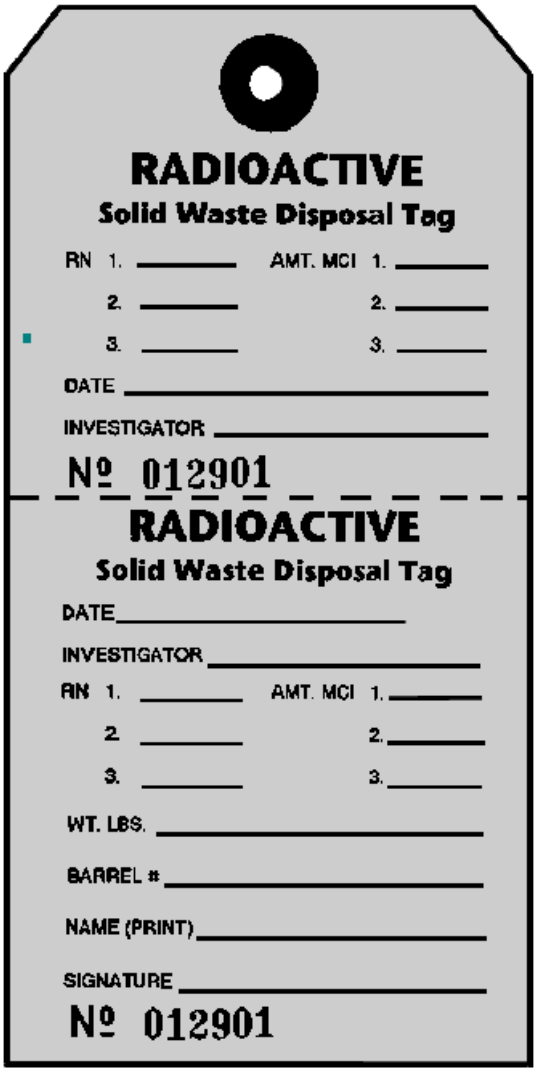
INVESTIGATOR: **MONTH:** **YEAR:** **ROOM#:**

DAY	RN	AMT (:Ci)	CHEMICAL COMPOUND	INITIALS	DAY	RN	AMT (:Ci)	CHEMICAL COMPOUND	INITIALS
1					19				
2					20				
3					21				
4					22				
5					23				
6					24				
7					25				
8					26				
9					27				
10					28				
11					29				
12					30				
13					31				
14									
15									
16									
17									
18									

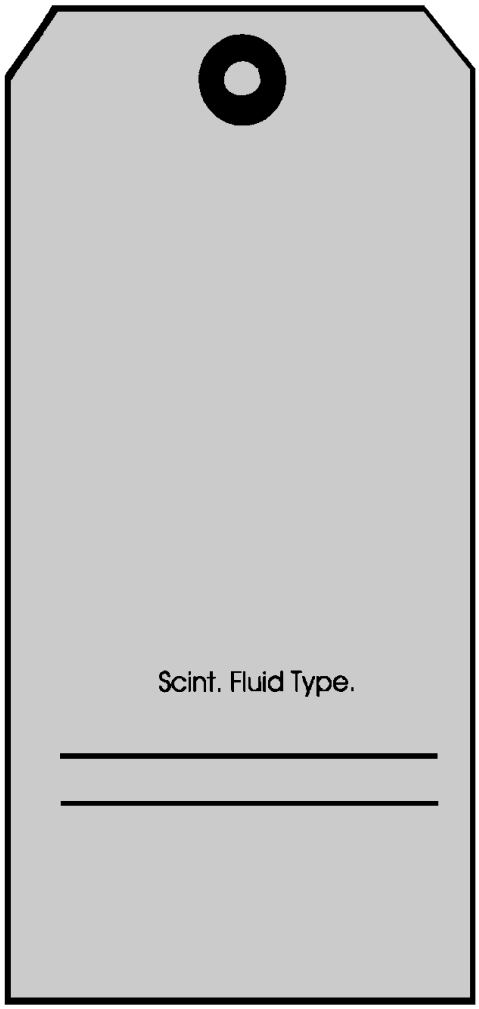
INVESTIGATOR SIGNATURE **RSO APPROVAL**

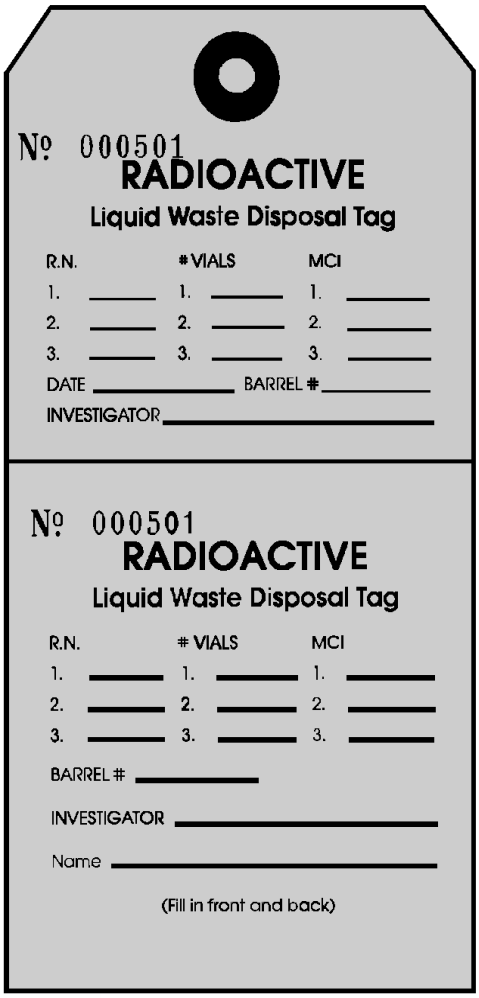
Return a copy of this completed form to Radiation Safety at the end of each month whether material is disposed or not.

SOLID WASTE TAG



LIQUID WASTE TAG





RADIOACTIVE MATERIAL TRANSFER RECORD

MEDICAL UNIVERSITY OF SOUTH CAROLINA

****

FROM: _____
INVESTIGATOR DEPARTMENT EXTENSION

TO: _____
INVESTIGATOR DEPARTMENT EXTENSION

RADIONUCLIDE: _____ QUANTITY (kBq, mBq): _____

COMPOUND: _____ LOT #: _____ SUPPLIER: _____

REQUISITION #: _____ DATE RECEIVED IN LAB: _____

PURCHASE ORDER #: _____ (if blanket order include release #)
INVENTORY DISPOSAL FORM #: _____ (see bottom of pink form)

TO BE USED FOR: _____

_____ _____
SIGNATURE OF LICENSED INVESTIGATOR MAKING TRANSFER DATE OF TRANSFER

****

RADIONUCLIDE: _____ QUANTITY (kBq, mBq): _____

_____ _____
SIGNATURE OF LICENSED INVESTIGATOR RECEIVING MATERIAL DATE RECEIVED

********** PROCEDURE **********

1. The original copy of this record must be forwarded to Radiation Safety immediately after the transfer is made.

2. Both investigators must retain a copy in their files.

3. The Radioactive Material Inventory/Disposal Form must be transferred with this material. For partial transfers, a copy of the Inventory/Disposal Form should be given to the receiving investigator. A copy of this transfer form must be submitted to Radiation Safety with the completed Inventory/Disposal form.

4. TRANSFERS TO OR FROM OTHER INSTITUTIONS MUST BE PERFORMED BY
THE RADIATION SAFETY OFFICE OF MUSC.

5. Contact Radiation Safety at 792-4255 for questions regarding this form.

INCIDENT RADIOACTIVE CONTAMINATION REPORT

MEDICAL UNIVERSITY OF SOUTH CAROLINA

This form is to be completed and sent to Radiation Safety by personnel involved in any accidental radioactive contamination incident.

1. Location of incident: _____ Room #: _____

2. Date and time of incident:_____

3. Notification of incident to RSO:

   a. Date and Time: _____
   b. Person Notified: _____

4. Type of contamination (include form, nuclide, quantity, source manufacturer, etc.):_____

   _____

5. **Detector used:** _____ Serial #: _____

   a. Normal detector background reading: _____ cpm _____mR/hr
   b. Maximum detector reading found: _____ cpm _____mR/hr

6. **Personnel involved**:_____

   _____

7. **Description of incident:** _____

   _____

8. **Submitted by:**

   _____ _____
   Type or Print Name Signature

   _____ _____ _____
   Investigator License # Extension Date

DISPOSITION BY RADIATION SAFETY:

_____

_____

_____
(Signature of RSO Personnel & Date)

MUSC RADIATION SAFETY (WIPE TEST) LOG

DATE: _____

LABORATORY: _____ INVESTIGATOR:_____Lic. #: _____

AREA WIPE TESTED (see drawing)	ACTIVITY		AREA WIPE TESTED (see drawing)	ACTIVITY	
	dpm	Bq		dpm	Bq

INSTRUMENT USED: _____ SN#:_____BACKGROUND:_____
COUNTING
EFFICIENCY : _____ STANDARD USED: _____ ACTIVITY: _____

SURVEYED BY: _____ APPROVED BY: _____
(Radiation Safety)

****

MUSC RADIATION SAFETY (WIPE TEST) LOG

DATE: _____

LABORATORY: _____ INVESTIGATOR:_____Lic. #: _____

AREA WIPE TESTED (see drawing)	ACTIVITY		AREA WIPE TESTED (see drawing)	ACTIVITY	
	dpm	Bq		dpm	Bq

INSTRUMENT USED: _____ SN#:_____BACKGROUND:_____
COUNTING
EFFICIENCY : _____ STANDARD USED: _____ ACTIVITY: _____

SURVEYED BY: _____ APPROVED BY: _____
(Radiation Safety)

Weekly Survey of Decaying Radioactive Material

Investigator: _____

Location: _____

Date	Survey Meter Type/ SN	Reading (mR/hr)	Surveyor's Initials

****

Weekly Survey of Decaying Radioactive Material

Investigator: _____

Location: _____

Date	Survey Meter Type/ SN	Reading (mR/hr)	Surveyor's Initials

STORAGE FORM FOR DECAY OF RADIONUCLIDES

INVESTIGATOR: _____ EXT: _____

TYPE OF MATERIAL: _____ LOCATION OF STORAGE:_____

(include Date of Storage (STORE DATE), Radionuclide (RN), Activity of Radionuclide (ACT. RN), Half-Life of Radionuclide (H-L), Survey Reading and Serial Number of Instrument used on date of storage (SUR. READ & SN), Signature on date of storage (SIG). Also include Bag Number (BAG #), Date of Disposal (DATE OF DISP), Survey Reading and Serial Number of instrument used on date of disposal (SUR. READ & SN), and Signature (SIG).)

FORWARD A COPY OF THIS INFORMATION TO RADIATION SAFETY ON A QUARTERLY BASIS!

STORE DATE	RN	ACTIVITY RN	HALF-LIFE	SURVEY READ. & SN	SIGNATURE	BAG #	DATE DISPOSAL	SURVEY READ.& SN	SIGNATURE

RADIOACTIVE ANIMAL

CERTIFICATE

1. Principal Investigator:_____

2. Animal Species:_____

3. Date of Radioactive Administration:_____

4. Radionuclide: _____ Half-Life _____ days

5. Time held for radioactive decay:_____

6. Survey reading: _____ mR/hr at surface

7. Survey Date:_____

8. Signature of Principal Investigator:_____
   Date: _____

****

INSTRUCTIONS FOR HANDLING ANIMALS CONTAINING RADIOACTIVE MATERIAL

1. Animals containing radioactive material shall be tended by the principal investigator (licensed user) or his/her technician. Comparative Medicine personnel will not care for these animals.

2. All cages or housing for these animals will be clearly labeled or tagged with the standard radiation warning symbol and also a tag indicating type or radionuclide, quantity, and date of administration.

3. If either live animals or carcasses are being held for radioactive decay, they shall remain in the possession of the principal investigator for ten (10) half-lives of the longest lived radionuclide administered. The animals will be surveyed with an appropriate radiation detection instrument and the readings recorded in mR/hr.

4. Any animal which has been administered a radionuclide will have a certificate attached to it before it can be presented for disposal or returned to the general animal facilities.

5. A copy of this certificate will be retained by the principal investigator, and a copy sent to Radiation Safety.

MEDICAL UNIVERSITY OF SOUTH CAROLINA

CERTIFICATION OF TRAINING
FOR PERSONNEL WORKING WITH RADIOACTIVE MATERIALS

Employee:_____ Department: _____ Ext:_____
(Please Print)

I. I have viewed the three Radiation Safety Series videotapes located in the Learning Resources Center of the Library. [ ] yes [ ] no

II. I have received instruction on and have read the contents of the Medical University of South Carolina Radiation Safety Manual, specifically Chapters I and V, and understand the rules and regulations which pertain to the work I am performing. [ ] yes [ ] no

III. I have received instruction on the specific nature of the radioactive materials which I am handling and the hazards associated with this type of work. [ ]yes [ ]no

IV. I have received instruction on methods to minimize the hazards associated with the type of work I am performing and a course of action to follow in case of an emergency while working with radioactive materials.[ ] yes [ ] no

V. I am aware of my legal rights regarding radiological working conditions as stated in Title A, Part VI, South Carolina Department of Health and Environmental Control Regulations 61-63. [ ] yes [ ] no

If you have been certified before, please indicate the status of your employment.

____ new employee ____ transferring to another department

____ update of information ____ assigned new PI

_____ _____
SIGNATURE OF EMPLOYEE DATE

_____ _____
POSITION SOCIAL SECURITY NUMBER

_____ _____ _____
SIGNATURE OF LICENSED INVESTIGATOR LICENSE # DATE

EMERGENCY RADIOLOGICAL ASSISTANCE
FOR SOUTH CAROLINA

For assistance with incidents involving RADIOACTIVE MATERIAL in South Carolina, such as transportation incidents, lost or stolen radioactive materials, spills, contamination, etc.:

NORMAL WORK HOURS
From (8:30 am - 5:00 pm) call the
Bureau of Radiological Health

(803) 545-4400

AFTER HOURS - WEEKENDS - HOLIDAYS

You may contact the **EMERGENCY RADIOLOGICAL ASSISTANCE TEAM DUTY OFFICER** using the following numbers:

CELL NUMBER:

(803) 667-1229

The S. C. Department of Health and Environmental Control also maintains a 24 hour Emergency Number:

(803) 253-6488

Fixed nuclear facilities should contact the state warning point specified in your emergency plan for exercises, incidents, and emergencies.

D H E C

PROMOTE PROTECT PROSPER

South Carolina Department of Health and Environmental Control

(02/07)